Michigan Carpenters' Pension Plan Lansing, Michigan

Actuarial Valuation Report
For Plan Year Commencing
September 1, 2018

United Actuarial Services, Inc.
Actuaries and Consultants

December 26, 2018

Board of Trustees
Michigan Carpenters' Pension Plan
Lansing, Michigan

Dear Trustees:

We have been retained by the Board of Trustees of the Michigan Carpenters' Pension Plan to perform annual actuarial valuations of the pension plan. This report presents the results of our actuarial valuation for the plan year beginning September 1, 2018. The valuation results contained herein are based on current plan provisions summarized in Appendix A, the actuarial assumptions and methods listed in Appendix B and on financial statements audited by Benda, Grace, Stulz & Company, P.C. Participant data was provided by TIC International Corporation. While we have reviewed the data for reasonableness in accordance with Actuarial Standards of Practice No. 23, we have not audited it. The data was relied on as being both accurate and comprehensive.

This report has been prepared in order to (1) assist the Trustees in evaluating the current actuarial position of the plan, (2) determine the minimum required and maximum deductible contribution amounts under Internal Revenue Code §431 and §404, (3) provide the fund's auditor with information necessary to comply with Accounting Standards Codification 960, and (4) document the plan's certified status under Internal Revenue Code §432 for the current year and provide the basis to certify such status for the subsequent year. In addition, information contained in this report will be used to prepare Schedule MB of Form 5500 that is filed annually with the IRS and could be used to calculate employer withdrawal liability. We are not responsible for the use of, or reliance upon, this report for any other purpose.

We have prepared this report in accordance with generally accepted actuarial principles and practices and have performed such tests as we considered necessary to assure the accuracy of the results. The results have been determined on the basis of actuarial assumptions that, in my opinion, are appropriate for the purposes of this report, are individually reasonable and in combination represent my best estimate of anticipated experience under the plan. Actuarial assumptions may be changed from previous valuations due to changes in mandated requirements, plan experience resulting in changes in expectations about the future, and/or other factors. An assumption change does not indicate that prior assumptions were unreasonable when made. For purposes of current liability calculations, assumptions are prescribed by regulation or statute. By relying on this valuation report, the Trustees confirm they have accepted the assumptions contained in the report.

The results are based on my best interpretation of existing laws and regulations and are subject to revision based on future regulatory or other guidance.

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

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amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law.

United Actuarial Services, Inc. does not provide, nor charge for, investment, tax or legal advice. None of the comments made herein should be construed as constituting such advice. We are not aware of any direct or material indirect financial interest or relationship that could create a conflict of interest that would impair the objectivity of our work.

The undersigned actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

We are available to respond to any questions you may have about this report.

UNITED ACTUARIAL SERVICES, INC.

Enrolled Actuary

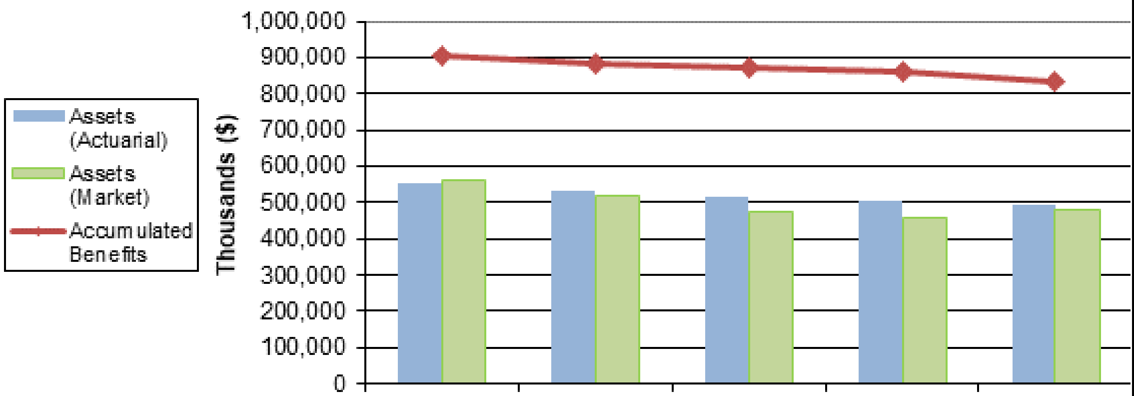
Andrew T. Smith

Andrew T. Smith, FCA, ASA, EA
President

PART I: SUMMARY OF RESULTS

5 - YEAR SUMMARY OF VALUATION RESULTS

Actuarial Study as of September 1,	*2018*	*2017*	*2016*	*2015*	*2014*
PPA funded status	Endngrd	Endngrd	Critical	Critical	Critical
Progress under FIP/RP	n/a	n/a	Yes	Yes	Yes
Improvements restricted*	Yes	Yes	Yes	Yes	Yes
Funded ratio					
PPA certification	61.6%	59.7%	58.7%	59.4%	59.1%
Valuation report (AVA)	61.0%	60.3%	59.1%	58.8%	59.1%
Valuation report (MVA)	62.0%	58.9%	54.2%	53.2%	57.6%
Credit Balance ($ 000)	114,981	101,804	93,081	85,459	81,838
Date of first projected funding deficiency**					
PPA certification	None	None	8/31/24	8/31/25	8/31/24
Valuation report	None	None	None	None	None
Net investment return					
On market value	9.59%	12.07%	5.66%	-1.71%	16.27%
On actuarial value	5.56%	5.13%	3.97%	5.58%	6.78%
Asset values ($ 000)					
Market	561,825	519,216	472,851	457,785	481,733
Actuarial	553,525	531,018	514,965	505,654	494,366
Accum. ben. ($ 000)	906,720	880,914	871,847	859,958	836,722

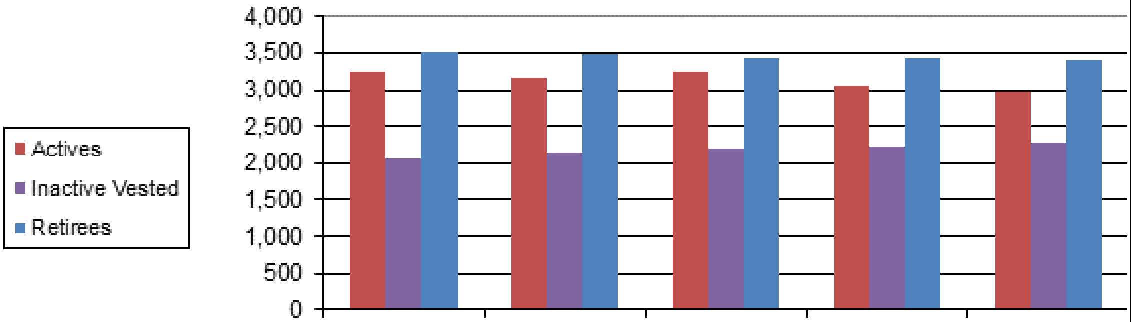


* Benefit improvement restrictions due to fund being in endangered status, as well as due to having an amortization extension. Restrictions in place until 9/1/2042 when bases with amoritization extension have been fully amortized or until plan is in safe zone, whichever is later.

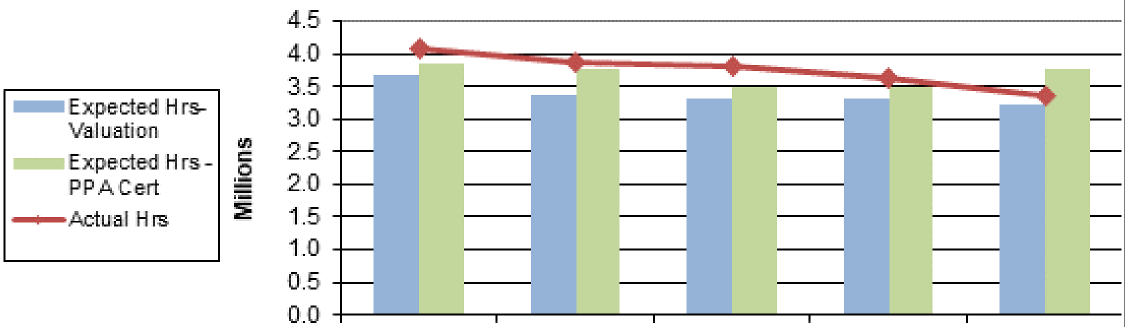
** With amortization extension.

5 - YEAR SUMMARY OF DEMOGRAPHICS

Actuarial Study as of September 1,	*2018*	*2017*	*2016*	*2015*	*2014*
Participant counts					
Active	3,245	3,170	3,237	3,047	2,969
Inactive vested	2,071	2,152	2,198	2,221	2,263
Receiving benefits	3,514	3,483	3,427	3,429	3,405
Total	8,830	8,805	8,862	8,697	8,637
Average entry age	30.4	30.5	30.7	30.0	30.0
Average attained age	41.8	42.3	42.5	42.5	42.7



Hours worked in prior plan year (thousands)					
Expected hours valuation	3,665	3,383	3,313	3,304	3,218
Expected hours PPA cert	3,856	3,750	3,500	3,500	3,750
Actual hours worked	4,084	3,856	3,809	3,622	3,364



CHANGES FROM PRIOR STUDY

Changes in Plan Provisions

The plan provisions underlying this valuation are the same as those valued last year.

Changes in Actuarial Assumptions and Methods

The actuarial assumptions and methods used in this valuation differ from those used in the prior valuation in the following respects:

- The assumed operational expenses were increased from $1,250,000 to $1,350,000 to reflect our best estimate of future expenses based on recent plan experience.
- The mortality projection scale was updated from MP-2017 to MP-2018 and the mortality rate multiplier was changed from 120% to 115%. These changes were made in order to reflect the latest mortality improvement data available and to better match the standard tables to specific plan experience.
- The assumed disability rates were reduced from 60% of the 1964 OASDI male table to 40% of the same table. This change was made in order represent our best estimate of future disablement patterns based on emerging plan experience.
- The current liability interest rate was changed from 3.03% to 3.01%. The new rate is within established statutory guidelines.

HISTORY OF MAJOR ASSUMPTIONS

Assumption	Actuarial Study as of September 1, 2018	2017	2016	2015	2014
Future rate of net investment return	7.50%	7.50%	7.50%	7.50%	7.50%
Mortality table	RP-2014	RP-2014	RP-2014	RP-2014	RP-2000
Adjustment	115%	120%	115%	3 yr sf	2 yr sf
Projection scale	MP-2018	MP-2017	MP-2016	MP-2014	AA
Future expenses	$1,350,000	$1,250,000	$1,250,000	$1,300,000	$1,200,000
Average future hourly contribution rate*					
Credited	$9.94	$9.92	$9.58	$8.93	$8.65
Non-credited	3.45	3.49	3.30	3.21	2.95
Total	$13.39	$13.41	$12.88	$12.14	$11.60
Average future annual hours					
Vested	1,600	1,600	1,450	1,450	1,450
Non-vested	700	700	600	600	600

* Actual average derived from application of assumptions specified in Appendix B.

EXPERIENCE VS. ASSUMPTIONS

Comparing the prior year's experience to assumptions provides indications as to why overall results may differ from those expected

Actuarial assumptions are used to project certain future events related to the pension plan (e.g. deaths, withdrawals, investment income, expenses, etc.). While actual results for a single plan year will rarely match expected experience, it is intended that the assumptions will provide a reasonable long term estimate of developing experience.

The following table provides a comparison of expected outcomes for the prior plan year with the actual experience observed during the same period. This display may provide insight as to why the plan's overall actuarial position may be different from expected.

Plan Year Ending August 31, 2018	*Expected*	*Actual*
Decrements		
Terminations		706
less*: Rehires*		127
Terminations (net of rehires)	536.3	579
Retirements	56.0	60
Disabilities	9.5	5
Deaths - pre-retirement	25.5	95
Deaths - post-retirement	160.8	180
Monthly benefits of deceased retirees	$ 165,626	$ 157,453
Financial assumptions		
Rate of net investment return on actuarial value	7.50%	5.56%
Administrative expenses	$ 1,250,000	$ 1,351,869
Other demographic assumptions		
Average retirement age from active (new retirees)	62.4	60.5
*Average retirement age from inactive (new retirees)**	62.5	64.0
Average entry age (new entrants)	30.5	33.6
Hours worked per vested active	1,600	1,677
Hours worked per non-vested active	700	823
Total hours worked (valuation assumption)	3,665,200	4,084,070
Total hours worked (PPA certification assumption)	3,855,926	4,084,070
Unfunded liability (gain)/loss		
(Gain)/loss due to asset experience		$ 10,218,229
(Gain)/loss due to liability experience		4,201,782
Total (gain)/loss		$ 14,420,011

* Expected average based on the average for the total group of participants.

PLAN MATURITY

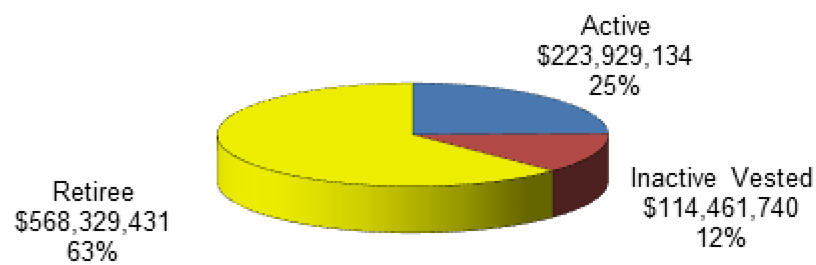
Measures of plan maturity can play a part in understanding risk and a plan's ability to recover from adverse experience

When a new pension plan is first established, its liabilities are typically limited to active plan participants. However, as people become vested and retire, a plan begins to develop liabilities attributable to nonactive participants (retirees and inactive vested participants). The process of adding nonactive liabilities (often referred to as "maturing") is a natural outgrowth of the operation of the plan. As a plan matures, its liabilities tend to balloon in relation to its contribution base, making it more difficult to correct for adverse outcomes by increasing contribution rates or reducing future benefit accruals.

