# *CARPENTERS PENSION TRUST FUND*
# *DETROIT AND VICINITY PENSION PLAN*

***Actuarial Valuation Report***
***For Plan Year Commencing***
***May 1, 2019***

United Actuarial
Services, Inc.
Actuaries and Consultants

March 9, 2020

Board of Trustees
Carpenters Pension Trust Fund - Detroit and Vicinity Pension Plan

Dear Trustees:

We have been retained by the Board of Trustees of the Carpenters Pension Trust Fund - Detroit and Vicinity 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 May 1, 2019. 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 Bultynck & Co., P.L.L.C. Participant data was provided by BeneSys, Inc. 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 our opinion, are appropriate for the purposes of this report, are individually reasonable and in combination represent our 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 our 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 amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law.


11590 North Meridian Street, Suite 610 ▪ Carmel, Indiana 46032-4529 ▪ (317) 580-8670 ▪ Fax (317) 580-8651

An application to suspend benefits pursuant to the Multiemployer Pension Reform Act (MPRA) is currently pending with the Treasury Department and PBGC. This actuarial valuation report does not reflect the proposed suspension in any way.

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 actuaries meet 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

Angela L. Jeffries, EA, MAAA
Consulting Actuary

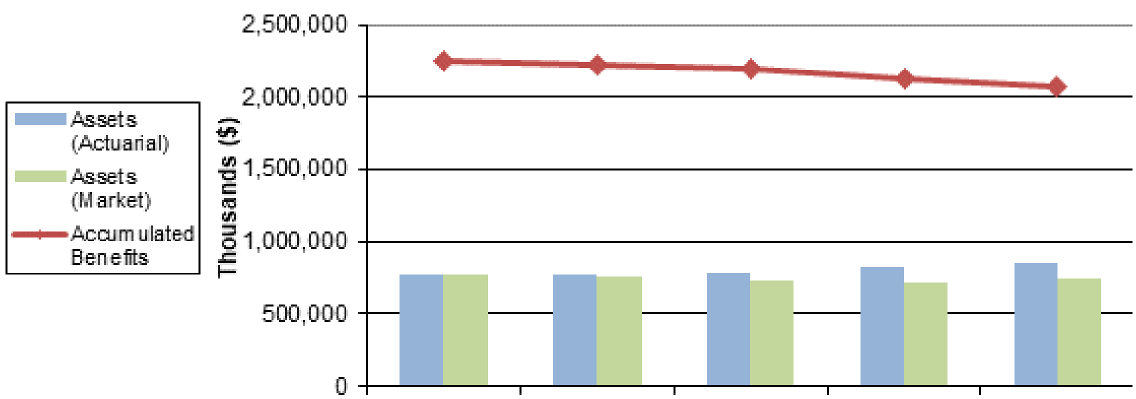
Consultant

Andrew T. Smith, FCA, ASA, EA
President

# PART I: SUMMARY OF RESULTS

## 5 - YEAR SUMMARY OF VALUATION RESULTS

| *Actuarial Study as of May 1,* | *2019* | *2018* | *2017* | *2016* | *2015* |
|---|---|---|---|---|---|
| PPA funded status | Crit & Decl | Crit & Decl | Critical | Critical | Critical |
| Progress under FIP/RP* | Yes | Yes | Yes | Yes | Yes |
| Improvements restricted** | Yes | Yes | Yes | Yes | Yes |
| Funded ratio | | | | | |
| *PPA certification* | 34.5% | 34.5% | 36.4% | 38.9% | 42.5% |
| *Valuation report (AVA)* | 34.5% | 34.8% | 35.5% | 38.7% | 41.4% |
| *Valuation report (MVA)* | 34.3% | 34.3% | 33.4% | 33.6% | 36.0% |
| Proj. year of insolvency | 2033 | 2033 | 2036 | None | None |
| Credit balance/(funding deficiency) ($000) | (409,159) | (327,316) | (258,325) | (190,016) | (141,912) |
| Date of first projected funding deficiency (with extension) | | | | | |
| *PPA certification* | Existing | Existing | Existing | Existing | Existing |
| *Valuation report* | Existing | Existing | Existing | Existing | Existing |
| Net investment return | | | | | |
| *On market value* | 6.65% | 7.87% | 11.13% | -0.22% | 4.42% |
| *On actuarial value* | 5.87% | 2.56% | 1.78% | -0.66% | 1.12% |
| Asset values ($ 000) | | | | | |
| *Market* | 772,280 | 761,729 | 734,240 | 712,660 | 746,439 |
| *Actuarial* | 777,051 | 771,737 | 781,239 | 821,814 | 859,594 |
| Accum. ben. ($ 000) | 2,253,649 | 2,217,888 | 2,199,043 | 2,123,936 | 2,076,091 |

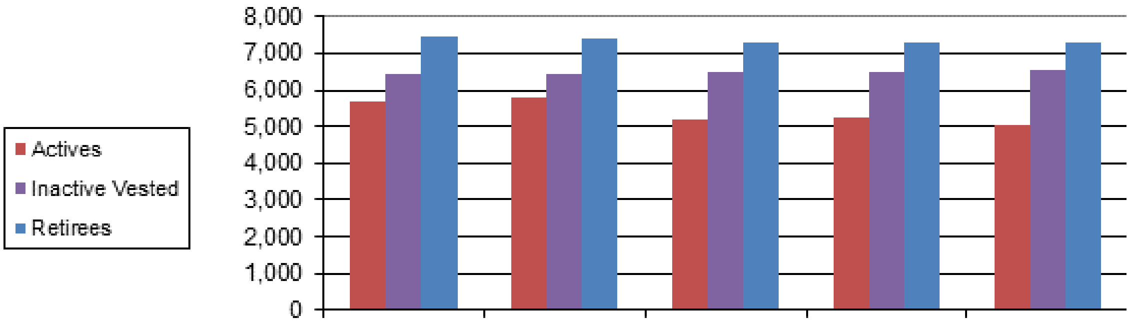



* Scheduled progress for this Plan means using all reasonable measures to forestall insolvency.

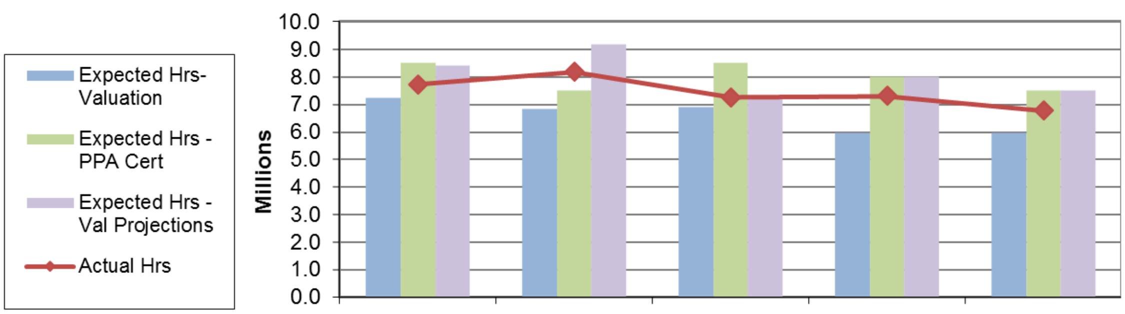
** Benefit improvement restrictions due to fund being in critical and declining status and due to fund having an amortization extension. Restrictions will remain in place until plan is in safe status again.

## 5 - YEAR SUMMARY OF DEMOGRAPHICS

| *Actuarial Study as of May 1,* | *2019* | *2018* | *2017* | *2016* | *2015* |
|---|---|---|---|---|---|
| Participant counts | | | | | |
| *Active* | 5,694 | 5,803 | 5,208 | 5,246 | 5,054 |
| *Inactive vested* | 6,444 | 6,438 | 6,465 | 6,495 | 6,515 |
| *Receiving benefits* | 7,466 | 7,395 | 7,314 | 7,290 | 7,276 |
| *Total* | 19,604 | 19,636 | 18,987 | 19,031 | 18,845 |
| Average entry age | 28.4 | 28.5 | 28.1 | 28.1 | 27.9 |
| Average attained age | 41.6 | 41.6 | 42.3 | 42.1 | 42.5 |




| Hours worked in prior plan year (thousands) | | | | | |
|---|---|---|---|---|---|
| *Expected hours valuation* | 7,249 | 6,825 | 6,908 | 5,983 | 5,953 |
| *Expected hours PPA cert* | 8,500 | 7,500 | 8,500 | 8,000 | 7,500 |
| *Exp. hours val projections* | 8,400 | 9,200 | 7,300 | 8,000 | 7,500 |
| *Actual hours worked* | 7,725 | 8,185 | 7,266 | 7,306 | 6,772 |



## 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 $4,000,000 to $4,090,000 and are assumed to increase annually by 2.25% in order to reflect our best estimate of future expenses based on recent plan experience.

- The current liability interest rate was changed from 2.99% to 3.09%. The new rate is within established statutory guidelines.