Headcount ratios show the number of retiree or inactive participants supported by each active participant. While there is no hard and fast rule, we generally consider a plan to be mature if each active is supporting more than 1 retiree or more than 2 nonactives. A negative net cash flow (benefits payments and expenses greater than contributions) can also be an indicator of a mature plan. A negative cash flow, when expressed as a percentage of assets, in excess of the assumed rate of return on fund assets is not sustainable in the long term.

Actuarial Study as of September 1,	*2018*	*2017*	*2016*	*2015*	*2014*
Retiree/active headcount ratio	1.08	1.10	1.06	1.13	1.15
Nonactive/active headcount ratio	1.72	1.78	1.74	1.85	1.91
Cash flow					
Contr.-ben.-exp. ($000)	(6,885)	(10,365)	(10,700)	(16,120)	(19,695)
Percent of assets	-1.23%	-2.00%	-2.26%	-3.52%	-4.09%

Liabilities of Actives, Retirees, and Inactive Vesteds
Total Liabilities: $906,720,305



UNFUNDED VESTED BENEFITS/EMPLOYER WITHDRAWAL LIABILITY

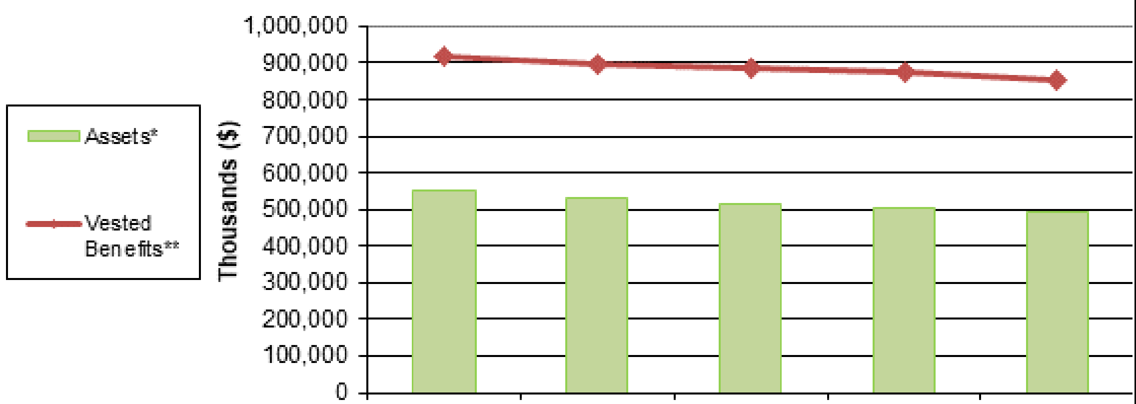
An employer withdrawing during the coming year may have withdrawal liability

The following table shows a history of the plan's unfunded vested benefits (UVB) required to compute a specific employer withdrawal liability under the presumptive method. If all unfunded vested benefits since the inception of the Multiemployer Pension Plan Amendments Act of 1980 (MPPAA) are zero ($0) or less, there will be no withdrawal liability assessed to a withdrawing employer. Otherwise, an employer may be assessed withdrawal liability payments pursuant to MPPAA. The display does not reflect adjustments for prior employer withdrawals.

In accordance with IRC Section 432(e)(9)(A) and PBGC Technical Update 10-3, the impact of reducing adjustable benefits is reflected by adding the unamortized portion of the value of affected benefits (VAB) to the most recent year's unfunded vested benefits pool. An employer who is assessed withdrawal liability will be assessed a portion of the UVB and the VAB.

Presumptive Method ($ 000)

August 31,	*2018*	*2017*	*2016*	*2015*	*2014*
Vested benefits interest	7.50%	7.50%	7.50%	7.50%	7.50%
Vested benefits	896,476	871,438	861,909	847,899	825,932
less: Asset value*	553,525	531,018	514,965	505,654	494,366
UVB	342,951	340,420	346,944	342,245	331,566
Unamortized VAB	21,587	23,963	26,173	28,229	30,141
UVB + VAB	364,538	364,383	373,117	370,474	361,707



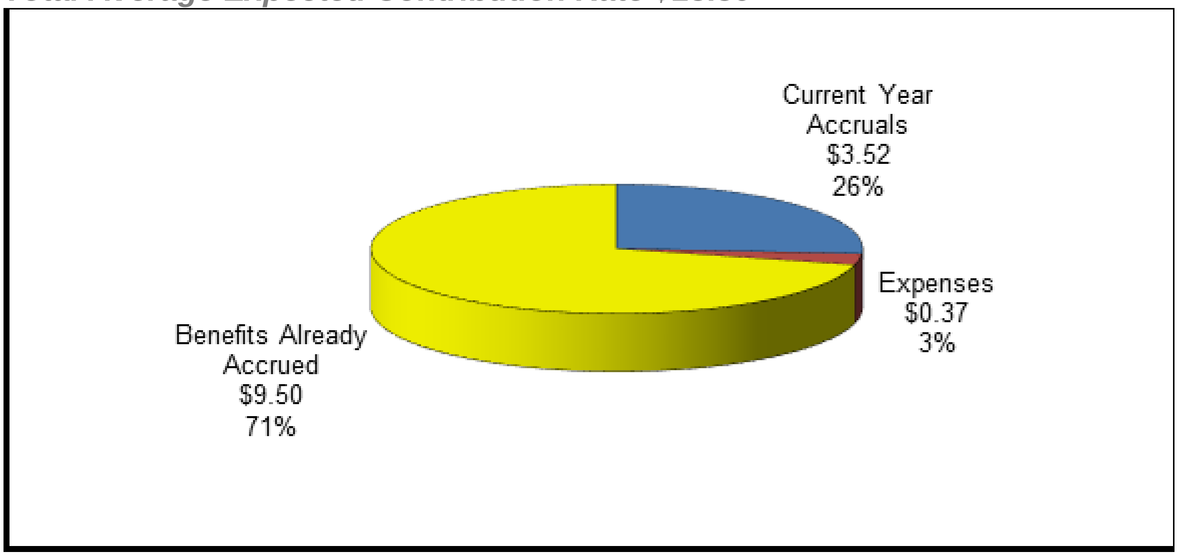
* Actuarial Value
** Includes VAB

CONTRIBUTION ALLOCATION

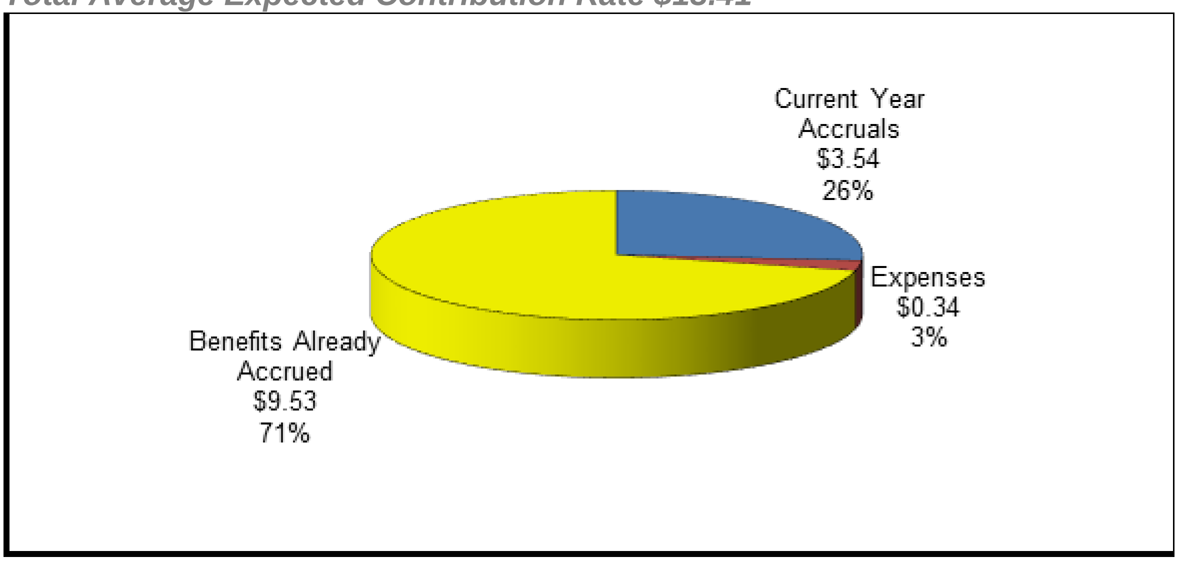
These graphs show how the contributions are being spent

The following allocation charts illustrate how the expected contribution rate for the coming plan year will be "spent" to pay for benefits being earned in the current year, plan expenses, and funding of past unfunded liabilities.

Contribution Allocation as of September 1, 2018
Total Average Expected Contribution Rate $13.39



Contribution Allocation as of September 1, 2017
Total Average Expected Contribution Rate $13.41



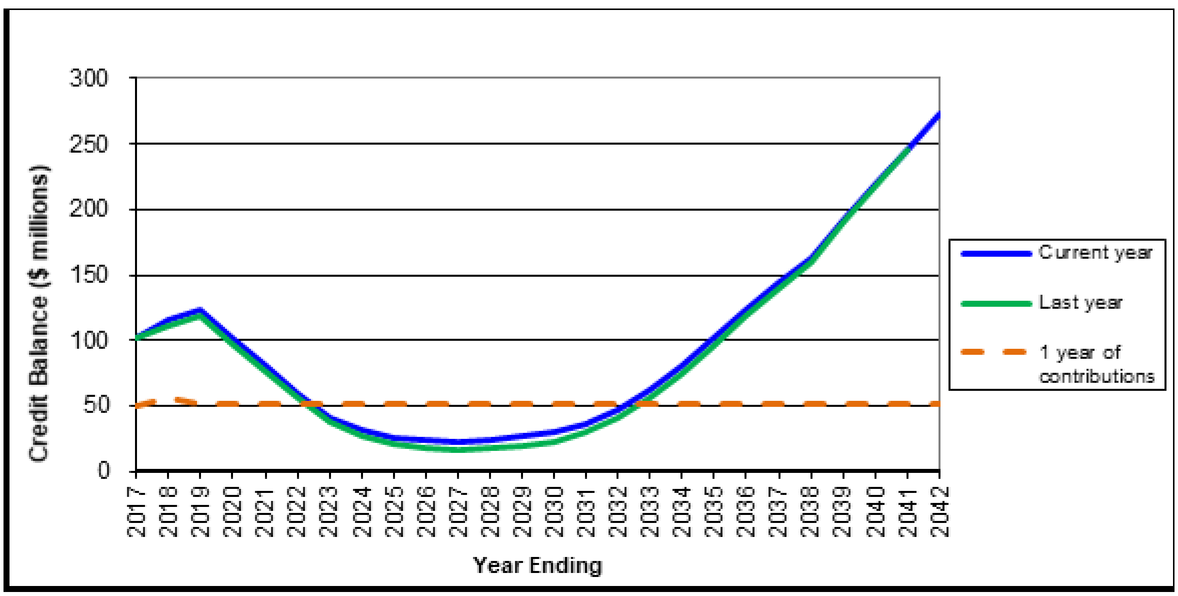
FUNDING STANDARD ACCOUNT PROJECTION

The funding standard account projection is a major driver of PPA status

The funding standard account (FSA) was established by ERISA as a means of determining compliance with minimum funding standards. The FSA is hypothetical in the sense that it does not represent actual assets held by a custodian. Rather, a positive FSA balance (called a "credit balance") means that the plan has exceeded minimum funding standards on a cumulative basis, while a negative balance (called a "funding deficiency") means that the plan has fallen short of such standards.

Actuaries must project the plan's credit balance each year in order to determine PPA status. If the credit balance is projected to be negative in a future year, the plan could be forced into yellow (endangered) or red (critical) status depending how far into the future the projected funding deficiency is. The plan's credit balance projection appears below. These projections are based on the assumptions summarized in the "Actuarial Assumptions used for Projections" section of Appendix B.

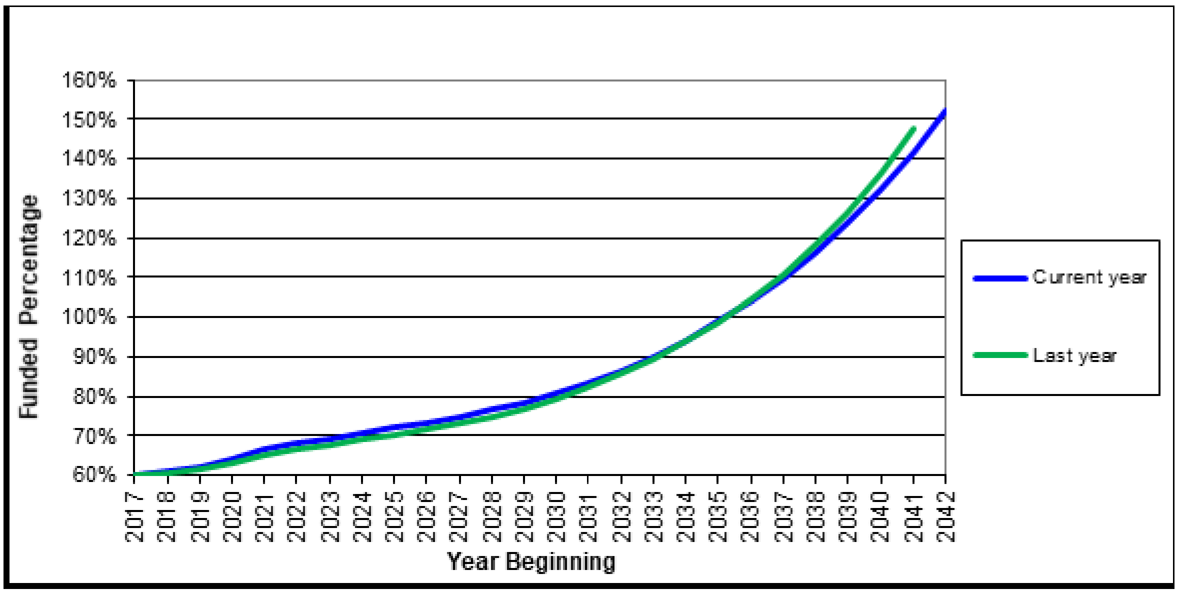
As a rule of thumb, UAS recommends that non-Critical status plans maintain a projected credit balance of at least one year's contributions (shown as an orange dotted line in the graph below) in each future year. Maintaining a "cushion" in the Funding Standard Account helps minimize the risk of a surprise funding deficiency at the end of a non-Critical status plan year. Such a deficiency could trigger an excise tax payable directly by employers. If the Plan is in Critical status at the start of plan year, it is protected from these excise taxes so long as scheduled progress has been satisfied in at least one of the past three plan years.



FUNDED RATIO PROJECTION

The plan's funded ratio is a major driver of PPA status

The funded ratio is defined as the actuarial value of plan assets divided by the plan's liabilities for accrued benefits. Along with the funding standard account projection, funded ratio is one of the two major drivers of PPA funded status. In order for a plan to enter the green zone (also called "safe" or "not endangered or critical") the funded ratio must be at least 80%. The projection of the funded ratio appears below. These projections are based on the assumptions summarized in the "Actuarial Assumptions used for Projections" section of Appendix B.



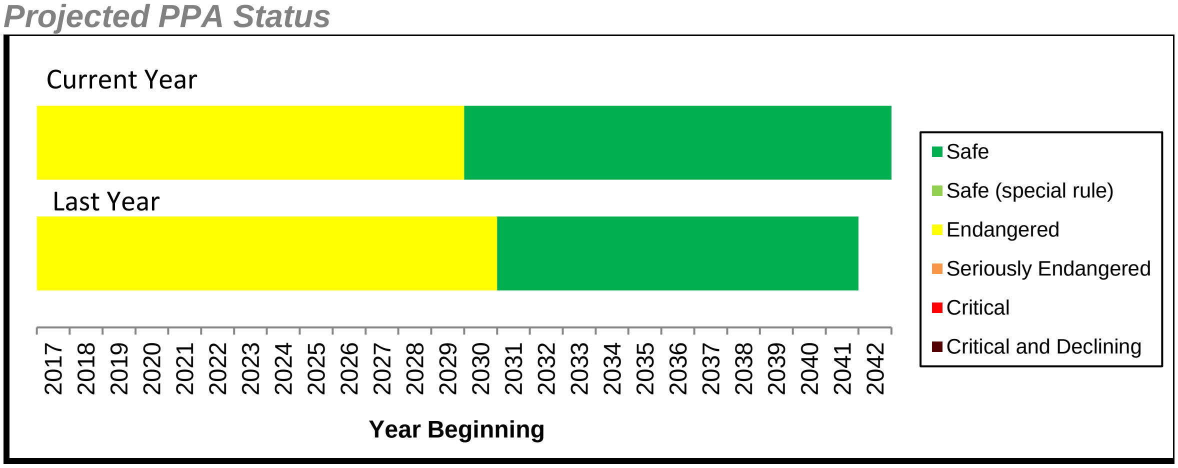
PPA FUNDING STATUS REPORT

The plan is in Endangered status for 2018

The Pension Protection Act of 2006 (PPA), as amended by the Multiemployer Pension Reform Act of 2014 ("MPRA"), requires all multiemployer pension plans to obtain an annual status certification. The possible statuses are: "Safe", "Endangered", "Seriously Endangered", "Critical" or "Critical and Declining". As the plan's actuary, we must complete the status certification within 90 days of the beginning of the plan year, and we must also certify whether or not the plan has made scheduled progress if its funding improvement or rehabilitation period has begun. The criteria for these determinations are outlined in Appendix D. Due to the timing requirement affecting PPA certifications, they are performed based on data and assumptions different from that used in this report (see certification letter for additional details). These projections are based on the assumptions summarized in the "Actuarial Assumptions used for Projections" section of Appendix B. The results are summarized below.

Description	Values Used for PPA Certification	
	2018	2017
Funded ratio	61.6%	59.7%
Date of first projected funding deficiency		
With extensions	None	None
Without extensions	Existing	Existing
Year of projected insolvency (PYB)	None	None
Certified PPA status	Endangered	Endangered
Making progress under FIP/RP	n/a	n/a

Projected PPA Status

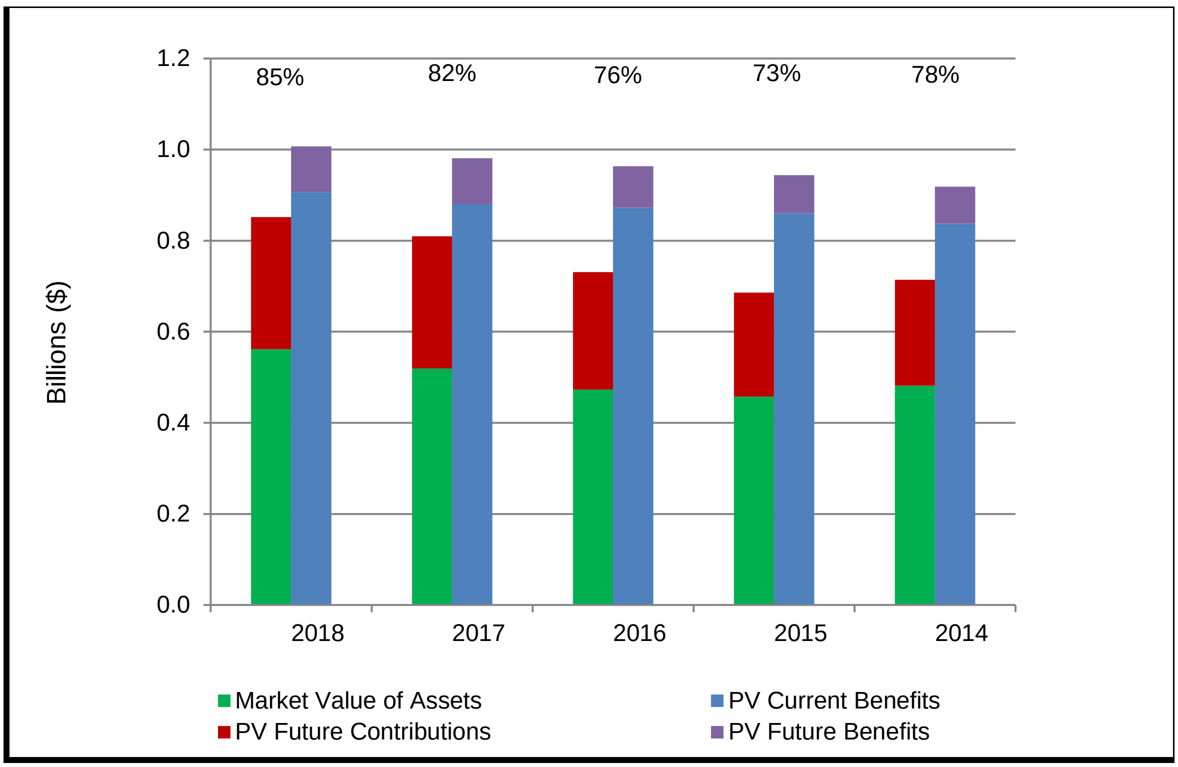


ULTIMATE FUNDED STATUS

Ultimate funded status is a snapshot measure of contribution sufficiency

An actuarial valuation deals primarily with the ability of the plan to meet Internal Revenue Code requirements now and in the near future. As such, it is heavily focused on current plan assets and liabilities. But it is also important to keep in mind the true purpose of the plan funding—that is, to accumulate sufficient assets to pay the benefits that the plan has promised to its participants. The chart below looks at this long-term funding adequacy. To the current plan assets we add the present value of all future contributions expected to be made for the current plan participants. To the value of the plan's liabilities for benefits that have been previously earned we add the present value of all the future benefits the current plan participants are expected to earn through their future service. Ideally these ultimate asset and liability values will be approximately equal.

Neither of these amounts reflect the effect of future new participants or future contribution rate increases to the plan. Generally new entrants generate greater future contributions than benefits, so they represent a net positive to the actual future funding shown here.



STRESS AND SENSITIVITY ANALYSIS

The table below illustrates the impact on the plan when experience varies from key assumptions

Currently, in order to avoid critical status and maintain a valid funding improvement plan, we project the plan requires no contribution rate increases. Considering that experience rarely matches our assumptions exactly, we developed the table below to demonstrate the impact that variations in certain key assumptions would have on the contribution rate increase schedule. We examined future hours assumptions equal to the baseline, 10% lower, and 10% higher. We examined asset returns for the 2018-19 plan year of 10.00%, 7.50%, 4.00%, and 0.00%. Stochastic modeling is also available for a more detailed analysis of sensitivity to asset returns.

Non-credited Hourly Contribution Rate Increase Needed on September 1, 2019 to Avoid Red Zone and Maintain a Valid Funding Improvement Plan

	Return for the 2018-19 PY (6.50% for the next 9 years, 7.50% thereafter)			
Hours Assumption	***10.00%***	***6.50%***	***4.00%***	***0.00%***
10% Lower 3,465,000 in all future years	30¢	80¢	$1.17	$1.76
Baseline 3,850,000 in all future years	None	**None**	None	41¢
10% Higher 4,235,000 in all future years	None	None	None	None

Note that the preceding table shows solutions using one-time, non-credited contribution rate increases only. In reality, funding could also be accomplished using credited increases, or a combination of credited and non-credited increases, and increases could be spread over multiple years. Benefit reductions can also be used to improve plan funding.

PART II: SUPPLEMENTAL STATISTICS

PARTICIPANT DATA RECONCILIATION

The participant data reconciliation table below provides information as to how the plan's covered population changed since the prior actuarial study. Such factors as the number of participants retiring, withdrawing and returning to work have an impact on the actuarial position of the pension fund.

Participants Valued As	Active	Inactive Vested	Receiving Benefits	Total Valued
September 1, 2017	3,170	2,152	3,483	8,805
Change due to:				
New hire	725	-	-	725
Rehire	127	(44)	-	83
Termination	(706)	97	-	(609)
Disablement	(5)	(4)	9	-
Retirement	(60)	(65)	125	-
Death	(6)	(89)	(180)	(275)
Cash out	-	(2)	-	(2)
New beneficiary	-	31	79	110
Certain pd. expired	-	-	(4)	(4)
Data adjustment	-	(5)*	2**	(3)
Net change	75	(81)	31	25
September 1, 2018	3,245	2,071	3,514	8,830

* Comprised of 7 participants who are age 71 or over and now assumed to be deceased, 2 participants who were previously thought to be vested but are actually nonvested, 3 participants who were previously thought to be nonvested but are actually vested, and one participant who recovered from disability and is still eligible for a vested retirement benefit.

** Comprised of 1 retiree previously thought to have transferred out, 1 retiree previously thought to be not eligible for a benefit, 1 new retiree who was not reported in prior years' data, less 1 participant who recovered from disability.

HOURS WORKED DURING PLAN YEAR

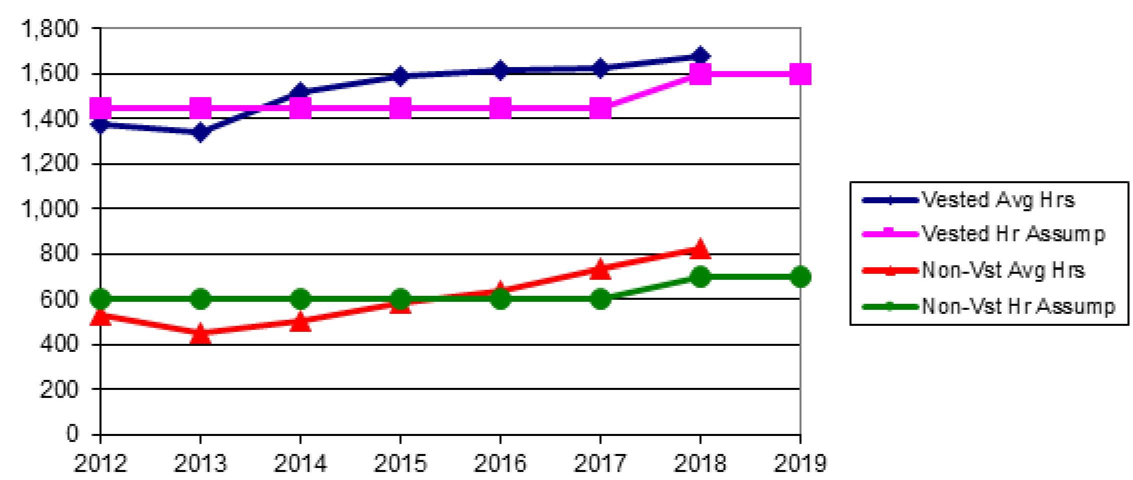
Hours Worked Per Participant

Plan Year Ending August 31, 2018	*Number*	*Hours Worked*	*Average Hours Worked*
Actives			
Vested	1,591	2,668,857	1,677
Non-vested, continuing	929	1,053,423	1,134
Non-vested, new entrant	725	307,999	425
Total active	3,245	4,030,279	1,242
Others	113	53,791	476
Total for plan year	3,358	4,084,070	1,216

History of Total Actual and Expected Hours Worked (Thousands)

Plan Year Ending August 31,	*2019*	*2018*	*2017*	*2016*	*2015*
Expected hours valuation	3,673	3,665	3,383	3,313	3,304
Expected hours PPA cert	3,850	3,856	3,750	3,500	3,500
Actual hours worked	n/a	4,084	3,856	3,809	3,622

History of Average Actual and Expected Hours Worked per Participant



CONTRIBUTIONS MADE DURING PLAN YEAR

Employer Credited Contributions Reported in Employee Data

Plan Year Ending August 31, 2018	Number		Credited Contributions Reported
Actives			
Vested	1,591	$	26,946,616
Non-vested, continuing	929		10,330,806
Non-vested, new entrant	725		2,950,406
Total valued as active	3,245		40,227,828
Others	113		529,881
Total for plan year	3,358	$	40,757,709