## HISTORY OF MAJOR ASSUMPTIONS

| Assumption | Actuarial Study as of May 1, | | | | |
|---|---|---|---|---|---|
| | 2019 | 2018 | 2017 | 2016 | 2015 |
| Future rate of net investment return | 7.50% | 7.50% | 7.50% | 7.50% | 7.50% |
| Mortality table | RP 2006 | RP 2006 | RP 2006 | RP 2006 | RP 2006 |
| *Adjustment* | 100% | 100% | 100% | 115% | 2 yr. sf |
| *Projection scale* | MP-2018 | MP-2018 | MP-2017 | MP-2016 | MP-2015 |
| Future expenses | $4,090,000 | $4,000,000 | $4,300,000 | $4,300,000 | $4,000,000 |
| Average future hourly contribution rate* | | | | | |
| *Credited* | $5.68 | $5.74 | $5.72 | $5.74 | $5.85 |
| *Non-credited* | 8.89 | 8.99 | 9.78 | 9.81 | 10.00 |
| *Total* | $14.57 | $14.73 | $15.50 | $15.55 | $15.85 |
| Average future annual hours | | | | | |
| *Vested* | 1,600 | 1,600 | 1,600 | 1,600 | 1,400 |
| *Non-vested* | 600 | 600 | 600 | 600 | 500 |

* 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 April 30, 2019* | *Expected* | *Actual* |
|---|---|---|
| Decrements | | |
| *Terminations* | | 1,113 |
| less*: Rehires* | | 234 |
| *Terminations (net of rehires)* | 950.3 | 879 |
| *Active retirements* | 107.6 | 82 |
| *Active disabilities* | 7.3 | 9 |
| *Pre-retirement deaths* | 53.8 | 46 |
| *Post-retirement deaths* | 273.2 | 299 |
| *Monthly benefits of deceased retirees* | $ 318,620 | $ 287,212 |
| Financial assumptions | | |
| *Rate of net investment return on actuarial value* | 7.50% | 5.87% |
| *Administrative expenses* | $ 4,000,000 | $ 4,633,812 |
| Other demographic assumptions | | |
| *Average retirement age from active (new retirees)* | 59.0 | 58.9 |
| *Average retirement age from inactive (new retirees)** | 61.7 | 64.5 |
| *Average entry age (new entrants)* | 28.5 | 32.2 |
| *Hours worked per vested active* | 1,600 | 1,656 |
| *Hours worked per non-vested active* | 600 | 713 |
| *Total hours worked (valuation assumption)* | 7,249,000 | 7,725,209 |
| *Total hours worked (PPA certification assumption)* | 8,500,000 | 7,725,209 |
| Unfunded liability (gain)/loss | | |
| *(Gain)/loss due to asset experience* | | $ 12,282,846 |
| *(Gain)/loss due to liability experience* | | 11,072,484 |
| *Total (gain)/loss* | | $ 23,355,330 |

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

## PLAN MATURITY

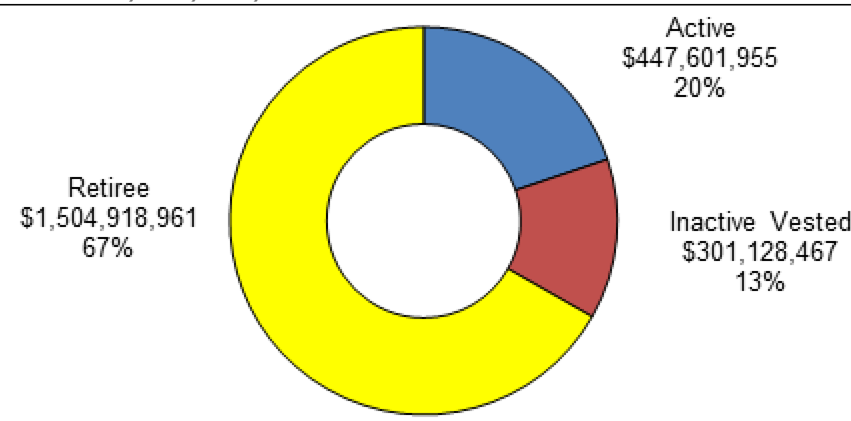
*Measures of plan maturity can play a part in understanding risk and a plan's ability to recover from adverse experience*

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 may not be sustainable in the long term.

| *Actuarial Study as of May 1,* | *2019* | *2018* | *2017* | *2016* | *2015* |
|---|---|---|---|---|---|
| Retiree/active headcount ratio | 1.31 | 1.27 | 1.40 | 1.39 | 1.44 |
| Nonactive/active headcount ratio | 2.44 | 2.38 | 2.65 | 2.63 | 2.73 |
| Cash flow | | | | | |
| *Contr.-ben.-exp. ($000)* | (39,068) | (29,243) | (54,819) | (32,245) | (34,373) |
| *Percent of assets* | -5.06% | -3.84% | -7.47% | -4.52% | -4.60% |

***Liabilities of Actives, Retirees, and Inactive Vesteds***
***Total Liabilities: $2,253,649,383***



## UNFUNDED VESTED BENEFITS/EMPLOYER WITHDRAWAL LIABILITY

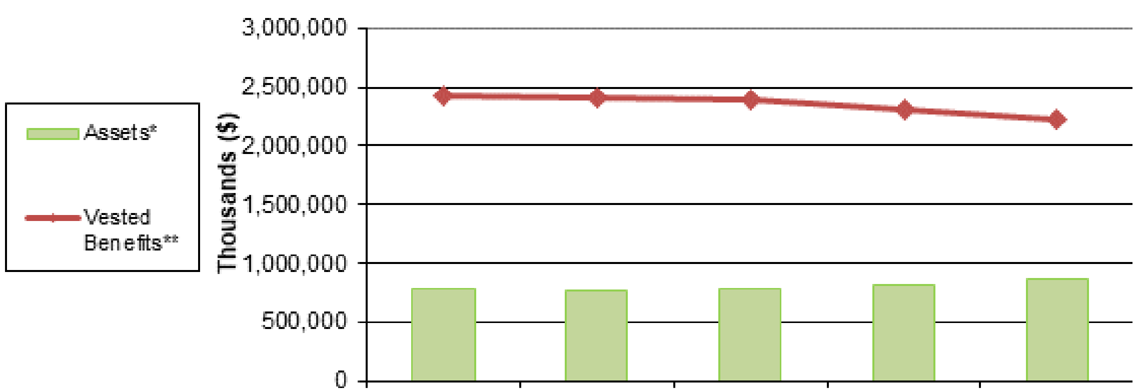
*An employer withdrawing during the coming year may have withdrawal liability*

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)*

| April 30, | 2019 | 2018 | 2017 | 2016 | 2015 |
|---|---|---|---|---|---|
| Vested benefits interest | 7.50% | 7.50% | 7.50% | 7.50% | 7.50% |
| Vested benefits | 2,240,984 | 2,205,042 | 2,185,387 | 2,089,265 | 1,986,840 |
| *less*: Asset value* | 777,051 | 771,737 | 781,239 | 821,814 | 859,594 |
| UVB | 1,463,933 | 1,433,305 | 1,404,148 | 1,267,451 | 1,127,246 |
| Unamortized VAB | 188,473 | 200,929 | 212,515 | 223,293 | 233,318 |
| UVB + VAB | 1,652,406 | 1,634,234 | 1,616,663 | 1,490,744 | 1,360,564 |