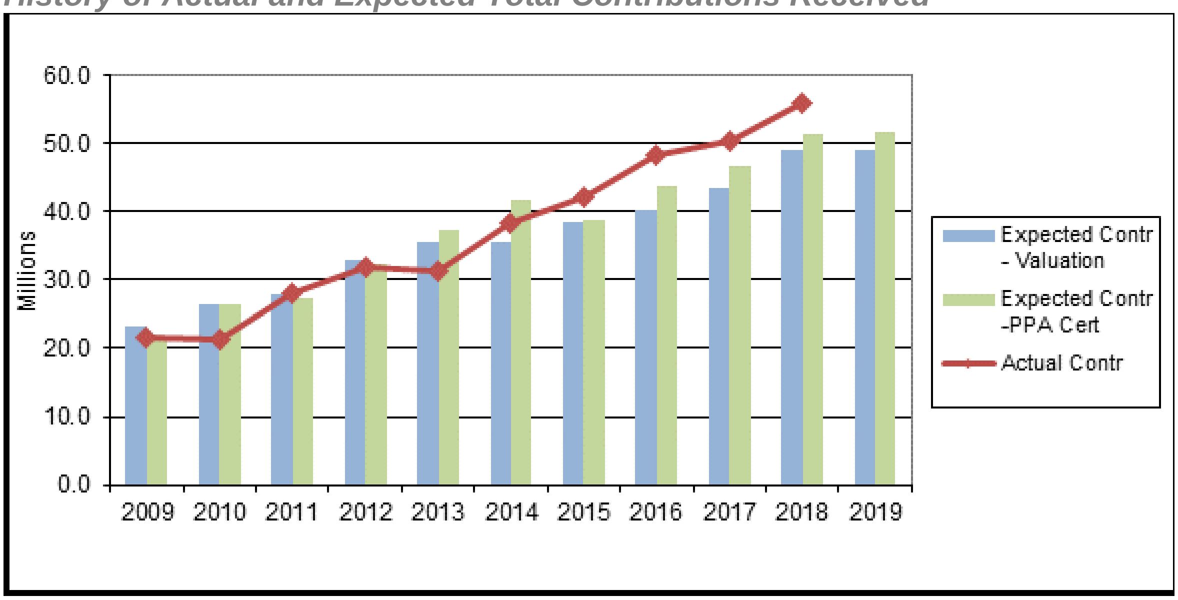
Average credited hourly contribution rate	$	9.98

Comparison with Audited Employer Contributions

Employer credited contributions reported in data	$	40,757,709
Adjusted total employer contributions reported*	$	54,861,926
Total audited employer contributions	$	55,933,069
Percent reported		98%

* Adjusted to include reported non-credited contributions

History of Actual and Expected Total Contributions Received



ACTIVE INFORMATION

Active Participants by Age and Service as of September 1, 2018

	Years of Service										
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 25	106	221	8	-	-	-	-	-	-	-	335
25-29	86	170	36	7	-	-	-	-	-	-	299
30-34	81	170	54	31	4	-	-	-	-	-	340
35-39	65	131	70	53	57	16	-	-	-	-	392
40-44	63	105	44	44	68	68	6	-	-	-	398
45-49	53	81	31	39	69	87	28	10	-	-	398
50-54	51	59	25	23	53	99	47	64	2	-	423
55-59	42	40	14	16	56	79	57	83	13	2	402
60-64	13	10	13	11	27	30	23	9	2	1	139
65-69	-	4	1	1	2	3	1	-	-	-	12
70+	2	-	-	-	-	-	-	-	-	-	2
Totals	562	991	296	225	336	382	162	166	17	3	3,140
Unrecorded DOB	98	7	-	-	-	-	-	-	-	-	105
Total Active Lives	660	998	296	225	336	382	162	166	17	3	3,245

INACTIVE VESTED INFORMATION

Inactive Vested Participants by Age as of September 1, 2018

Age Group	Number	Estimated Monthly Deferred Vested Benefits*
< 30	3	$ 1,817
30-34	37	18,054
35-39	112	63,768
40-44	195	137,877
45-49	302	243,739
50-54	386	321,354
55-59	516	405,577
60-64	414	275,183
65-69	96	40,027
70+	8	3,313
Totals	2,069	1,510,709
Unrecorded birth date	2	828
Total inactive vested lives	2,071	$ 1,511,537

* Amount payable at assumed retirement age as used in the valuation process.

RETIREE INFORMATION

Benefits Being Paid by Form of Payment as of September 1, 2018

Form of Payment	Number	Monthly Benefits Being Paid: Total	Average	Smallest	Largest
Life only*	1,291	$ 1,956,808	$ 1,516	$ 12	$ 6,517
Joint & survivor	1,411	2,645,082	1,875	32	6,073
Disability	97	39,655	409	60	750
Beneficiaries	715	522,623	731	20	3,861
Totals	3,514	$ 5,164,168	$ 1,470	$ 12	$ 6,517

Retirees by Age and Form of Payment as of September 1, 2018

Age Group	Form of Benefits Being Paid: Life Only*	Joint & Survivor	Disability	Beneficiaries	Total
< 40	-	-	-	1	1
40-44	-	-	1	1	2
45-49	-	-	5	2	7
50-54	-	-	23	8	31
55-59	42	54	39	32	167
60-64	223	239	29	87	578
65-69	371	364	-	89	824
70-74	271	247	-	109	627
75-79	180	214	-	119	513
80-84	119	169	-	115	403
85-89	55	84	-	100	239
90-94	22	33	-	39	94
95+	8	7	-	13	28
Totals	1,291	1,411	97	715	3,514

* Includes retirees receiving life and certain benefits.

RETIREE INFORMATION (CONT.)

Age of Participants Retired During Last 5 Plan Years
(excludes beneficiaries and disability retirements)

Age at Retirement	Plan Year Ending August 31,				
	2018	2017	2016	2015	2014
< 50	-	-	-	-	-
50	-	-	1	-	-
51	-	-	-	-	-
52	-	-	-	-	1
53	-	-	-	-	-
54	-	-	-	-	1
55	-	-	-	1	1
56	-	-	-	-	1
57	-	-	-	-	-
58	22	29	12	10	19
59	9	13	7	7	6
60	11	7	7	3	9
61	13	8	9	5	4
62	18	14	11	16	10
63	6	10	5	3	3
64	1	4	3	2	-
65	32	48	39	38	41
66+	10	10	8	7	7
Totals	122	143	102	92	103

Average retirement age	62.3	62.4	62.9	63.1	62.4

PART III: ASSET INFORMATION

MARKET AND ACTUARIAL FUND VALUES

Asset information extracted from the fund's financial statements audited by Benda, Grace, Stulz & Company, P.C.

Market/Actuarial Value of Fund Investments as of August 31,		*2018*		*2017*		*2016*
Invested assets						
Common stock	$	86,699,077	$	83,152,005	$	75,736,543
Collective trusts (equity)		29,311,528		31,814,435		39,354,744
Limited partnerships		91,639,317		56,852,435		29,645,593
Mutual funds		255,426,094		250,140,759		227,272,226
Hedge funds		72,118,556		67,321,446		70,585,345
Ins. co. (separate acct.)		12,001,762		11,045,305		10,371,975
Collective trusts (real est.)		3,620,995		3,962,072		4,168,723
Corporate bonds/notes		4,002		1,646,846		1,650,511
Government securities		-		2,331,688		2,216,301
Other		6,500,527		6,961,853		8,427,369
		557,321,858		515,228,844		469,429,330
Net receivables*		4,502,693		3,987,107		3,421,594
Market value	$	561,824,551	$	519,215,951	$	472,850,924
Fund assets - Actuarial value						
Market value	$	561,824,551	$	519,215,951	$	472,850,924
less: *Deferred investment gains and (losses)*		8,299,339		(11,802,464)		(42,114,506)
Actuarial value	$	553,525,212	$	531,018,415	$	514,965,430
Actuarial value as a percentage of market value		98.52%		102.27%		108.91%

* Equals receivables, less any liabilities

FLOW OF FUNDS

Asset information extracted from the fund's financial statements audited by Benda, Grace, Stulz & Company, P.C.

Plan Year Ending August 31,	*2018*	*2017*	*2016*
Market value at beginning of plan year	$ 519,215,951	$ 472,850,924	$ 457,784,965
Additions			
Employer contributions	55,933,069	50,392,494	48,373,123
*Net investment income**	49,453,280	56,479,458	25,620,144
Other income	40,375	250,451	145,783
	105,426,724	107,122,403	74,139,050
Deductions			
Benefits paid	61,466,255	59,401,167	57,732,965
*Net expenses**	1,351,869	1,356,209	1,340,126
	62,818,124	60,757,376	59,073,091
Net increase (decrease)	42,608,600	46,365,027	15,065,959
Adjustment	-	-	-
Market value at end of plan year	$ 561,824,551	$ 519,215,951	$ 472,850,924
Cash flow			
Contr.-ben.-exp.	(6,885,055)	(10,364,882)	(10,699,968)
Percent of assets	-1.23%	-2.00%	-2.26%
Estimated net investment return			
On market value	9.59%	12.07%	5.66%
On actuarial value	5.56%	5.13%	3.97%

* Investment expenses have been offset against gross investment income.

INVESTMENT GAIN AND LOSS

Investment Gain or Loss
Plan Year Ending August 31, 2018

Expected market value at end of plan year		
Market value at beginning of plan year	$	519,215,951
Employer contributions and non-investment income		55,973,444
Benefits and expenses paid		(62,818,124)
Expected investment income (at 7.50% rate of return)		38,684,521
		551,055,792
Actual market value at end of plan year		561,824,551
less: Expected market value		551,055,792
Investment gain or (loss)	$	10,768,759

History of Gains and (Losses)

Plan Year Ending August 31,	Investment Gain or (Loss)
2018	$ 10,768,759
2017	21,394,930
2016	(8,317,946)
2015	(43,648,855)
2014	37,079,911
2010	(10,956,767)
2009	(116,927,269)

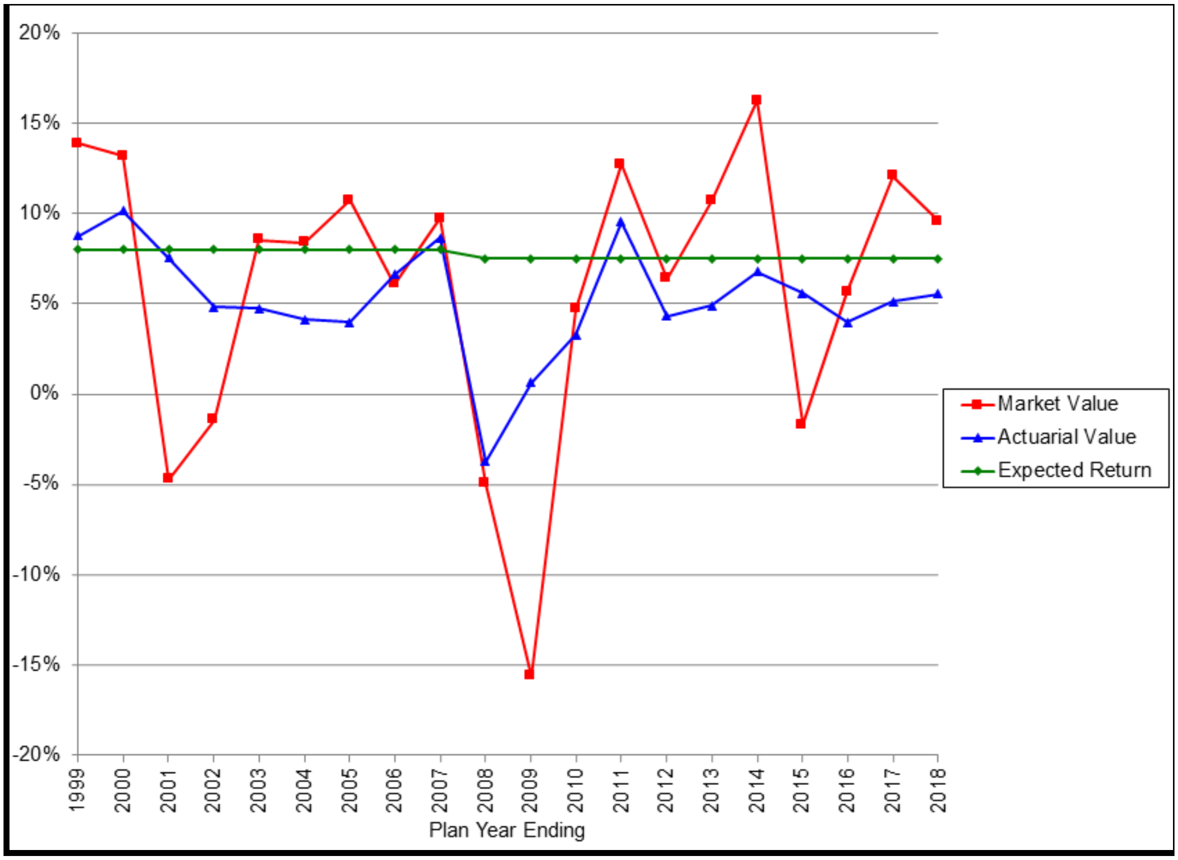
*Deferred Investment Gains and (Losses)**

Plan Year Ending August 31,	Amount of Gain or (Loss) Deferred as of August 31, 2018	2019	2020	2021
2018	$ 8,615,007	$ 6,461,255	$ 4,307,504	$ 2,153,752
2017	12,836,958	8,557,972	4,278,986	-
2016	(3,327,178)	(1,663,589)	-	-
2015	(8,729,771)	-	-	-
2010	(1,095,677)	-	-	-
Totals	$ 8,299,339	$ 13,355,638	$ 8,586,490	$ 2,153,752

* Gains and (Losses) for the plan years ending 2011, 2012, 2013, and 2014 have been fully recognized.