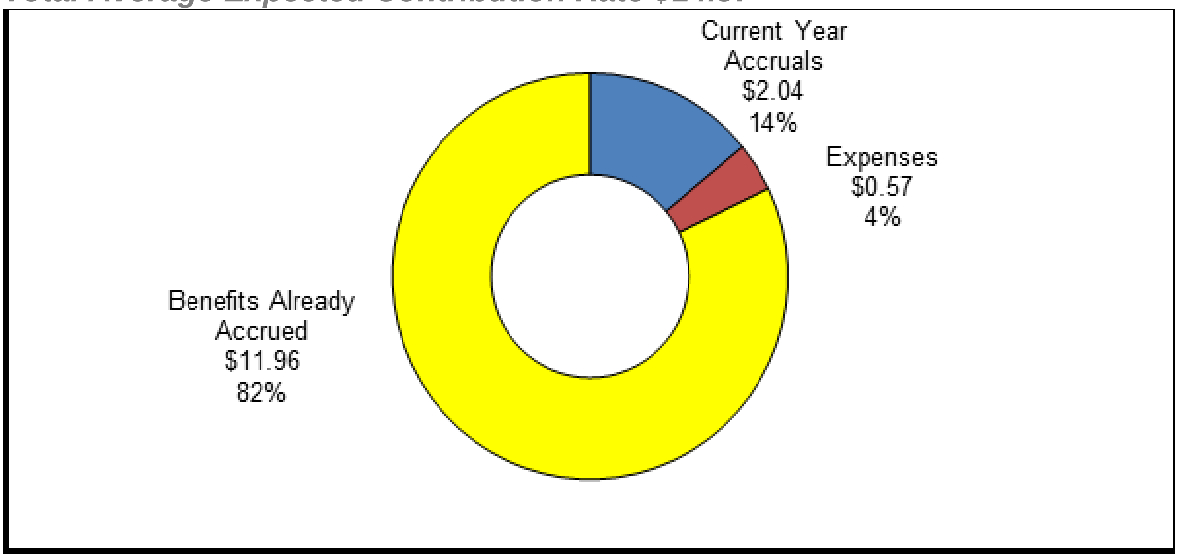

* Actuarial value
** Includes VAB

## CONTRIBUTION ALLOCATION

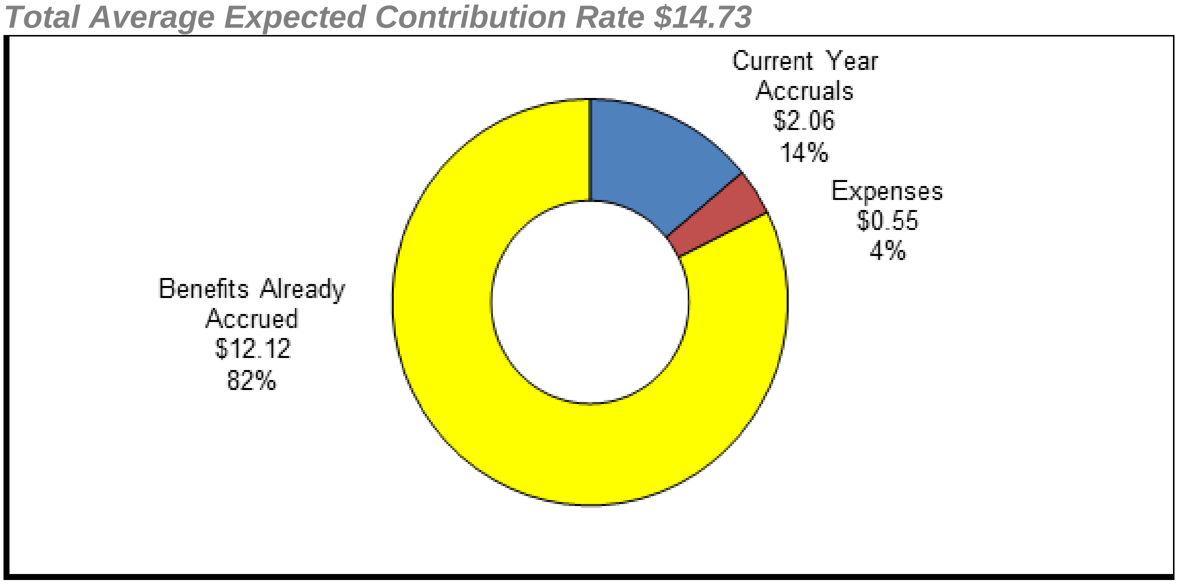
*These graphs show how the contributions are being spent*

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 May 1, 2019***
***Total Average Expected Contribution Rate $14.57***




***Contribution Allocation as of May 1, 2018***
***Total Average Expected Contribution Rate $14.73***

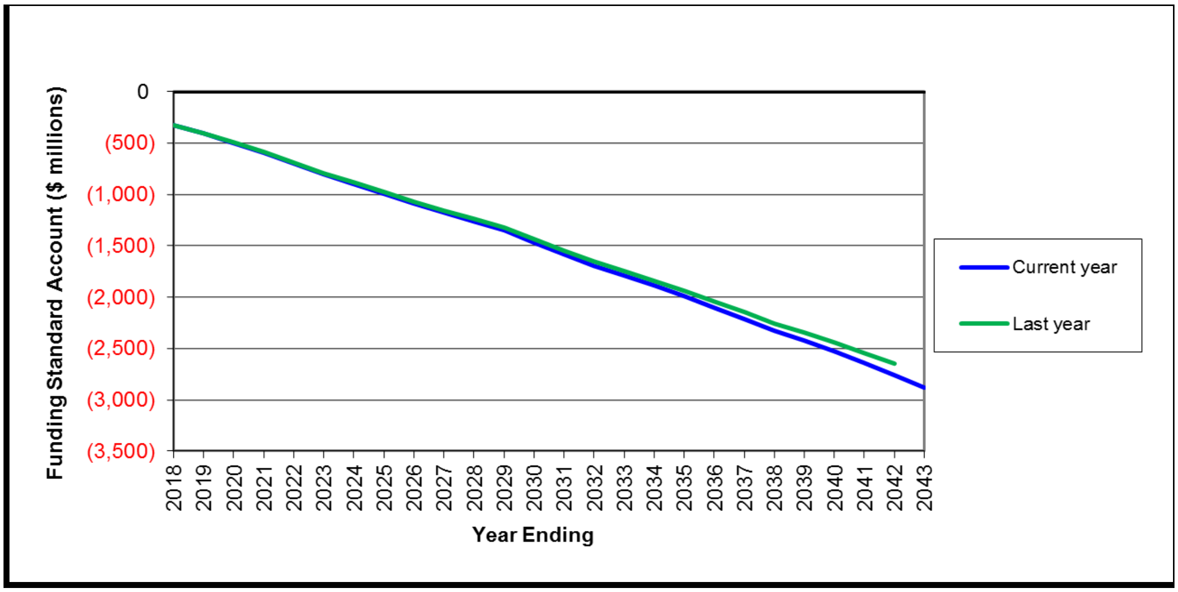


## *FUNDING STANDARD ACCOUNT PROJECTION*

*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.

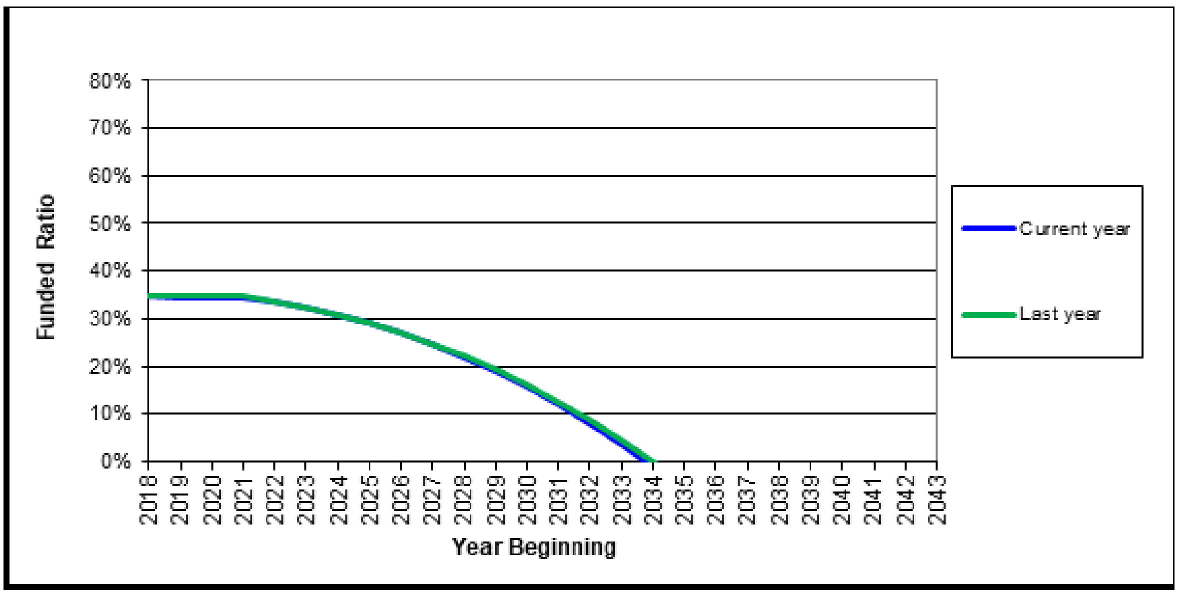
Actuaries must project the plan's FSA each year in order to determine PPA status. If a funding deficiency is projected in a future year, the plan could be forced into yellow (endangered) or red (critical) status depending how far into the future the first projected funding deficiency is. The plan's FSA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



## FUNDED RATIO PROJECTION

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

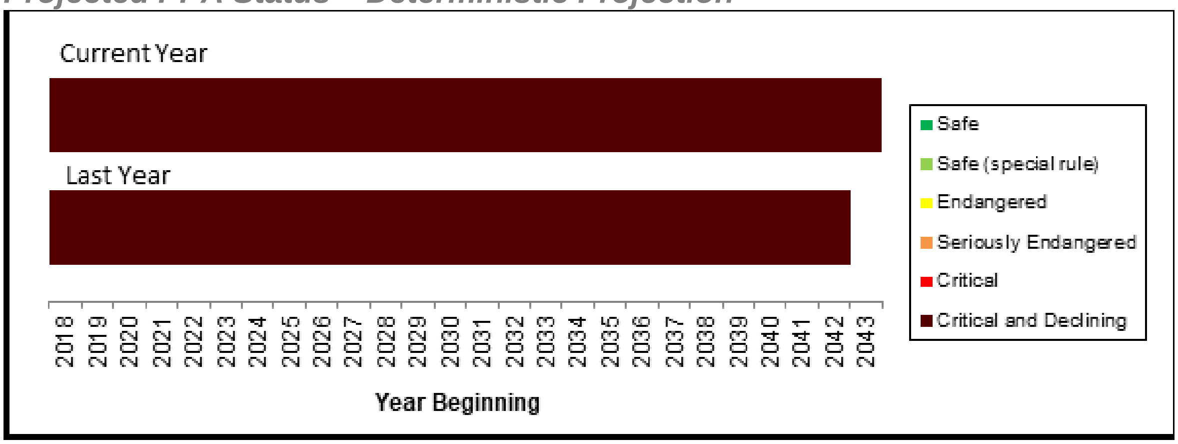
The funded ratio is defined as the actuarial value of plan assets divided by the plan's liabilities for accrued benefits. Along with the funding standard account projection, funded ratio is one of the two major drivers of PPA funded status. In order for a plan to enter the green zone (also called "safe" or "not endangered or critical") the funded ratio must be at least 80%. An insolvency, which is the plan year when the plan would run out of money, occurs if the funded ratio is projected to be 0%. In order for a plan to enter critical and declining status, an insolvency needs to be projected within 20 plan years of the PPA certification (it may need to be within 15 years under certain conditions). 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.



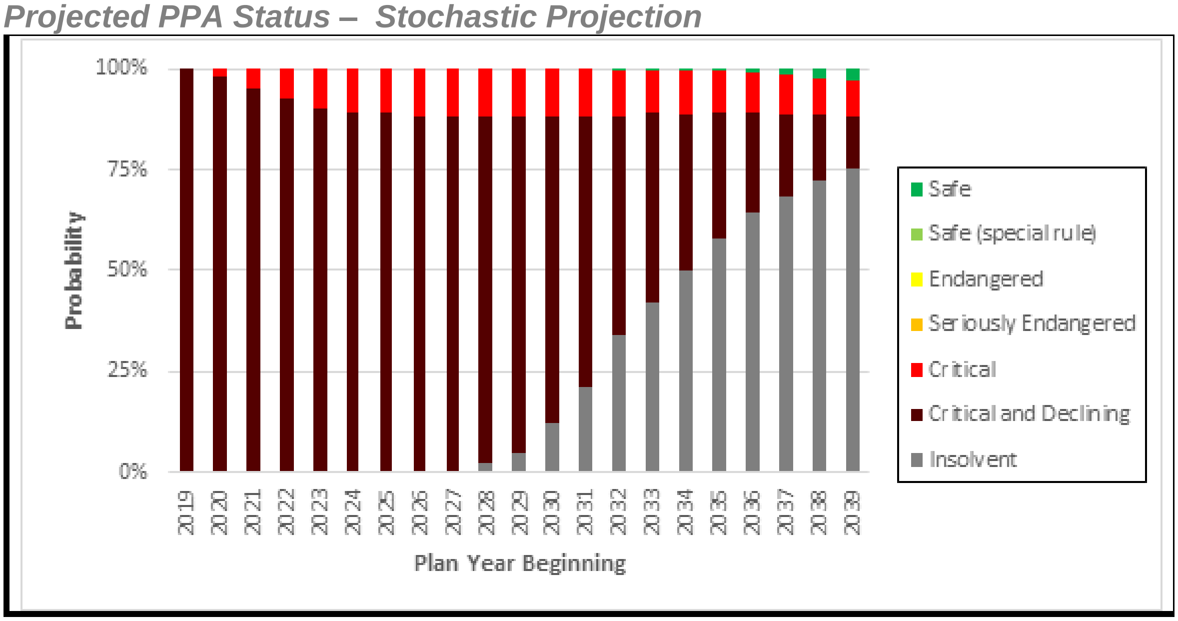
## PPA STATUS PROJECTIONS

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". The criteria for these determinations are outlined in Appendix D. The following graph shows PPA status *deterministic* projections based on the assumptions summarized in the "Actuarial Assumptions used for Projections" section of Appendix B. The second following graph shows the probability of the Plan being in each status for the next 20 years using a *stochastic* projection based on the mean and standard deviation of the Plan's investment portfolio. The zone projections are based on the current plan and do not include any further action if the plan moves to a worse PPA zone.

### Projected PPA Status – Deterministic Projection




### Projected PPA Status – Stochastic Projection

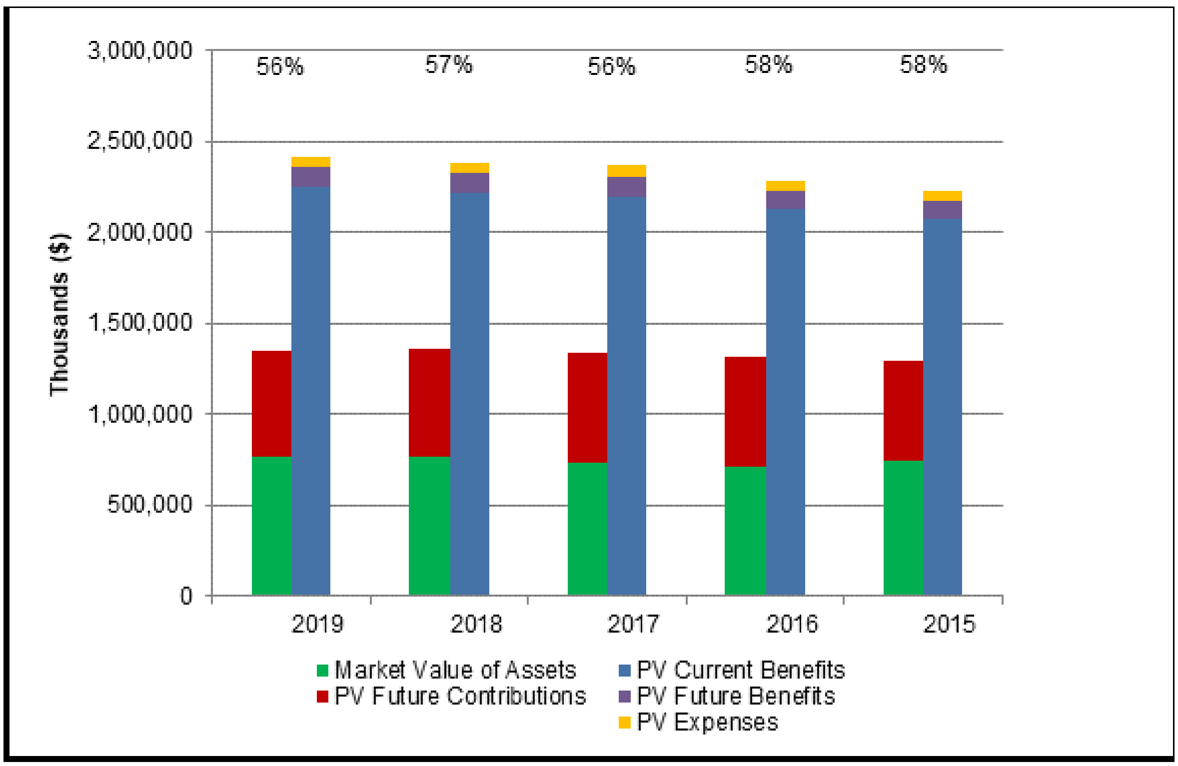


## ULTIMATE FUNDED STATUS

*Ultimate funded status is an indicator of the ability of current participants to pay for their own benefits*

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 future benefits the current plan participants are expected to earn and the present value of future administrative expenses the plan is expected to pay. Ideally these ultimate asset and liability values will be approximately equal.

An ultimate funded status of less than 100% could be an indication of generational shifting (i.e. the need for one generation of participants to fund the benefits of the preceding generation) and/or a reliance on the continued addition of new participants in order to fund benefits.



## STRESS TESTING AND SENSITIVITY ANALYSIS

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

Currently, the plan is in critical and declining status and projects insolvency during the 2033-2034 plan year. 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 date of projected insolvency. We examined future hours assumptions equal to the baseline, 10% lower, and 10% higher. We examined asset returns for the 2019-20 plan year of 10.00%, 6.50%, 4.00%, and 0.00%. All results include the impact of a lower asset return of 6.50% for the next 9 years and 7.50% thereafter. Stochastic modeling is also available for a more detailed analysis of sensitivity to asset returns.

### *Projected Plan Year of Insolvency*

| | *Return for the 2019-20 PY (6.50% next 9 years, 7.50% thereafter)* | | | |
|---|---|---|---|---|
| *Assumptions* | *10.00%* | *6.50%* | *4.00%* | *0.00%* |
| 10% Lower Hours<br>7,380,000 in 2019-20<br>7,200,000 in 2020-21<br>7,020,000 in 2021-22<br>6,300,000 thereafter | 2032 | 2031 | 2031 | 2030 |
| Baseline Hours<br>8,200,000 in 2019-20<br>8,000,000 in 2020-21<br>7,800,000 in 2021-22<br>7,000,000 thereafter | 2034 | **2033** | 2033 | 2032 |
| 10% Higher Hours<br>9,020,000 in 2019-20<br>8,800,000 in 2020-21<br>8,580,000 in 2021-22<br>7,700,000 thereafter | 2037 | 2036 | 2036 | 2035 |

# 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 |
|---|---|---|---|---|
| May 1, 2018 | 5,803 | 6,438 | 7,395 | 19,636 |
| Change due to: | | | | |
| *New hire* | 874 | - | - | 874 |
| *Rehire* | 234 | (97) | - | 137 |
| *Termination* | (1,113) | 254 | - | (859) |
| *Disablement* | (9) | (14) | 23 | - |
| *Retirement* | (82) | (167) | 249 | - |
| *Death* | (9) | (37) | (299) | (345) |
| *Cash out* | - | (4) | - | (4) |
| *New beneficiary* | - | 26 | 102 | 128 |
| *Certain pd. expired* | - | - | (7) | (7) |
| *Data adjustment* | (4) * | 45 ** | 3 *** | 44 |
| Net change | (109) | 6 | 71 | (32) |
| May 1, 2019 | 5,694 | 6,444 | 7,466 | 19,604 |

* Comprised primarily of actives that had duplicate records removed.