RATE OF RETURN ON FUND ASSETS

Historical Rates of Net Investment Return



Average Rates of Net Investment Return (dollar weighted)

Period	Return on Market Value		Return on Actuarial Value	
	Period Ending August 31,		Period Ending August 31,	
	2018	2017	2018	2017
One year	9.59%	12.07%	5.56%	5.13%
5 years	8.22%	8.50%	5.42%	5.28%
10 years	4.96%	3.30%	4.83%	3.66%
15 years	5.45%	5.54%	4.46%	4.43%
20 years	5.53%	5.47%	5.40%	5.55%

PART IV: ENROLLED ACTUARY'S REPORT

NORMAL COST/ACTUARIAL LIABILITY

Normal Cost as of September 1,		*2018*		*2017*
Active participants	$	12,448,146	$	12,514,971
Anticipated administrative expenses (beg. of year)		1,301,205		1,204,819
Total normal cost	$	13,749,351	$	13,719,790

Unfunded Actuarial Liability as of September 1,		*2018*		*2017*
Actuarial liability				
Participants currently receiving benefits	$	568,329,431	$	549,050,246
Inactive vested participants		114,461,740		113,238,303
Active participants		223,929,134		218,624,965
		906,720,305		880,913,514
less: Fund assets (actuarial value)		553,525,212		531,018,415
Unfunded actuarial liability (not less than 0)	$	353,195,093	$	349,895,099

Actuarial Liability Reconciliation/Projection

Reconciliation of Unfunded Actuarial Liability

Expected unfunded actuarial liability as of August 31, 2018		
Unfunded actuarial liability as of September 1, 2017	$	349,895,099
Normal cost (including expenses)		13,719,790
Actual contributions		(55,933,069)
Interest to end of plan year		25,173,627
		332,855,447
Increase (decrease) due to:		
Experience (gain) or loss		14,420,011
Plan amendment		-
Change in actuarial assumptions		5,919,635
Change in actuarial method		-
Net increase (decrease)		20,339,646
Unfunded actuarial liability as of September 1, 2018	$	353,195,093

Projection of Actuarial Liability to Year End

Actuarial liability as of September 1, 2018	$	906,720,305
Expected increase (decrease) due to:		
Normal cost (excluding expenses)		12,448,146
Benefits paid		(66,659,910)
Interest on above		(1,566,136)
Interest on actuarial liability		68,004,023
Net expected increase (decrease)		12,226,123
Expected actuarial liability as of August 31, 2019	$	918,946,428

FUNDED RATIOS

Present Value of Accumulated Benefits/ Funded Ratios Actuarial Study as of September 1,	*2018*	*2017*
Present value of vested accumulated benefits		
Participants currently receiving benefits	$ 568,329,431	$ 549,050,246
Inactive vested participants	113,548,035	112,230,187
Active participants	214,598,622	210,157,148
Total	896,476,088	871,437,581
Nonvested accumulated benefits	10,244,217	9,475,933
Present value of all accumulated benefits	$ 906,720,305	$ 880,913,514
Market value of assets	$ 561,824,551	$ 519,215,951
Funded ratios (Market value)		
Vested benefits	62.7%	59.6%
All accumulated benefits	62.0%	58.9%
Actuarial value of assets	$ 553,525,212	$ 531,018,415
Funded ratios (Actuarial value used for PPA)		
Vested benefits	61.7%	60.9%
All accumulated benefits	61.0%	60.3%
Interest rate used to value benefits	7.50%	7.50%

FUNDING PERIOD

The funding period is the approximate number of years that would be required to completely fund the unfunded entry age normal actuarial liability if future plan experience occurs according to the assumptions. The funding period is an indicator of the long term financial soundness of the plan. Historically, funds often targeted a maximum funding period of up to 20 years. Today, asset losses are being paid off over a maximum of 15 years and are the primary driver for ERISA minimum funding. An ultimate target of no more than 10 years is recommended. A lower, more conservative funding period target can be chosen. As the funding period drops, the risk of having future funding issues also diminishes.

Funding Period Calculation *Actuarial Study as of September 1,*		*2018*		*2017*
Unfunded actuarial liability				
Actuarial liability	$	988,124,530	$	963,024,993
less: *Fund assets (actuarial value)*		553,525,212		531,018,415
		434,599,318		432,006,578
Funds available to amortize unfunded				
Anticipated contributions (beg. of yr.)		47,391,345		47,370,270
less: *Normal cost (including expenses)*		4,501,616		4,246,559
	$	42,889,729	$	43,123,711
Funding period (years)		17		17

CURRENT LIABILITY

Current Liability as of September 1, 2018

Vested current liability		
Participants currently receiving benefits	$	896,278,409
Inactive vested participants		233,949,187
Active participants		491,854,698
		1,622,082,294
Nonvested current liability		
Inactive vested participants		847,009
Active participants		22,110,384
		22,957,393
Total current liability	$	1,645,039,687

Projection of Current Liability to Year End

Current liability as of September 1, 2018	$	1,645,039,687
Expected increase (decrease) due to:		
Benefits accruing		32,127,892
Benefits paid		(66,659,910)
Interest on above		(36,182)
Interest on current liability		49,515,695
Net expected increase (decrease)		14,947,495
Expected current liability as of August 31, 2019	$	1,659,987,182

FUNDING STANDARD ACCOUNT

Funding Standard Account Plan Year Ending August 31,	*2019 (Projected)*	*2018 (Final)*
Charges		
Prior year funding deficiency	$ -	$ -
Normal cost (including expenses)	13,749,351	13,719,790
Amortization charges (see Appendix C)	67,483,757	66,624,584
Interest on above	6,092,482	6,025,828
Total charges	87,325,590	86,370,202
Credits		
Prior year credit balance	114,981,282	101,803,836
Employer contributions	51,544,943	55,933,069
Amortization credits (see Appendix C)	31,517,951	31,517,954
Interest on above	12,920,378	12,096,625
ERISA full funding credit	-	-
Total credits	210,964,554	201,351,484
Credit balance (credits less charges)	$ 123,638,964	$ 114,981,282

FUNDING STANDARD ACCOUNT WITHOUT AMORTIZATION EXTENSION

The Funding Standard Account on the previous page has been developed using an amortization extension approved by the IRS under §412(e) or §431(d) of the Code. We are required to report the dollar difference between the minimum required contribution with extension and without extension on the Schedule MB.

Funding Standard Account Plan Year Ending August 31,		2019 (Projected)		2018 (Final)
Charges				
Prior year funding deficiency	$	6,156,648	$	13,769,408
Normal cost (including expenses)		13,749,351		13,719,790
Amortization charges (see Appendix C)		54,407,377		63,737,785
Interest on above		5,573,504		6,842,025
Total charges		79,886,880		98,069,008
Credits				
Prior year credit balance		-		-
Employer contributions		51,544,943		55,933,069
Amortization credits (see Appendix C)		31,517,951		31,517,954
Interest on above		4,296,782		4,461,337
ERISA full funding credit		-		-
Total credits		87,359,676		91,912,360
Credit balance (credits less charges)	$	7,472,796	$	(6,156,648)

FULL FUNDING LIMIT

Projection of Assets for Full Funding Limit		*Market Value*		*Actuarial Value*
Asset value as of September 1, 2018	$	561,824,551	$	553,525,212
Expected increase (decrease) due to:				
Investment income		39,586,470		38,964,019
Benefits paid		(66,659,910)		(66,659,910)
Expenses		(1,350,000)		(1,350,000)
Net expected increase (decrease)		(28,423,440)		(29,045,891)
Expected value as of August 31, 2019*	$	533,401,111	$	524,479,321

* Ignoring expected employer contributions (as required by regulation).

Full Funding Limit as of August 31, 2019		*For Minimum Required*		*For Maximum Deductible*
ERISA full funding limit (not less than 0)				
Actuarial liability	$	918,946,428	$	918,946,428
less: *Assets (lesser of market or actuarial)*		524,479,321		524,479,321
plus: *Credit balance (w/interest to year end)*		123,604,878		n/a
		518,071,985		394,467,107
ERISA full funding limit without extension (not less than 0)				
Actuarial liability		918,946,428		n/a
less: *Assets (lesser of market or actuarial)*		524,479,321		n/a
plus: *Credit bal. w/o ext. (w/int. to year end)*		-		n/a
		394,467,107		n/a
Full funding limit override (not less than 0)				
90% of current liability		1,493,988,464		1,493,988,464
less: *Assets (actuarial value)*		524,479,321		524,479,321
		969,509,143		969,509,143
Full funding limit (greater of ERISA limit and full funding override)				
With amortization extension	$	969,509,143	$	969,509,143
Without amortization extension	$	969,509,143		n/a

MINIMUM REQUIRED CONTRIBUTION AND FULL FUNDING CREDIT

Minimum Required Contribution Plan Year Beginning September 1, 2018		*Without Extension*		*With Extension*
Minimum funding cost				
Normal cost (including expenses)	$	13,749,351	$	13,749,351
Net amortization of unfunded liabilities		22,889,426		35,965,806
Interest to end of plan year		2,747,908		3,728,635
		39,386,685		53,443,792
Full funding limit		969,509,143		969,509,143
Net charge to funding std. acct. (lesser of above)		39,386,685		53,443,792
less: *Credit balance with interest to year end*		(6,618,397)		123,604,878
Minimum Required Contribution (not less than 0)	$	46,005,082	$	-
Effect of extension			$	46,005,082

Full Funding Credit to Funding Standard Account Plan Year Ending August 31, 2019		*Without Extension*		*With Extension*
Full funding credit (not less than 0)				
Minimum funding cost (n.c., amort., int.)	$	39,386,685	$	53,443,792
less: *full funding limit*		969,509,143		969,509,143
	$	-	$	-

MAXIMUM DEDUCTIBLE CONTRIBUTION

The maximum amount of tax-deductible employer contributions made to a pension plan is determined in accordance with Section 404(a) of the Internal Revenue Code. For a multiemployer pension plan, Section 413(b)(7) of the Internal Revenue Code and IRS Announcement 98-1 provide that, if anticipated employer contributions are less than the deductible limit for a plan year, then all employer contributions paid during the year are guaranteed to be deductible. If anticipated employer contributions exceed the deductible limit, the Trustees have two years from the close of the plan year in question to retroactively improve benefits to alleviate the problem.

Maximum Deductible Contribution
Plan Year Beginning September 1, 2018

Preliminary deductible limit		
Normal cost (including expenses)	$	13,749,351
10-year limit adjustment (using "fresh start" alternative)		47,865,632
Interest to end of plan year		4,621,123
		66,236,106
Full funding limit		969,509,143
Maximum deductible contribution override		
140% of vested current liability projected to August 31, 2019		2,291,549,664
less*: Actuarial value of assets projected to August 31, 2019*		524,479,321
		1,767,070,343
Maximum deductible contribution*	$	1,767,070,343
Anticipated employer contributions	$	49,168,520

* Equals the lesser of the preliminary deductible limit and the full funding limit, but not less than the maximum deductible contribution override.

HISTORY OF UNFUNDED VESTED BENEFITS

Presumptive Method

August 31,	Vested Benefits Interest Rate	Value of Vested Benefits	Asset Value*	Unfunded Vested Benefits	Unamortized Portion of VAB
1999	8.00%	401,374,927	463,437,926	(62,062,999)	
2000	8.00%	447,005,931	502,915,107	(55,909,176)	
2001	8.00%	491,790,396	529,284,616	(37,494,220)	
2002	8.00%	534,133,730	539,621,982	(5,488,252)	
2003	8.00%	585,725,844	546,933,298	38,792,546	
2004	8.00%	614,835,974	545,337,572	69,498,402	
2005	8.00%	625,635,046	541,099,517	84,535,529	
2006	8.00%	679,586,027	547,823,278	131,762,749	
2007	7.50%	760,397,977	568,943,985	191,453,992	
2008	7.50%	791,335,623	520,856,466	270,479,157	
2009	7.50%	785,621,334	493,003,156	292,618,178	7,552,238
2010	7.50%	770,976,557	475,169,057	295,807,500	36,546,438
2011	7.50%	783,214,375	490,293,887	292,920,488	35,114,418
2012	7.50%	795,879,170	485,449,415	310,429,755	33,574,997
2013	7.50%	811,172,970	481,874,816	329,298,154	31,920,119
2014	7.50%	825,931,742	494,366,295	331,565,447	30,141,126
2015	7.50%	847,899,117	505,653,996	342,245,121	28,228,708
2016	7.50%	861,908,964	514,965,430	346,943,534	26,172,859
2017	7.50%	871,437,581	531,018,415	340,419,166	23,962,821
2018	7.50%	896,476,088	553,525,212	342,950,876	21,587,030

* Actuarial Value

TERMINATION BY MASS WITHDRAWAL

If all employers were to cease to have an obligation to contribute to the plan, the plan would be considered "terminated due to mass withdrawal." In this event, the Trustees would have the option of distributing plan assets in satisfaction of all plan liabilities through the purchase of annuities from insurance carriers or payment of lump sums. If assets are insufficient to cover liabilities, a special actuarial valuation pursuant to Section 4281 of ERISA would be performed as of the end of the plan year in which the mass withdrawal occurred. If the Section 4281 valuation indicates the value of nonforfeitable benefits exceeds the value of plan assets, employer withdrawal liability would be assessed.

The ERISA Section 4281 valuation described above uses required actuarial assumptions that are typically more conservative than those used for valuing an on-going plan. In order to illustrate the impact of the mass withdrawal assumptions, we performed an illustrative Section 4281 valuation as if mass withdrawal had occurred during the prior plan year. The value of assets used below is market value without any adjustments for outstanding employer withdrawal liability claims.

As required by regulation, interest rates of 2.53% for the first 20 years and 2.64% for each year thereafter and the GAM 94 Basic Mortality Table projected to 2028 were used.

Illustrative Section 4281 Valuation as of August 31, 2018

Value of nonforfeitable benefits		
Participants currently receiving benefits	$	922,370,776
Inactive vested participants		248,373,578
Active participants		551,117,798
Expenses (per Section 4281 of ERISA)		10,105,561
		1,731,967,713
less: Fund assets (market value)		561,824,551
Value of nonforfeitable benefits in excess of (less than) fund assets	$	1,170,143,162

ASC 960 INFORMATION

The following displays are intended to assist the fund's auditor in complying with Accounting Standards Codification 960. The results shown are not necessarily indicative of the plan's potential liability upon termination.

Present Value of Accumulated Benefits Actuarial Study as of September 1,		2018		2017*
Present value of vested accumulated benefits				
Participants currently receiving benefits	$	568,329,431	$	549,050,246
Expenses on parts. currently rec. benefits		12,787,412		12,353,631
Other participants		328,146,657		322,387,335
Expenses on other participants		7,383,300		7,253,715
		916,646,800		891,044,927
Present value of nonvested accumulated benefits				
Nonvested accumulated benefits		10,244,217		9,475,933
Expenses on nonvested benefits		230,495		213,208
		10,474,712		9,689,141
Present value of all accumulated benefits	$	927,121,512	$	900,734,068
Market value of plan assets	$	561,824,551	$	519,215,951
Interest rate used to value benefits		7.50%		7.50%

Changes in Present Value of Accumulated Benefits		
Present value of accumulated benefits as of September 1, 2017*	$	900,734,068
Increase (decrease) due to:		
Plan amendment		-
Change in actuarial assumptions		6,052,827
Benefits accumulated and experience gain or loss		15,597,686
Interest due to decrease in discount period		67,555,055
Benefits paid		(61,466,255)
Operational expenses paid		(1,351,869)
Net increase (decrease)		26,387,444
Present value of accumulated benefits as of September 1, 2018	$	927,121,512

* The 2017 present value of accumulated benefits (PVAB) column has been restated from the 2017 valuation to include an operational expense load of 2.25%. This change resulted in an increase of $19,820,554 to the 2017 PVAB.

APPENDICES

PLAN HISTORY

Origins/Purpose

The Michigan Carpenters' Council Pension Plan was established in May 1963 to cover the Saginaw Valley and Southwestern Michigan District Councils. Since that time, coverage has been extended to all District Councils, other than the Detroit and Vicinity District Council. Effective January 1, 1982 members working under the jurisdiction of Lathers Local 1028-L began participating in the Michigan Carpenters' Council Pension Plan prospectively. On October 1, 1994 the Marble-Mosaic-Terrazzo and Tile Workers' Helpers Pension Plan merged into the Michigan Carpenters' Pension Plan.

The Pension Plan is managed under the provisions of the Labor Management Relations Act by a Board of Trustees consisting of an equal number of representatives from Labor and from Management.

The purpose of the Pension Plan is to provide Normal and Early Retirement Benefits, Joint and Survivor Benefits, Optional Retirement Benefits, Total and Permanent Disability Benefits, Vested Benefits and Death Benefits.

Employer Contributions

The Pension Plan is financed entirely by contributions from the employers as specified in the applicable Collective Bargaining Agreements. Most of the Carpenters' agreements follow the below schedule:

Date	Credited Hourly Contribution Rate	Non-credited Hourly Contribution Rate	Total Hourly Contribution Rate
8-1-05	$ 3.00	$ 0.10	$ 3.10
6-1-06	3.00	0.20	3.20
6-1-07	3.00	1.00	4.00
6-1-08	3.00	2.00	5.00
6-1-09	4.45	2.00	6.45
6-1-10	5.90	2.00	7.90
6-1-11	7.35	2.00	9.35
7-1-12	8.80	2.00	10.80
6-1-13	8.80	2.50	11.30
6-1-14	8.80	3.00	11.80
6-1-15	9.28	3.00	12.28
9-1-16	9.52	3.24	12.76
6-1-17	9.76	3.48	13.24

The "credited" contributions are counted towards benefits in eligible years. Contributions that are "non-credited" are not counted when determining pension benefits.

PLAN HISTORY (CONT.)

Reciprocity

The Fund is a party to the agreement operative among pension plans covering Carpenters, Millwrights and Millmen which are in the jurisdiction of the Third District of the United Brotherhood of Carpenters and Joiners of America, AFL-CIO, International Pro-Rata Pension Reciprocity Agreement sponsored by the United Brotherhood of Carpenters and Joiners of America, AFL-CIO and other "money follows the man" reciprocity agreements.

Tax Exempt Status

The Trust Agreement and the Pension Plan were initially filed with and approved by the District Director, Internal Revenue Service, as qualified and exempt from taxation. It is the intention of the Trustees to maintain the Trust Agreement and Pension Plan as qualified and exempt from taxation under the appropriate provisions of the Internal Revenue Code and the Rules and Regulations issued thereunder, as amended from time to time.

SUMMARY OF PLAN PROVISIONS

Plan year	The 12-month period beginning September 1 and ending the following August 31.
Years of service for eligibility and benefit determination	Effective September 1, 1976, plan year with at least 500 service hours (435 hours worked). Effective September 1, 2007, plan year with at least 575 service hours (500 hours worked).
Years of vesting service	One vesting year for each Year of Service plus additional service as granted through special circumstances.
Break in service plan year	Plan year with less than 500 service hours (435 hours worked).
Normal retirement benefit	
Eligibility	Age 65 or 5th anniversary of date of participation, if later.
Monthly amount	• Accrued benefit as of August 31, 1997; plus • 4.3% of contributions made from September 1, 1997 through August 31, 2003; plus • 1.0% of credited contributions made on or after September 1, 2003 through August 31, 2007; plus • 1.0% of credited contributions made for each plan year with at least 575 service hours (500 hours worked), on or after September 1, 2007. Payable for life. For service before September 1, 1997, active participants were granted a 12% increase in their accrued benefits.
Index 80 early retirement benefit	
Eligibility	At least 78 points as of September 1, 2009; combined age and service equals 80.
Monthly amount	Normal. Payable for life.
Index 90 and 58 early retirement benefit	
Eligibility	Less than 78 points as of September 1, 2009; combined age and service equals 90 and at least age 58.
Monthly amount	Normal. Payable for life.

SUMMARY OF PLAN PROVISIONS (CONT.)

Early retirement benefit

Eligibility

Age 58 with 10 years of service.

Monthly amount

Normal. Reduced by 5/9th of 1% for each month under age 65. (Reduction is measured from age 60 if had 25 or more years of service and had reached the age of 58 on or before September 1, 2009.) Payable for life.

Optional forms of payment

- 50% qualified joint and survivor.
- 75% joint and survivor.
- 100% joint and survivor.
- Life – Ten years certain.

Total and permanent disability benefit

Eligibility

Under age 65 with 5 years of service. Disabled while active.

Monthly or single sum amount

Prior to February 1, 2011, disabled participants with 5 but less than 10 years of service may receive a lump sum payment equal to the greater of total contributions or actuarial equivalent of deferred vested benefit in lieu of their deferred vested benefit.

Disabled participants with at least 10 years of service and one year of service in the 4 plan years preceding disability and a disability award from Social Security receive the lesser of $375 or accrued benefit. Payable until the earliest of age 65, recovery or death. Normal at age 65.

Those without a disability award from Social Security receive the lesser of $750 or accrued benefit. Payable until Social Security disability begins or 5-year period, whichever is earlier.

Vested benefit

Eligibility

Terminated, 5 years of service.

Monthly amount

100% of normal (based on benefit formula in effect at time participant became inactive) commencing at age 65. Payable for life.

Pre-retirement deferred surviving spouse benefit

Eligibility

Death of vested participant with eligible spouse.

Monthly or single sum amount

50% of participant's joint and 50% survivor. Payable to spouse for life commencing when participant would have reached earliest retirement age.

HISTORICAL PLAN MODIFICATIONS

Vesting schedule	
Effective date	September 1, 1997
Adoption date	March 18, 1997
Provisions	The vested benefit schedule modified from 5-10 year graded vesting to 100% at 5 years.
Lump sum distributions	
Effective date	September 1, 1997
Adoption date	March 18, 1997
Provisions	The amount of unilateral lump sum distributions increased from $3,500 to $5,000.
Active participant benefit increase	
Effective date	September 1, 1997
Adoption date	March 24, 1998
Provisions	For active participants, benefits accrued through September 1, 1997 increased by 12%.
Retiree benefit increase	
Effective date	September 1, 1997
Adoption date	March 24, 1998
Provisions	All retirees and beneficiaries receiving benefits as of September 1, 1997 received an additional 5% increase.
Pre-retirement joint and survivor benefit increase	
Effective date	September 1, 1997
Adoption date	March 24, 1998
Provisions	The pre-retirement joint and survivor benefit increased from joint and 50% survivor to joint and 100% survivor.

HISTORICAL PLAN MODIFICATIONS (CONT.)

Disability benefit increase

Effective date	September 1, 1997
Adoption date	March 24, 1998
Provisions	The monthly disability benefit increased from $250 to $375 for those receiving a disability award from Social Security and from $500 to $750 for those without the disability award.

Vesting years

Effective date	September 1, 1998
Adoption date	September 27, 1999
Provisions	One vesting year granted for each plan year the active participant performs 1 hour of work. 435 hours is still required in order to earn a year of service for other purposes such as retirement eligibility.

Joint and survivor option

Effective date	September 1, 2001
Adoption date	June 21, 2001
Provisions	A joint and 75% survivor annuity optional form was added. The new benefit is the actuarial equivalent of the single life annuity.

Lump sum death benefit

Effective date	September 1, 2000
Adoption date	December 14, 2001
Provisions	The pre-retirement lump sum death benefit for unmarried participants was increased to pay 100% of contributions at 15 years of service.

HISTORICAL PLAN MODIFICATIONS (CONT.)

Crediting rate decrease	
Effective date	September 1, 2003
Adoption date	June 17, 2003
Provisions	The crediting rate for employer contributions for work performed on and after September 1, 2003 was decreased from 4.30% to 1.00%. Contributions for work performed prior to September 1, 2003 are still credited at 4.30%.
Crediting rate increase	
Effective date	September 1, 2003 – (RESCINDED March 1, 2009)
Adoption date	February 9, 2005
Provisions	The crediting rate for employer contributions for work performed from September 1, 2003 through August 31, 2004 was increased from 1.00% to 3.00%. Contributions for work performed on and after September 1, 2004 are still credited at 1.00%.
Non-credited contributions	
Effective date	August 1, 2005
Approval date	May 11, 2005
Provisions	Effective August 1, 2005, 10¢ per hour is <u>non-credited</u> with respect to benefit accruals. The non-credited amount increases by 10¢ each year until it reaches 50¢ per hour.
Crediting rate increase	
Effective date	September 1, 2004 – (RESCINDED March 1, 2009)
Adoption date	February 8, 2006
Provisions	The crediting rate for employer contributions for work performed from September 1, 2004 through August 31, 2005 was increased from 1.00% to 3.00%. Contributions for work performed on and after September 1, 2005 are still credited at 1.00%.

HISTORICAL PLAN MODIFICATIONS (CONT.)

Index 80 & Index 85/58 early retirement benefit	
Effective date	September 1, 2007
Adoption date	July 10, 2007
Provisions	For participants who worked before September 1, 2007, the Index 80 benefit stays in effect. For participants who first worked on or after September 1, 2007, the Index 80 benefit eligibility is replaced by the Index 85 and age 58 benefit eligibility.
Non-credited contributions	
Effective date	June 1, 2007
Approval date	July 10, 2007
Provisions	Effective June 1, 2007, $1.00 per hour is <u>non-credited</u> with respect to benefit accruals.
Future service benefit credit	
Effective date	September 1, 2007
Adoption date	July 10, 2007
Provisions	For plan years beginning on or after September 1, 2007, no future service benefit credit will be given for employer contributions during a plan year in which fewer than 500 hours of work (575 hours of service) are performed.
Non-credited contributions	
Effective date	June 1, 2008
Approval date	December 19, 2007
Provisions	Effective June 1, 2008, $2.00 per hour is <u>non-credited</u> with respect to benefit accruals.

HISTORICAL PLAN MODIFICATIONS (CONT.)

Crediting rate decrease

Effective date	March 1, 2009 - rescinded September 1, 2003 and September 1, 2004 increase
Adoption date	December 17, 2008
Provisions	For participants currently active or in pay status, the crediting rate for employer contributions for work performed from September 1, 2003 through August 31, 2005 was changed from 3.00% to 1.00%.

Pre-retirement deferred surviving spouse benefit

Effective date	March 1, 2009
Adoption date	December 17, 2008
Provisions	The 100% of participant's joint and 100% survivor pre-retirement deferred death benefit is changed to 50% of participant's joint and 50% survivor.

Lump sum death benefit eliminated

Effective date	March 1, 2009
Adoption date	December 17, 2008
Provisions	The pre-retirement lump sum death benefit has been eliminated.

Index 80 & Index 90/58 early retirement benefit

Effective date	September 1, 2009
Adoption date	June 6, 2009
Provisions	For participants who had 78 points on or before September 1, 2009, the Index 80 benefit stays in effect. For all other participants, it is replaced by the Index 90 and age 58 benefit eligibility.

Historical Plan Modifications (cont.)

Early retirement benefit

Effective date	September 1, 2009
Adoption date	June 6, 2009
Provisions	The early retirement reduction that is measured from age 60 applies only if the participant is at least age 58 and has 25 or more years of service on or before September 1, 2009.

Lump sum disability benefit

Effective date	February 1, 2011
Adoption date	December 21, 2010
Provisions	Lump sum disability option previously payable to disabled participants with 5-9 years of service is no longer available.

Reciprocity of non-credited contributions

Effective date	November 1, 2012
Approval date	September 19, 2012
Provisions	Detroit-Michigan reciprocity agreement requires only the transfer of credited employer contributions.

Non-credited contribution increases

Effective date	June 1, 2013 & June 1, 2014
Approval date	November 20, 2012
Provisions	Effective June 1, 2013, \$2.50 per hour is non-credited with respect to benefit accruals. The total hourly contribution rate is also increased 50¢, effective June 1, 2013. Effective June 1, 2014, \$3.00 per hour is non-credited with respect to benefit accruals. The total hourly contribution rate is also increased 50¢, effective June 1, 2014.

HISTORICAL PLAN MODIFICATIONS (CONT.)