** Comprised primarily of previously unvalued inactive vested participants and deferred beneficiaries who were found during data work for the MRPA application.

*** Comprised primarily of retirees and beneficiaries previously thought to be deceased or ineligible for benefits.

## HOURS WORKED DURING PLAN YEAR

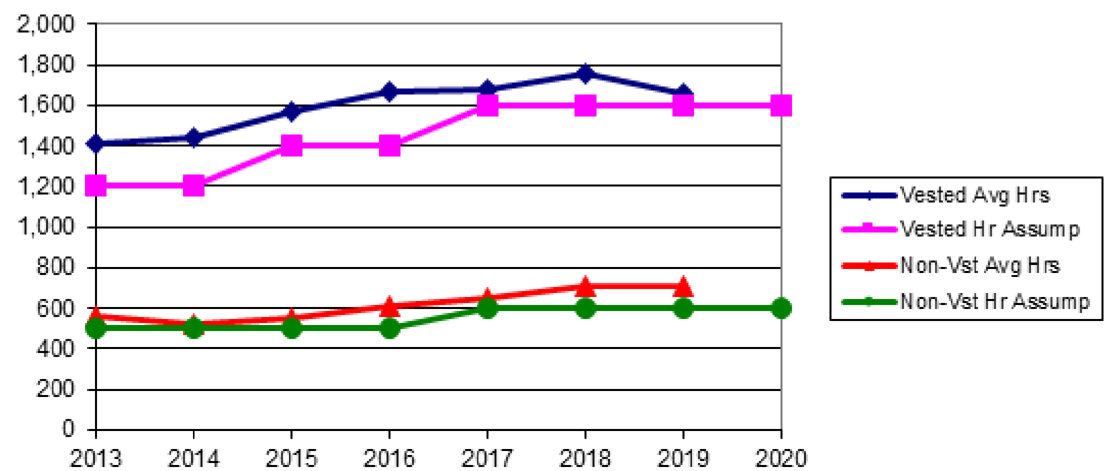
### *Hours Worked Per Participant*

| *Plan Year Ending April 30, 2019* | *Number* | *Hours Worked* | *Average Hours Worked* |
|---|---|---|---|
| Actives | | | |
| *Vested* | 3,809 | 6,306,055 | 1,656 |
| *Non-vested, continuing* | 1,011 | 884,912 | 875 |
| *Non-vested, new entrant* | 874 | 458,700 | 525 |
| Total active | 5,694 | 7,649,667 | 1,343 |
| Others | 129 | 75,542 | 586 |
| Total for plan year | 5,823 | 7,725,209 | 1,327 |

### *History of Total Actual and Expected Hours Worked (Thousands)*

| *Plan Year Ending April 30,* | *2020* | *2019* | *2018* | *2017* | *2016* |
|---|---|---|---|---|---|
| Expected hours valuation | 7,201 | 7,249 | 6,825 | 6,908 | 5,983 |
| Expected hours PPA cert | 8,200 | 8,500 | 7,500 | 8,500 | 8,000 |
| Actual hours worked | n/a | 7,725 | 8,185 | 7,266 | 7,306 |

### *History of Average Actual and Expected Hours Worked per Participant*



## CONTRIBUTIONS MADE DURING PLAN YEAR

### Employer Credited Contributions Reported in Employee Data

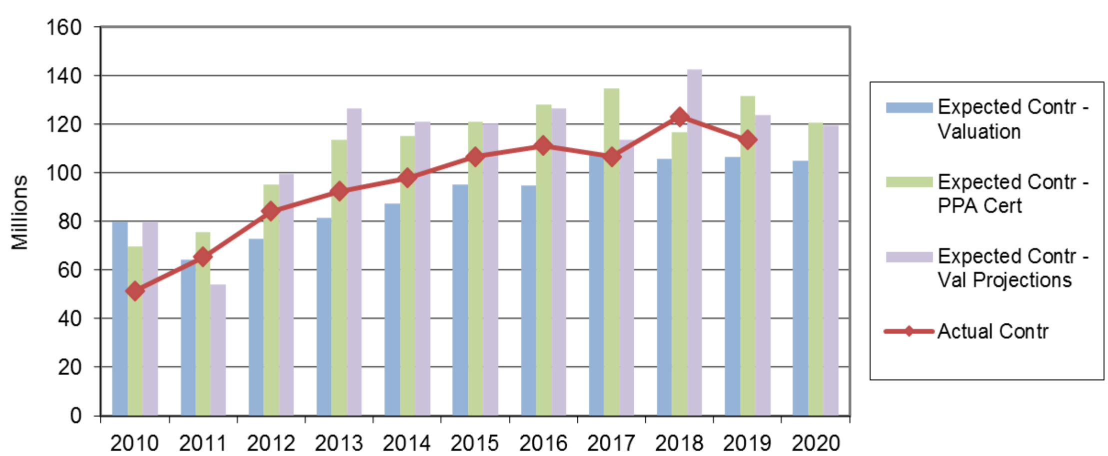
| Plan Year Ending April 30, 2019 | Number | | Credited Contributions Reported |
|---|---|---|---|
| Actives | | | |
| *Vested* | 3,809 | $ | 36,670,643 |
| *Non-vested, continuing* | 1,011 | | 4,189,874 |
| *Non-vested, new entrant* | 874 | | 2,081,134 |
| Total valued as active | 5,694 | | 42,941,651 |
| Others | 129 | | 448,366 |
| Total for plan year | 5,823 | $ | 43,390,017 |
| Average credited hourly contribution rate | | $ | 5.62 |

### Comparison with Audited Employer Contributions

| | | |
|---|---|---|
| Employer credited contributions reported in data | $ | 43,390,017 |
| Adjusted total employer contributions reported* | $ | 111,256,454 |
| Total audited employer contributions** | $ | 113,494,825 |
| Percent reported | | 98% |

* Adjusted to reflect the average non-credited ("discounted") portion of contributions of 61%.
** Excludes employer withdrawal liability payments.

### History of Actual and Expected Total Contributions Received



## ACTIVE INFORMATION

### *Active Participants by Age and Service as of May 1, 2019*

| Age | Years of Service | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ | Total |
| < 25 | 163 | 333 | 20 | - | - | - | - | - | - | - | 516 |
| 25-29 | 126 | 331 | 135 | 10 | - | - | - | - | - | - | 602 |
| 30-34 | 113 | 242 | 131 | 109 | 15 | - | - | - | - | - | 610 |
| 35-39 | 93 | 242 | 118 | 139 | 121 | 27 | - | - | - | - | 740 |
| 40-44 | 69 | 173 | 103 | 101 | 167 | 156 | 5 | - | - | - | 774 |
| 45-49 | 63 | 111 | 71 | 86 | 178 | 183 | 74 | 11 | - | - | 777 |
| 50-54 | 61 | 85 | 70 | 85 | 137 | 183 | 85 | 126 | 8 | - | 840 |
| 55-59 | 35 | 50 | 41 | 52 | 99 | 118 | 71 | 88 | 7 | - | 561 |
| 60-64 | 23 | 12 | 16 | 33 | 32 | 45 | 17 | 8 | 1 | - | 187 |
| 65-69 | 5 | 3 | 1 | 1 | 2 | 4 | - | - | - | - | 16 |
| 70+ | 1 | - | 1 | - | - | - | - | - | - | - | 2 |
| Totals | 752 | 1,582 | 707 | 616 | 751 | 716 | 252 | 233 | 16 | - | 5,625 |
| Unrecorded DOB | 61 | 8 | - | - | - | - | - | - | - | - | 69 |
| Total Active Lives | 813 | 1,590 | 707 | 616 | 751 | 716 | 252 | 233 | 16 | - | 5,694 |

## INACTIVE VESTED INFORMATION

*Inactive Vested Participants by Age as of May 1, 2019*

| Age Group | Number | Estimated Monthly Deferred Vested Benefits* |
|---|---|---|
| < 30 | 45 | $ 5,477 |
| 30-34 | 151 | 28,175 |
| 35-39 | 555 | 220,034 |
| 40-44 | 919 | 507,963 |
| 45-49 | 1,103 | 754,055 |
| 50-54 | 1,231 | 886,664 |
| 55-59 | 1,217 | 827,496 |
| 60-64 | 872 | 496,265 |
| 65-69 | 220 | 84,910 |
| 70+ | 128 | 48,498 |
| Totals | 6,441 | 3,859,537 |
| Unrecorded birth date | 3 | 281 |
| Total inactive vested lives | 6,444 | $ 3,859,818 |