Reciprocity of non-credited contributions	
Effective date	November 1, 2015
Approval date	August 12, 2015
Provisions	The Detroit-Michigan reciprocity agreement that requires only the transfer of credited employer contributions has been terminated effective November 1, 2015. This means that reciprocity will default back to the international agreement, to which both funds are a party. Reciprocity will generally be "money follows the man" starting in November.
Credited contribution increases	
Effective date	June 1, 2015
Approval date	December 10, 2014
Provisions	Effective June 1, 2015, the total hourly contribution rate is increased 48¢. All of the 48¢ increase is credited for benefit accruals. The non-credited rate remains $3.00.
Nuclear power plants	
Effective date	January 1, 2016
Approval date	December 15, 2015
Provisions	$3.28 is moved from the hourly pension contribution rate to the wage rate on Carpenter and Millwright hours worked at nuclear power plants which have a total power generating capability of 500 megawatts or more in the jurisdiction of Local Union 525.
Credited and non-credited contribution increases	
Effective date	September 1, 2016
Approval date	April 27, 2016
Provisions	Effective September 1, 2016, the total hourly contribution rate is increased 48¢. 24¢ of this increase is credited for benefit accruals and 24¢ is non-credited, bringing the non-credited rate up to $3.24.

Historical Plan Modifications (cont.)

Credited and non-credited contribution increases	
Effective date	June 1, 2017
Provisions	Effective June 1, 2017, the total hourly contribution rate is increased 48¢. 24¢ of this increase is credited for benefit accruals and 24¢ is non-credited, bringing the non-credited rate up to $3.48.

ACTUARIAL ASSUMPTIONS

Valuation date

September 1, 2018

Interest rates

ERISA rate of return used to value liabilities

7.50% per year net of investment expenses.

Current liability

3.01% (in accordance with Section 431(c)(6) of the Internal Revenue Code)

Operational expenses

$1,350,000 per year excluding investment expenses. For the present value of expenses for ASC 960, a 2.25% load was applied to the ASC 960 liabilities. This load was calculated by taking 3 years of actual expenses divided by 3 years of actual benefit payments.

Mortality

Assumed plan mortality

115% of the RP-2014 Blue Collar Mortality Tables for employees and healthy annuitants adjusted backward to 2006 with the MP-2014 projection scale and projected forward using the MP-2018 projection scale.

Current liability

Separate annuitant and non-annuitant rates based on the RP-2000 Mortality Tables Report developed for males and females as prescribed by Section 431(c)(6) of the Internal Revenue Code.

Disability

40% of the 1964 OASDI male table - specimen rates shown below:

Age	Disability Rate
25	.0003
30	.0004
35	.0006
40	.0009
45	.0014
50	.0024
55	.0040
60	.0065

ACTUARIAL ASSUMPTIONS (CONT.)

Withdrawal (ultimate rates)

T-5 Turnover Table from The Actuary's Pension Handbook (less GAM 51 mortality and OASDI 64 disability rates) – specimen rates shown below. Assumed rate during second year of employment is 50%*, 30% for the third year, and 15% for the fourth year.

Age	Withdrawal Rate
25	.0772
30	.0722
35	.0628
40	.0515
45	.0398
50	.0256
55	.0094
60	.0090

* All newly reported participants are considered to have already worked their first year of employment.

Future retirement rates

Active lives

According to the following schedule:

Age	Ineligible for Index 90/58 or Index 80	Eligible for Index 90/58 or Index 80
48-57	n/a	.30
58-61	.10	.30
62	.35	.50
63-64	.35	1.00
65+	1.00	1.00

Resulting in an average expected retirement age of 61.5.

Inactive vested lives

Earliest eligible retirement age.

Disabled lives

Disability benefit assumed payable until the earliest of age 65, recovery or death. Then normal retirement benefit commences. Future disabled participants assumed to receive $750 per month for the first 5 years of disability, $375 per month thereafter

ACTUARIAL ASSUMPTIONS (CONT.)

Future hours worked	
Vested lives	1,600 hours per year, 0 after assumed retirement age.
Non-vested lives	700 hours per year, 0 after assumed retirement age.
Future contribution rate	
Credited rate	Credited hourly contribution rate is set equal to: • Individual's average hourly credited contribution rate for the most recent plan year adjusted for any negotiated increases
Total rate	Total hourly contribution rate is set equal to: • Individual's expected credited rate (above); *plus* • Individual's average hourly non-credited contribution rate for the most recent plan year adjusted for any negotiated increases
Age of participants with unrecorded birth dates	Based on average entry age of participants with recorded birth dates and same vesting status.
Marriage assumptions	100% assumed married with the male spouse 3 years older than his wife.
Inactive vested lives over age 70	Continuing inactive vested participants over age 70 are assumed deceased and are not valued.
QDRO benefits	Benefits to alternate payee included with participant's benefit until payment commences.
Section 415 limit assumptions	
Dollar limit	$220,000 per year.
Assumed form of payment for those limited by Section 415	Joint and 100% survivor annuity.
Benefits not valued	None

RATIONALE FOR SELECTION OF ACTUARIAL ASSUMPTIONS

The non-prescribed actuarial assumptions were selected to provide a reasonable long term estimate of developing experience. The assumptions are reviewed annually, including a comparison to actual experience. The following describes our rationale for the selection of each non-prescribed assumption that has a significant effect on the valuation results.

ERISA rate of return used to value liabilities	Future rates of return were modeled based on the Plan's current investment policy asset allocation and composite, long-term capital market assumptions taken from Horizon Actuarial's 2018 survey of investment consultants. Based on this analysis, we selected a final assumed rate of 7.50%, which we feel is reasonable. This rate may not be appropriate for other purposes such as settlement of liabilities.
Mortality	The RP-2014 Blue Collar Mortality Tables for employees and healthy annuitants adjusted backward to 2006 with the MP-2014 projection scale and projected forward using the MP-2018 projection scale was chosen as the base table for this population. The blue collar table was chosen based on the industry of plan participants. Finally, a 115% multiplier was applied in order to more closely match projected deaths to actual post-retirement death experience. Mortality is monitored annually and no further adjustments are deemed necessary at this time.
Retirement	Actual rates of retirement by age were last studied for this plan for the period September 1, 2011 to August 31, 2016. The assumed future rates of retirement were selected based on the results of this study. No further adjustments were deemed necessary at this time
Withdrawal	Actual rates of withdrawal by age were last studied for this plan for the period September 1, 2011 to August 31, 2016. No further adjustments were deemed necessary at this time.
Future hours worked	Based on review of recent plan experience.

ACTUARIAL ASSUMPTIONS USED FOR PROJECTIONS

The assumptions used for the credit balance and funding ratio projections are the same as used throughout the report with the following exceptions.

Assumed return on fund assets	
Current year projections	6.5% for 10 years, then 7.5% thereafter
Prior year projections	6.5% for 10 years, then 7.5% thereafter
Future total hours worked	
Current year projections	3,850,000 for all future years
Prior year projections	3,855,926 for all future years
Contribution rate increases	
Current year projections	None
Prior year projections	24¢ / 24¢ (credited/non-credited) in 2017
Plan changes since prior year	None
Future new entrants for liability projection	
Current year projections	Open group population projection. Size of active population assumed constant. Age of new hires based on average age at hire of current population.
Prior year projections	Open group population projection. Size of active population assumed constant. Age of new hires based on average age at hire of current population.

ACTUARIAL METHODS

Funding method	
ERISA Funding	Traditional unit credit cost method, effective September 1, 2003.
Funding period	Individual entry age normal with costs spread as a level dollar amount over service
Population valued	
Actives	Eligible employees with at least one hour during the preceding plan year.
Inactive vested	Vested participants with no hours during the preceding plan year.
Retirees	Participants and beneficiaries in pay status as of the valuation date.
Asset valuation method	
Actuarial value	Smoothed market value with phase-in effective September 1, 2008. Gains and losses are spread over a 5-year period. The actuarial value is limited to not less than 80% and not more than 120% of the actual market value of assets in any plan year.
Unfunded vested benefits	For the presumptive method, actuarial value, as described above, is used.
Pension Relief Act of 2010	• 10-year smoothing was elected with respect to the loss incurred during the plan years ended in 2009 and 2010. • 30-year amortization of net investment loss was elected with respect to the loss incurred during the plan years ended in 2009 and 2010. The loss was allocated to future years using the "prospective method" of the IRS. The amount of each allocation is shown in Appendix C.

Date Established	Source of Change in Unfunded Liability	Original Amount	Original Period	Remaining Period		9/1/2018 Outstanding Balance	9/1/2018 Amortization Payment
				Years	Months		
Charges							
9/1/1977	Ual		45	4	0	2,732,500	758,918
9/1/1978	Amendment		45	5	0	1,134,454	260,833
9/1/1979	Amendment		45	6	0	1,176,461	233,150
9/1/1980	Amendment		45	7	0	2,566,014	450,665
9/1/1984	Amendment		35	1	0	354,562	354,562
9/1/1985	Amendment		35	2	0	1,004,539	520,418
9/1/1986	Amendment		35	3	0	2,962,231	1,059,622
9/1/1987	Amendment		35	4	0	1,411,097	391,913
9/1/1987	Method Change		35	4	0	970,770	269,622
9/1/1988	Amendment		35	5	0	2,925,587	672,654
9/1/1989	Amendment		35	6	0	5,276,414	1,045,685
9/1/1990	Assumptions		35	7	0	2,468,573	433,551
9/1/1993	Assumptions		35	10	0	2,323,959	314,947
9/1/1994	Amendment		35	11	0	3,940,474	501,072
9/1/1994	Assumptions		35	11	0	757,214	96,289
9/1/1995	Assumptions	23,693,931	35	12	0	13,943,614	1,676,838
9/1/1997	Amendment	39,574,309	35	14	0	26,060,841	2,855,719
9/1/1997	Assumptions	14,174,319	35	14	0	9,334,207	1,022,833
9/1/1999	Experience	14,554,665	20	1	0	997,640	997,640
9/1/2000	Experience	6,016,050	20	2	0	847,830	439,231
9/1/2001	Experience	11,318,991	20	3	0	2,427,563	868,360
9/1/2002	Amendment	28,326,474	35	19	0	22,533,977	2,104,797
9/1/2002	Experience	30,448,087	20	4	0	8,751,779	2,430,693
9/1/2003	Assumptions	20,435,609	35	20	0	16,709,287	1,524,700
9/1/2003	Experience	30,551,079	20	5	0	10,958,524	2,519,590
9/1/2004	Experience	30,580,654	20	6	0	13,074,323	2,591,088
9/1/2005	Amendment	12,867,110	35	22	0	11,033,666	966,722
9/1/2005	Experience	27,327,749	20	7	0	13,486,589	2,368,625
9/1/2006	Amendment	12,243,623	35	23	0	10,718,083	922,605
9/1/2006	Assumptions	32,519,474	35	23	0	28,467,570	2,450,470
9/1/2006	Experience	21,799,795	20	8	0	12,128,757	1,926,240
9/1/2007	Assumptions	43,584,357	35	24	0	38,879,515	3,293,008
9/1/2007	Experience	18,130,929	20	9	0	11,168,399	1,628,688
9/1/2008	Experience	20,337,861	20	10	0	13,693,747	1,855,800
9/1/2008	Method	51,897,525	15	5	0	23,787,069	5,469,142

Date Established	Source of Change in Unfunded Liability	Original Amount	Original Period	Remaining Period		9/1/2018 Outstanding Balance	9/1/2018 Amortization Payment
				Years	Months		
9/1/2009	Assumptions	2,841,020	15	6	0	1,510,713	299,397
9/1/2009	Experience	5,073,753	15	6	0	2,697,976	534,690
9/1/2009	Relief 08 Asset Loss	34,760,076	29	20	0	30,297,228	2,764,577
9/1/2010	Experience	6,936,306	15	7	0	4,162,042	730,972
9/1/2010	Relief 08 Asset Loss	19,337,414	28	20	0	17,033,497	1,554,282
9/1/2011	Relief 08 Asset Loss	10,134,263	27	20	0	9,029,827	823,958
9/1/2012	Relief 08 Asset Loss	21,827,033	26	20	0	19,692,534	1,796,915
9/1/2013	Relief 08 Asset Loss	22,587,104	25	20	0	20,657,143	1,884,934
9/1/2014	Relief 08 Asset Loss	19,238,145	24	20	0	17,857,023	1,629,428
9/1/2015	Assumptions	6,918,506	15	12	0	6,062,745	729,096
9/1/2015	Experience	11,107,701	15	12	0	9,733,770	1,170,568
9/1/2016	Experience	20,386,733	15	13	0	18,767,088	2,148,425
9/1/2017	Experience	18,943,784	15	14	0	18,218,479	1,996,362
9/1/2018	Assumptions	5,919,635	15	15	0	5,919,635	623,832
9/1/2018	Experience Loss	14,420,011	15	15	0	14,420,011	1,519,631
				Total Charges:		**517,067,540**	**67,483,757**

Credits

9/1/2014	Combined	127,631,669	5	1	0	29,345,156	29,345,156
9/1/2016	Assumptions	6,865,210	15	13	0	6,319,796	723,480
9/1/2017	Assumptions	13,752,769	15	14	0	13,226,213	1,449,315
				Total Credits:		**48,891,165**	**31,517,951**

Net Charges:	**468,176,375**	**35,965,806**
Less Credit Balance:	114,981,282	
Less Reconciliation Balance:	0	
Unfunded Actuarial Liability:	**353,195,093**	

Date Established	Source of Change in Unfunded Liability	Original Amount	Original Period	Remaining Period		9/1/2018 Outstanding Balance	9/1/2018 Amortization Payment
				Years	Months		
Charges							
9/1/1979	Amendment		40	1	0	291,347	291,347
9/1/1980	Amendment		40	2	0	1,060,920	549,632
9/1/1989	Amendment		30	1	0	1,306,710	1,306,710
9/1/1990	Assumptions		30	2	0	1,020,634	528,759
9/1/1993	Assumptions		30	5	0	1,581,995	363,734
9/1/1994	Amendment		30	6	0	2,880,164	570,792
9/1/1994	Assumptions		30	6	0	553,455	109,687
9/1/1995	Assumptions	23,693,931	30	7	0	10,745,155	1,887,151
9/1/1997	Amendment	39,574,309	30	9	0	21,595,796	3,149,315
9/1/1997	Assumptions	14,174,319	30	9	0	7,734,978	1,127,989
9/1/2002	Amendment	28,326,474	30	14	0	20,455,345	2,241,476
9/1/2003	Assumptions	20,435,609	30	15	0	15,329,225	1,615,446
9/1/2004	Experience	30,580,654	15	1	0	3,237,870	3,237,870
9/1/2005	Amendment	12,867,110	30	17	0	10,295,950	1,015,230
9/1/2005	Experience	27,327,749	15	2	0	5,576,005	2,888,780
9/1/2006	Amendment	12,243,623	30	18	0	10,070,624	965,178
9/1/2006	Assumptions	32,519,474	30	18	0	26,747,921	2,563,544
9/1/2006	Experience	21,799,795	15	3	0	6,432,092	2,300,820
9/1/2007	Assumption	43,584,357	30	19	0	36,752,387	3,432,876
9/1/2007	Experience	18,130,929	15	4	0	6,879,523	1,910,700
9/1/2008	Experience	20,337,861	15	5	0	9,321,803	2,143,274
9/1/2009	Assumptions	2,841,020	15	6	0	1,510,713	299,397
9/1/2009	Experience	5,073,753	15	6	0	2,697,976	534,690
9/1/2009	Relief 08 Asset Loss	34,760,076	29	20	0	30,297,228	2,764,577
9/1/2010	Experience	6,936,306	15	7	0	4,162,042	730,972
9/1/2010	Relief 08 Asset Loss	19,337,414	28	20	0	17,033,497	1,554,282
9/1/2011	Relief 08 Asset Loss	10,134,263	27	20	0	9,029,827	823,958
9/1/2012	Relief 08 Asset Loss	21,827,033	26	20	0	19,692,534	1,796,915
9/1/2013	Relief 08 Asset Loss	22,587,104	25	20	0	20,657,143	1,884,934
9/1/2014	Relief 08 Asset Loss	19,238,145	24	20	0	17,857,023	1,629,428
9/1/2015	Assumptions	6,918,506	15	12	0	6,062,745	729,096
9/1/2015	Experience	11,107,701	15	12	0	9,733,770	1,170,568
9/1/2016	Experience	20,386,733	15	13	0	18,767,088	2,148,425
9/1/2017	Experience	18,943,784	15	14	0	18,218,479	1,996,362
9/1/2018	Assumptions	5,919,635	15	15	0	5,919,635	623,832

Date Established	Source of Change in Unfunded Liability	Original Amount	Original Period	Remaining Period Years	Remaining Period Months	9/1/2018 Outstanding Balance	9/1/2018 Amortization Payment
9/1/2018	Experience Loss	14,420,011	15	15	0	14,420,011	1,519,631
				Total Charges:		**395,929,610**	**54,407,377**

Credits

Date Established	Source of Change in Unfunded Liability	Original Amount	Original Period	Remaining Period Years	Remaining Period Months	9/1/2018 Outstanding Balance	9/1/2018 Amortization Payment
9/1/2014	Combine	127,631,669	5	1	0	29,345,156	29,345,156
9/1/2016	Assumptions	6,865,210	15	13	0	6,319,796	723,480
9/1/2017	Assumptions	13,752,769	15	14	0	13,226,213	1,449,315
				Total Credits:		**48,891,165**	**31,517,951**
				Net Charges:		**347,038,445**	**22,889,426**
				Less Credit Balance:		-6,156,648	
				Less Reconciliation Balance:		0	
				Unfunded Actuarial Liability:		**353,195,093**	

RULES FOR ENDANGERED AND CRITICAL STATUS

Background

The Pension Protection Act of 2006 ("PPA"), enacted in August 2006, established special rules for plans in "Endangered" or "Critical" status. These rules become effective with the plan year beginning in 2008 and were originally scheduled to "sunset" in 2015.

The Multiemployer Pension Reform Act of 2014 ("MPRA"), enacted in December 2014, made the provisions contained in the PPA permanent. MPRA also made numerous changes to the PPA rules, including adding a new status for deeply troubled plans: Critical and Declining.

Informally, Critical Status is often referred to as "red zone" and Endangered Status as "yellow zone." A plan that is neither Critical nor Endangered is said to be "green zone."

Criteria for Endangered and Critical

The table below summarizes the criteria for these categorizations. Projected deficiencies are calculated as of the last day of each plan year and are based on contribution rates codified in bargaining agreements and, if applicable, wage allocations.

Critical Status ("Red Zone")	*Endangered Status ("Yellow Zone")*
GETTING IN:	
Plan is Critical if it is described in one or more of the following: • Funded percentage is less than 65%, and, inability to pay nonforfeitable benefits and expenses for next 7 years, or • Projected funding deficiency (not recognizing extensions) in the current year or next 3 years (next 4 years if funded at less than 65%), or • (1) Contributions are less than current year costs (i.e. "normal cost") plus interest on any unfunded past liabilities, and, (2) value of vested benefits for non-actives is greater than for actives, and, (3) projected funding deficiency (not recognizing extensions) in the current year or next 4 years, or • Inability to pay all benefits and expenses for next 5 years.	Plan is Endangered if it is not Critical and it is described in one of the following: • Funded percentage is less than 80%, or • Projected funding deficiency in the current year or next 6 years. A non-critical plan that meets both of the preceding criteria is considered "Seriously Endangered" A plan that meets one of the two Endangered Status criteria above, but was not in Critical or Endangered for the preceding year, will remain not Critical or Endangered (i.e. it will be in "green zone") provided it is not projected to meet either of the two Endangered Status criteria as of the end of the 10th plan year following the certification year

RULES FOR ENDANGERED AND CRITICAL STATUS (CONT.)

Critical Status ("Red Zone")	*Endangered Status ("Yellow Zone")*
GETTING IN (cont.):	
A plan with a 5-year amortization extension under IRC Section 431(d) that previously emerged from Critical Status in PYB 2015 or later will re-enter Critical Status only if it is described in one of the following: • Projected funding deficiency in the current year or next 9 years (including amortization extensions), or, • Projected insolvency within the next 30 years	
GETTING OUT:	
Plan emerges from Critical Status when it meets all of the following: • No longer meets any of the Critical Status tests, and, • No projected funding deficiencies in the current year or next 9 years (including amortization extensions), and, • No projected insolvencies in the next 30 years A plan with a 5-year amortization extension under IRC Section 431(d) emerges from Critical Status when it meets all the following: • No projected funding deficiencies in the current year or next 9 years (including amortization extensions), and, • No projected insolvencies in the next 30 years	Plan emerges from Endangered Status when it no longer meets the requirements to be classified as Endangered or when it enters Critical Status

RULES FOR ENDANGERED AND CRITICAL STATUS (CONT.)

Restrictions for Endangered and Critical Plans

The Trustees of a plan that is in Endangered or Critical status face a number of restrictions in plan improvements that can be adopted and bargaining agreements that can be accepted.

Period	*Endangered/Critical Restrictions*
Date of first certification through adoption of funding improvement/rehabilitation plan ("plan adoption period")	• No reduction in level of contributions for any participants • No suspension of contributions • No exclusion of new or younger employees • No amendment that increases the liabilities of the plan by reason of any increase in benefits, change in accrual, or change in vesting unless required by law
After adoption of a funding improvement/rehabilitation plan until end of funding improvement/rehabilitation period	• Cannot be amended so as to be inconsistent with funding improvement/rehabilitation plan • No amendment that increases benefits, including future accruals, unless actuary certifies as being paid for with contributions not contemplated in funding improvement/ rehabilitation plan and still expected to meet applicable benchmark after considering the amendment

Additionally, Critical status plans cannot pay benefits greater than the single life annuity once the initial red zone notice is sent unless the benefit is eligible for automatic cash-out.

Critical and Declining Plans

Beginning in 2015, plans that are in Critical Status and are projecting insolvency within the next 15 years (20 years in some circumstances) are certified by the actuary as being in "Critical and Declining." These plans may have access to new tools that will allow them to reduce many previously-untouchable benefits, including benefits for participants in pay status. However, these expanded benefit reductions require government approval, must not be rejected by a majority of all participants through a vote, and are subject to a number of other requirements and limitations.

Selected Other MPRA Changes (effective with 2015 plan years)

- Plans projected to be Critical within the next 5 years can elect to be in Critical Status immediately
- New contribution rate increases required by a funding improvement or rehabilitation plan are not considered in calculating an employer's withdrawal liability or payment schedule
- If, upon the expiration of a collective bargaining agreement under a funding improvement or rehabilitation plan, bargaining parties do not adopt a new agreement consistent with an updated schedule, the Trustees must implement the update to the schedule previously adopted.

GLOSSARY OF COMMON PENSION TERMS

Benefits

Accrued Benefit: A benefit that an employee has earned (or accrued) through past participation in the plan. It is the amount payable at normal retirement age.

Why it matters: Under the law, Accrued Benefits generally may not be reduced by plan amendment (note that special rules allowing for limited reduction and/or suspension of accrued benefits apply to critical status, critical and declining status and insolvent plans).

Actuarial Equivalence: Given a set of actuarial assumptions, when two different sets of payment scenarios have an equal present value.

Early Retirement Reduction Factor: A retirement benefit that begins before normal retirement age may be reduced. The plan document defines the amount of the reduction by formula or a table of factors. This reduction may or may not be actuarially equivalent, but its present value can be no less than actuarially equivalent to the benefit payable at normal retirement age.

Benefit Crediting (Accrual) Rate: A general reference to the calculation of the amount of monthly retirement benefit earned per dollar contributed or per year or hour worked.

Assets

Market Value of Assets: This is the fair value of all assets in the fund on an accrued, not cash basis. The market value of assets matches the value in the plan audit.

Actuarial Value of Assets: The amount of assets recognized for actuarial valuation purposes. Recent changes in market value may be partially recognized (there are variations allowed on the exact recognition). Generally the actuarial value is limited to not be less than 80% or more than 120% of the market value.

Why it matters: Many funding calculations use this "smoothed" asset value method to lessen the impact of volatility in the market value of plan assets.

Assumed Rate of Return: Long term assumption of the rate of return on assets based upon the diversification mix of invested assets.

Why it matters: This assumption is used in calculating the present values discussed in the Liabilities section below. The Assumed Rate of Return has an inverse relationship with plan liabilities. In other words, a lower Assumed Rate of Return increases liabilities, while a higher Assumed Rate of Return decreases plan Liabilities.

GLOSSARY OF COMMON PENSION TERMS (CONT.)

Liabilities

Present Value of Accrued Benefits: The discounted value of benefit payments due in the future but based only on the current Accrued Benefits of each participant. The value is based on actuarial assumptions including an assumed rate of investment return.

Why it matters: This liability is one of the primary factors in determining a plan's annual PPA funded status (see Funded Ratio).

Present Value of Vested Benefits: The discounted value of Accrued Benefits that are considered vested (non-forfeitable). Benefits that are not vested include those of participants who have not satisfied the plan vesting requirement (usually five years of service). In addition under the law some death and temporary disability benefits are also considered non-vested regardless of service because they are not considered protected benefits.

Why it matters: This liability is the primary driver of a plan's Employer Withdrawal Liability.

Actuarial (Accrued) Liability: For inactive members this is the same as the Present Value of Accrued Benefits above. For active members this depends on the cost method selected by the actuary. Under the accrued benefit or traditional unit credit cost method this is also the same as the Present Value of Accrued Benefits. Under other cost methods (including most commonly entry age normal) this represents an alternate allocation of projected benefit cost over the working lifetime of active members. Under the entry age normal cost method, the active Actuarial Liability is larger than the Present Value of Accrued Benefits.

Unfunded Actuarial Liability: The Actuarial Liability less the Actuarial Value of Assets.

Current Liability: This is similar to the Present Value of Accrued Benefits, but uses a statutory, significantly lower, interest rate (equivalent to an expected rate of return on a bond only-type portfolio) and statutory mortality tables. The lower interest rate means that Current Liability tends to be significantly higher than the Present Value of Accrued Benefits. This number has very little impact on multiemployer plans.

Normal Cost: The present value of all benefits that are expected to accrue or to be earned under the plan during the plan year. The way in which a benefit is considered to be earned varies with the actuarial cost method.

Risk: The potential of future deviation of actual results from expectations derived from actuarial assumptions.

GLOSSARY OF COMMON PENSION TERMS (CONT.)

Funding

Funded Ratio (Funded Percentage): Actuarial Value of Assets divided by the Present Value of Accrued Benefits. This is one of two key measures used to determine a plan's annual PPA funded status. This may also be referred to as PPA Funded Ratio. This must be greater than 80% to avoid endangered status.

Credit Balance: The accumulated excess of actual contributions over legally required minimum contributions as maintained in the funding standard account. The funding standard account is maintained by the actuary in the valuation process and reported annually in schedule MB to the Form 5500 filing. A negative credit balance is known as an accumulated funding deficiency. Prior to PPA, an accumulated funding deficiency caused an immediate excise tax (waiver under PPA if certain conditions are met). After PPA, a current or projected funding deficiency is one of the key measures used in determining the annual PPA status. It can eventually trigger an excise tax levied on contributing employers.

Withdrawal Liability

Unfunded Vested Benefits (UVB): Present Value of Vested Benefits less the value of plan assets determined on either an actuarial or market value basis. The selection of asset measurement is part of the withdrawal liability method of the Plan.

Employer Withdrawal Liability (EWL): An employer that withdraws from a multiemployer plan is liable for its proportionate share of Unfunded Vested Benefits, determined as of the date of withdrawal.

Why it matters: If a contributing employer leaves the plan while it has Unfunded Vested Benefits liability, that employer's allocated share of Employer Withdrawal Liability is either assessed, as applicable, or reallocated among the plan's remaining active employers if the presumptive method is used. A construction employer withdrawing from a construction industry plan will not be assessed unless they continue performing work within the jurisdiction of the CBA or restart such work within a period of 5 years. Small amounts (under $150,000) are generally reduced or eliminated pursuant to the "de minimis rule."