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

## RETIREE INFORMATION

### Benefits Being Paid by Form of Payment as of May 1, 2019

| Form of Payment | Number | Monthly Benefits Being Paid: Total | Average | Smallest | Largest |
|---|---|---|---|---|---|
| Life only* | 2,341 | $ 4,193,846 | $ 1,791 | $ 32 | $ 8,038 |
| Joint & survivor | 2,991 | 6,340,415 | 2,120 | 25 | 8,926 |
| Disability | 461 | 684,696 | 1,485 | 192 | 4,916 |
| Beneficiaries | 1,673 | 1,446,397 | 865 | 11 | 6,584 |
| Totals | 7,466 | $ 12,665,354 | $ 1,696 | $ 11 | $ 8,926 |

### Retirees by Age and Form of Payment as of May 1, 2019

| Age Group | Form of Benefits Being Paid: Life Only* | Joint & Survivor | Disability | Beneficiaries | Total |
|---|---|---|---|---|---|
| < 40 | - | - | 5 | 9 | 14 |
| 40-44 | - | - | 22 | 1 | 23 |
| 45-49 | - | - | 38 | 10 | 48 |
| 50-54 | - | - | 102 | 46 | 148 |
| 55-59 | 139 | 188 | 210 | 115 | 652 |
| 60-64 | 408 | 572 | 84 | 171 | 1,235 |
| 65-69 | 539 | 745 | - | 218 | 1,502 |
| 70-74 | 430 | 617 | - | 213 | 1,260 |
| 75-79 | 329 | 447 | - | 232 | 1,008 |
| 80-84 | 247 | 243 | - | 250 | 740 |
| 85-89 | 153 | 131 | - | 239 | 523 |
| 90-94 | 73 | 43 | - | 134 | 250 |
| 95+ | 23 | 5 | - | 35 | 63 |
| Totals | 2,341 | 2,991 | 461 | 1,673 | 7,466 |

* 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 April 30, | | | | |
|---|---|---|---|---|---|
| | 2019 | 2018 | 2017 | 2016 | 2015 |
| < 52 | - | - | - | - | - |
| 52 | - | - | - | 1 | - |
| 53 | - | - | - | 1 | - |
| 54 | - | - | - | - | - |
| 55 | 27 | 36 | 33 | 54 | 20 |
| 56 | 11 | 11 | 13 | 23 | 15 |
| 57 | 11 | 8 | 10 | 12 | 4 |
| 58 | 8 | 14 | 10 | 13 | 5 |
| 59 | 12 | 13 | 7 | 3 | 10 |
| 60 | 10 | 11 | 8 | 8 | 5 |
| 61 | 2 | 8 | 5 | 8 | 1 |
| 62 | 33 | 31 | 27 | 19 | 12 |
| 63 | 5 | 11 | 5 | 7 | 3 |
| 64 | 3 | 6 | 4 | 5 | 2 |
| 65 | 72 | 63 | 43 | 30 | 28 |
| 66+ | 38 | 20 | 15 | 11 | 8 |
| Totals | 232 | 232 | 180 | 195 | 113 |
| Average retirement age | 62.5 | 61.5 | 61.1 | 59.7 | 60.7 |

# PART III: ASSET INFORMATION

## MARKET AND ACTUARIAL FUND VALUES

Asset information extracted from the fund's financial statements audited by Bultynck & Co., P.L.L.C.

| *Market/Actuarial Value of Fund Investments as of April 30,* | *2019* | *2018* | *2017* |
|---|---|---|---|
| Invested assets | | | |
| *Domestic common stocks* | $ 92,914,949 | $ 87,971,144 | $ 80,476,728 |
| *Foreign common stocks* | 19,917,016 | 17,181,416 | 4,116,213 |
| *Mutual funds* | 225,594,844 | 215,928,174 | 220,011,130 |
| *Corporate securities* | 38,538,985 | 23,682,219 | 6,194,578 |
| *Government securities* | 24,953,356 | 16,790,217 | 2,745,741 |
| *Mortgage-backed corp. secur.* | 13,297,278 | 3,844,721 | 271,648 |
| *Mortgage-backed GSE secur.* | 4,012,380 | - | 229,070 |
| *Real estate investment trusts* | 2,155,395 | 2,495,519 | 2,509,454 |
| *Common/collective trusts* | 6,164,452 | 7,580,600 | 8,915,967 |
| *Hedge funds* | 31,971,224 | 51,799,260 | 64,019,094 |
| *Private equity* | 113,681,999 | 122,674,338 | 143,080,092 |
| *Real estate* | 147,478,330 | 173,111,462 | 166,638,915 |
| *Money market funds* | 8,144,932 | 10,350,601 | - |
| *Cash and equivalents* | 32,599,581 | 18,363,564 | 26,550,169 |
| *Prepaid expenses* | 807,009 | 684,544 | 684,481 |
| | 762,231,728 | 752,457,780 | 726,443,278 |
| Net receivables* | 10,048,177 | 9,271,229 | 7,796,517 |
| Market value | $ 772,279,905 | $ 761,729,009 | $ 734,239,795 |
| Fund assets - Actuarial value | | | |
| *Market value* | $ 772,279,905 | $ 761,729,009 | $ 734,239,795 |
| less*: Deferred investment gains and (losses)* | (4,770,819) | (10,007,780) | (46,999,149) |
| Actuarial value | $ 777,050,724 | $ 771,736,789 | $ 781,238,944 |
| Actuarial value as a percentage of market value | 100.62% | 101.31% | 106.40% |

* Equals receivables, less any liabilities

## FLOW OF FUNDS

Asset information extracted from the fund's financial statements audited by Bultynck & Co., P.L.L.C.

| *Plan Year Ending April 30,* | *2019* | *2018* | *2017* |
|---|---|---|---|
| Market value at beginning of plan year | $ 761,729,009 | $ 734,239,795 | $ 712,660,227 |
| Additions | | | |
| *Employer contributions* | 116,595,346 | 123,147,221 | 106,706,279 |
| *Net investment income** | 49,378,345 | 56,604,709 | 76,301,511 |
| *Other income* | 240,815 | 127,168 | 97,527 |
| | 166,214,506 | 179,879,098 | 183,105,317 |
| Deductions | | | |
| *Benefits paid* | 151,029,798 | 148,373,816 | 157,611,626 |
| *Net expenses** | 4,633,812 | 4,016,068 | 3,914,123 |
| | 155,663,610 | 152,389,884 | 161,525,749 |
| Net increase (decrease) | 10,550,896 | 27,489,214 | 21,579,568 |
| Adjustment | - | - | - |
| Market value at end of plan year | $ 772,279,905 | $ 761,729,009 | $ 734,239,795 |
| Cash flow | | | |
| *Contr.-ben.-exp.* | (39,068,264) | (29,242,663) | (54,819,470) |
| *Percent of assets* | -5.06% | -3.84% | -7.47% |
| Estimated net investment return | | | |
| *On market value* | 6.65% | 7.87% | 11.13% |
| *On actuarial value* | 5.87% | 2.56% | 1.78% |

* Investment expenses have been offset against gross investment income.

## INVESTMENT GAIN AND LOSS

### *Investment Gain or Loss*
### *Plan Year Ending April 30, 2019*

| | | |
|---|---|---|
| Expected market value at end of plan year | | |
| *Market value at beginning of plan year* | $ | 761,729,009 |
| *Employer contributions and non-investment income* | | 116,836,161 |
| *Benefits and expenses paid* | | (155,663,610) |
| *Expected investment income (at 7.50% rate of return)* | | 55,673,646 |
| | | 778,575,206 |
| Actual market value at end of plan year | | 772,279,905 |
| *less*: Expected market value | | 778,575,206 |
| Investment gain or (loss) | $ | (6,295,301) |

### *History of Gains and (Losses)*

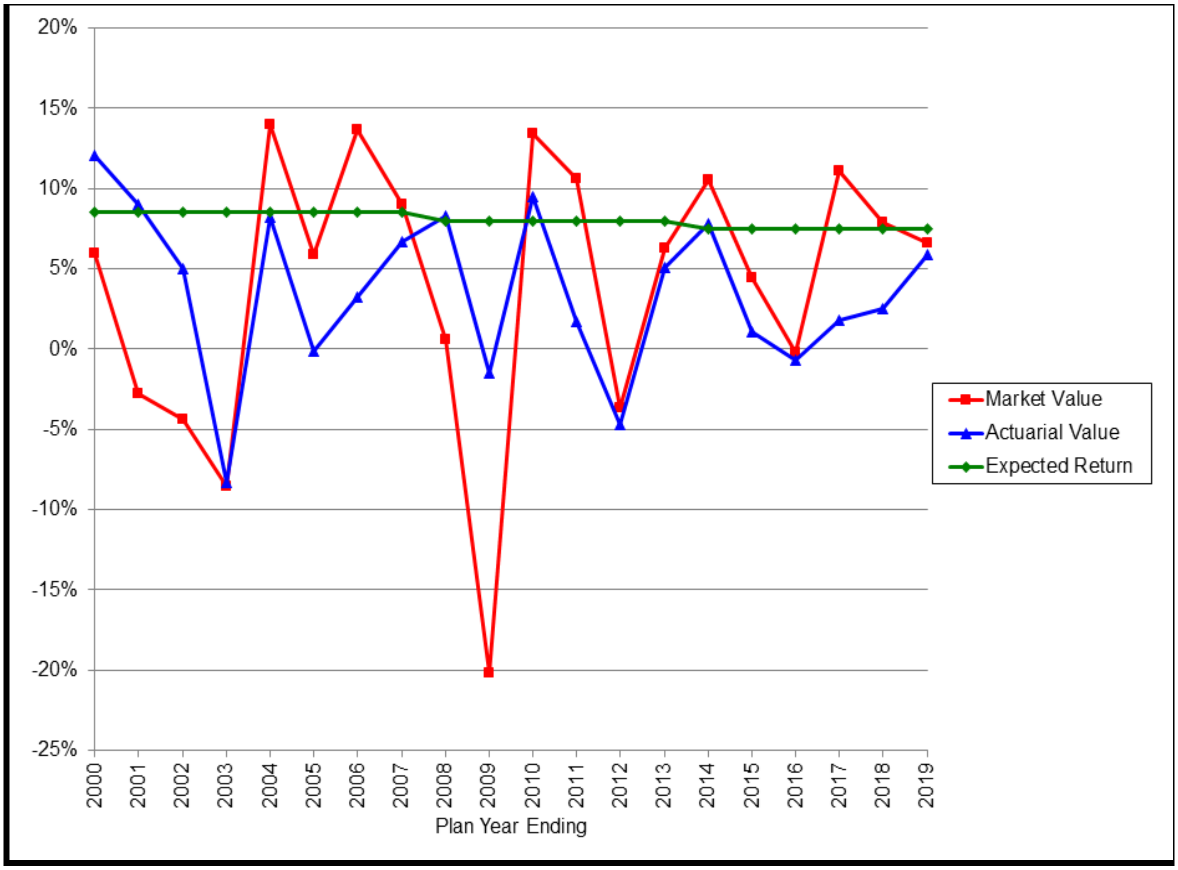
| Plan Year Ending April 30, | Investment Gain or (Loss) | Amount Recognized This Year |
|---|---|---|
| 2019 | $ (6,295,301) | $ (1,259,060) |
| 2018 | 2,628,555 | 525,711 |
| 2017 | 24,904,067 | 4,980,813 |
| 2016 | (56,366,691) | (11,273,338) |
| 2015 | (22,531,938) | (4,506,388) |
| Total | $ (57,661,308) | $ (11,532,262) |

### *Deferred Investment Gains and (Losses)*

| Plan Year Ending April 30, | Amount of Gain or (Loss) Deferred as of April 30, | | | |
|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 |
| 2019 | $ (5,036,241) | $ (3,777,181) | $ (2,518,120) | $ (1,259,060) |
| 2018 | 1,577,133 | 1,051,422 | 525,711 | - |
| 2017 | 9,961,627 | 4,980,813 | - | - |
| 2016 | (11,273,338) | - | - | - |
| Totals | $ (4,770,819) | $ 2,255,054 | $ (1,992,409) | $ (1,259,060) |

## RATE OF RETURN ON FUND ASSETS

### Historical Rates of Net Investment Return




The following table shows average rates of return over various periods calculated on a geometric average basis. These statistics may not be appropriate for evaluating a Plan's rate of return assumption as such assumption is forward-looking whereas the statistics are historical. Furthermore, these statistics do not reflect the internal rate of return actually experienced by the Fund over these periods.

### Average Rates of Net Investment Return (geometric average)

| | Return on Market Value | | Return on Actuarial Value | |
|---|---|---|---|---|
| | Period Ending April 30, | | Period Ending April 30, | |
| Period | 2019 | 2018 | 2019 | 2018 |
| One year | 6.65% | 7.87% | 5.87% | 2.56% |
| 5 years | 5.90% | 6.66% | 2.11% | 2.48% |
| 10 years | 6.59% | 3.55% | 2.93% | 2.18% |
| 15 years | 4.71% | 5.18% | 3.03% | 3.18% |
| 20 years | 3.65% | 3.75% | 3.51% | 3.83% |

# PART IV: ENROLLED ACTUARY'S REPORT

## NORMAL COST/ACTUARIAL LIABILITY

| Normal Cost as of May 1, | 2019 | 2018 |
|---|---|---|
| Benefit accruals | $ 14,142,340 | $ 14,376,040 |
| Anticipated administrative expenses (beg. of year) | 3,942,169 | 3,855,422 |
| Total normal cost | $ 18,084,509 | $ 18,231,462 |

| Unfunded Actuarial Liability as of May 1, | 2019 | 2018 |
|---|---|---|
| Actuarial liability | | |
| *Participants currently receiving benefits* | $ 1,504,918,961 | $ 1,486,101,209 |
| *Inactive vested participants* | 301,128,467 | 289,394,861 |
| *Active participants* | 447,601,955 | 442,391,581 |
| | 2,253,649,383 | 2,217,887,651 |
| *less*: Fund assets (actuarial value) | 777,050,724 | 771,736,789 |
| Unfunded actuarial liability (not less than 0) | $ 1,476,598,659 | $ 1,446,150,862 |

## ACTUARIAL LIABILITY RECONCILIATION/PROJECTION

### Reconciliation of Unfunded Actuarial Liability

| | |
|---|---|
| Expected unfunded actuarial liability as of April 30, 2019 | |
| *Unfunded actuarial liability as of May 1, 2018* | $ 1,446,150,862 |
| *Normal cost (including expenses)* | 18,231,462 |
| *Actual contributions* | (116,595,346) |
| *Interest to end of plan year* | 105,456,351 |
| | 1,453,243,329 |
| Increase (decrease) due to: | |
| *Experience (gain) or loss* | 23,355,330 |
| *Plan amendment* | - |
| *Change in actuarial assumptions* | - |
| *Change in actuarial method* | - |
| Net increase (decrease) | 23,355,330 |
| Unfunded actuarial liability as of May 1, 2019 | $ 1,476,598,659 |

### Projection of Actuarial Liability to Year End

| | |
|---|---|
| Actuarial liability as of May 1, 2019 | $ 2,253,649,383 |
| Expected increase (decrease) due to: | |
| *Normal cost (excluding expenses)* | 14,142,340 |
| *Benefits paid* | (160,745,800) |
| *Interest on above* | (4,967,292) |
| *Interest on actuarial liability* | 169,023,704 |
| Net expected increase (decrease) | 17,452,952 |
| Expected actuarial liability as of April 30, 2020 | $ 2,271,102,335 |

## FUNDED RATIOS

| *Present Value of Accumulated Benefits/ Funded Ratios Actuarial Study as of May 1,* | *2019* | *2018* |
|---|---|---|
| Present value of vested accumulated benefits | | |
| *Participants currently receiving benefits* | $ 1,504,918,961 | $ 1,486,101,209 |
| *Inactive vested participants* | 299,421,928 | 287,640,501 |
| *Active participants* | 436,642,813 | 431,300,579 |
| Total | 2,240,983,702 | 2,205,042,289 |
| Nonvested accumulated benefits | 12,665,681 | 12,845,362 |
| Present value of all accumulated benefits | $ 2,253,649,383 | $ 2,217,887,651 |
| Market value of assets | $ 772,279,905 | $ 761,729,009 |
| Funded ratios (Market value) | | |
| *Vested benefits* | 34.5% | 34.5% |
| *All accumulated benefits* | 34.3% | 34.3% |
| Actuarial value of assets | $ 777,050,724 | $ 771,736,789 |
| Funded ratios (Actuarial value used for PPA) | | |
| *Vested benefits* | 34.7% | 35.0% |
| *All accumulated benefits* | 34.5% | 34.8% |
| 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*<br>*Actuarial Study as of May 1,* | *2019* | *2018* |
|---|---|---|
| Unfunded actuarial liability | | |
| *Actuarial liability* | $ 2,333,955,861 | $ 2,301,227,465 |
| less: *Fund assets (actuarial value)* | 777,050,724 | 771,736,789 |
| | 1,556,905,137 | 1,529,490,676 |
| Funds available to amortize unfunded | | |
| *Anticipated contributions (beg. of yr.)* | 101,126,117 | 102,922,672 |
| less*: Normal cost (including expenses)* | 8,140,097 | 8,114,992 |
| | $ 92,986,020 | $ 94,807,680 |
| Funding period (years) | * | * |

* Anticipated contributions are insufficient to pay normal cost and amortize unfunded liability.

## CURRENT LIABILITY

Current Liability is determined in a manner similar to the value of accrued benefits, but using an interest rate assumption within an acceptable range determined by the IRS. For this report we used an interest rate assumption of 3.09%. The current liability is used only in the determination of the maximum deductible employer contribution and full funding limit under the Internal Revenue Code, and is not used for any other purpose.

### *Current Liability as of May 1, 2019*

| | | |
|---|---|---|
| Vested current liability | | |
| *Participants currently receiving benefits* | $ | 2,297,129,403 |
| *Inactive vested participants* | | 629,303,625 |
| *Active participants* | | 972,149,092 |
| | | 3,898,582,120 |
| Nonvested current liability | | |
| *Inactive vested participants* | | 2,269,782 |
| *Active participants* | | 21,469,006 |
| | | 23,738,788 |
| Total current liability | $ | 3,922,320,908 |

### *Projection of Current Liability to Year End*

| | | |
|---|---|---|
| Current liability as of May 1, 2019 | $ | 3,922,320,908 |
| Expected increase (decrease) due to: | | |
| *Benefits accruing* | | 35,601,532 |
| *Benefits paid* | | (160,745,800) |
| *Interest on above* | | (1,383,435) |
| *Interest on current liability* | | 121,199,716 |
| Net expected increase (decrease) | | (5,327,987) |
| Expected current liability as of April 30, 2020 | $ | 3,916,992,921 |

## FUNDING STANDARD ACCOUNT

| *Funding Standard Account Plan Year Ending April 30,* | *2020 (Projected)* | *2019 (Final)* |
|---|---|---|
| Charges | | |
| *Prior year funding deficiency* | $ 409,158,686 | $ 327,315,629 |
| *Normal cost (including expenses)* | 18,084,509 | 18,231,462 |
| *Amortization charges (see Appendix C)* | 218,399,552 | 218,273,664 |
| *Interest on above* | 48,423,204 | 42,286,556 |
| Total charges | 694,065,951 | 606,107,311 |
| Credits | | |
| *Prior year credit balance* | - | - |
| *Employer contributions* | 119,467,109 | 116,595,346 |
| *Amortization credits (see Appendix C)* | 68,114,427 | 70,679,954 |
| *Interest on above* | 9,588,602 | 9,673,325 |
| *ERISA full funding credit* | - | - |
| Total credits | 197,170,138 | 196,948,625 |
| Credit balance (credits less charges) | $ (496,895,813) | $ (409,158,686) |

## 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 April 30,* | | *2020 (Projected)* | | *2019 (Final)* |
|---|---|---|---|---|
| Charges | | | | |
| *Prior year funding deficiency* | $ | 704,043,238 | $ | 636,739,149 |
| *Normal cost (including expenses)* | | 18,084,509 | | 18,231,462 |
| *Amortization charges (see Appendix C)* | | 181,450,484 | | 183,161,351 |
| *Interest on above* | | 67,768,367 | | 62,859,897 |
| Total charges | | 971,346,598 | | 900,991,859 |
| Credits | | | | |
| *Prior year credit balance* | | - | | - |
| *Employer contributions* | | 119,467,109 | | 116,595,346 |
| *Amortization credits (see Appendix C)* | | 68,114,427 | | 70,679,954 |
| *Interest on above* | | 9,588,602 | | 9,673,321 |
| *ERISA full funding credit* | | - | | - |
| Total credits | | 197,170,138 | | 196,948,621 |
| Credit balance (credits less charges) | $ | (774,176,460) | $ | (704,043,238) |

## FULL FUNDING LIMIT

| Projection of Assets for Full Funding Limit | | Market Value | | Actuarial Value |
|---|---|---|---|---|
| Asset value as of May 1, 2019 | $ | 772,279,905 | $ | 777,050,724 |
| Expected increase (decrease) due to: | | | | |
| *Investment income* | | 51,739,650 | | 52,097,462 |
| *Benefits paid* | | (160,745,800) | | (160,745,800) |
| *Expenses* | | (4,090,000) | | (4,090,000) |
| Net expected increase (decrease) | | (113,096,150) | | (112,738,338) |
| Expected value as of April 30, 2020* | $ | 659,183,755 | $ | 664,312,386 |

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

| Full Funding Limit as of April 30, 2020 | | For Minimum Required | | For Maximum Deductible |
|---|---|---|---|---|
| ERISA full funding limit (not less than 0) | | | | |
| *Actuarial liability* | $ | 2,271,102,335 | $ | 2,271,102,335 |
| less: *Assets (lesser of market or actuarial)* | | 659,183,755 | | 659,183,755 |
| plus: Credit balance (w/interest to year end) | | - | | n/a |
| | | 1,611,918,580 | | 1,611,918,580 |
| ERISA full funding limit without extension (not less than 0) | | | | |
| *Actuarial liability* | | 2,271,102,335 | | n/a |
| less: *Assets (lesser of market or actuarial)* | | 659,183,755 | | n/a |
| plus: *Credit bal. w/o ext. (w/int. to year end)* | | - | | n/a |
| | | 1,611,918,580 | | n/a |
| Full funding limit override (not less than 0) | | | | |
| *90% of current liability* | | 3,525,293,629 | | 3,525,293,629 |
| less: *Assets (actuarial value)* | | 664,312,386 | | 664,312,386 |
| | | 2,860,981,243 | | 2,860,981,243 |
| Full funding limit (greater of ERISA limit and full funding override) | | | | |
| *With amortization extension* | $ | 2,860,981,243 | $ | 2,860,981,243 |
| *Without amortization extension* | $ | 2,860,981,243 | | n/a |

## MINIMUM REQUIRED CONTRIBUTION AND FULL FUNDING CREDIT

| *Minimum Required Contribution Plan Year Beginning May 1, 2019* | *Without Extension* | *With Extension* |
|---|---|---|
| Minimum funding cost | | |
| *Normal cost (including expenses)* | $ 18,084,509 | $ 18,084,509 |
| *Net amortization of unfunded liabilities* | 113,336,057 | 150,285,125 |
| *Interest to end of plan year* | 9,856,539 | 12,627,717 |
| | 141,277,105 | 180,997,351 |
| Full funding limit | 2,860,981,243 | 2,860,981,243 |
| Net charge to funding std. acct. (lesser of above) | 141,277,105 | 180,997,351 |
| less: *Credit balance with interest to year end* | (756,846,481) | (439,845,587) |
| Minimum Required Contribution (not less than 0)* | $ 898,123,586 | $ 620,842,938 |
| Effect of extension | | $ 277,280,648 |

* Excise taxes that would otherwise apply in the case of a negative credit balance are waived if the provisions of the rehabilitation plan are followed and the plan continues to make scheduled progress.

| *Full Funding Credit to Funding Standard Account Plan Year Ending April 30, 2020* | *Without Extension* | *With Extension* |
|---|---|---|
| Full funding credit (not less than 0) | | |
| *Minimum funding cost (n.c., amort., int.)* | $ 141,277,105 | $ 180,997,351 |
| less: *full funding limit* | 2,860,981,243 | 2,860,981,243 |
| | $ - | $ - |

## 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 May 1, 2019*

| | | |
|---|---|---|
| Preliminary deductible limit | | |
| *Normal cost (including expenses)* | $ | 18,084,509 |
| *10-year limit adjustment (using "fresh start" alternative)* | | 200,111,298 |
| *Interest to end of plan year* | | 16,364,685 |
| | | 234,560,492 |
| Full funding limit | | 2,860,981,243 |
| Maximum deductible contribution override | | |
| *140% of vested current liability projected to April 30, 2020* | | 5,450,600,931 |
| less*: Actuarial value of assets projected to April 30, 2020* | | 664,312,386 |
| | | 4,786,288,545 |
| Maximum deductible contribution* | $ | 4,786,288,545 |
| Anticipated employer contributions | $ | 119,467,109 |

* 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*

| April 30, | Vested Benefits Interest Rate | Value of Vested Benefits | Asset Value* | Unfunded Vested Benefits | Unamortized Portion of VAB |
|---|---|---|---|---|---|
| 2000 | 8.50% | 938,572,993 | 1,111,005,014 | (172,432,021) | |
| 2001 | 8.50% | 1,029,784,599 | 1,179,424,453 | (149,639,854) | |
| 2002 | 8.50% | 1,107,078,442 | 1,199,112,035 | (92,033,593) | |
| 2003 | 8.50% | 1,184,327,138 | 1,096,149,080 | 88,178,058 | |
| 2004 | 8.50% | 1,275,453,703 | 1,135,029,517 | 140,424,186 | |
| 2005 | 8.50% | 1,362,988,818 | 1,078,562,590 | 284,426,228 | |
| 2006 | 8.50% | 1,443,959,383 | 1,050,435,719 | 393,523,664 | |
| 2007 | 8.00% | 1,611,741,457 | 1,050,682,726 | 561,058,731 | |
| 2008 | 8.00% | 1,694,967,827 | 1,080,411,426 | 614,556,401 | |
| 2009 | 8.00% | 1,777,493,533 | 925,248,368 | 852,245,165 | |
| 2010 | 8.00% | 1,784,003,335 | 1,016,672,140 | 767,331,195 | |
| 2011 | 8.00% | 1,868,338,612 | 967,427,492 | 900,911,120 | 2,737,290 |
| 2012 | 8.00% | 1,932,955,484 | 869,984,478 | 1,062,971,006 | 2,636,477 |
| 2013 | 7.50% | 2,081,917,679 | 861,607,040 | 1,220,310,639 | 2,527,599 |
| 2014 | 7.50% | 1,883,082,305 | 883,023,972 | 1,000,058,333 | 242,642,462 |
| 2015 | 7.50% | 1,986,839,845 | 859,593,662 | 1,127,246,183 | 233,317,630 |
| 2016 | 7.50% | 2,089,265,487 | 821,813,612 | 1,267,451,875 | 223,292,801 |
| 2017 | 7.50% | 2,185,386,748 | 781,238,944 | 1,404,147,804 | 212,515,423 |
| 2018 | 7.50% | 2,205,042,289 | 771,736,789 | 1,433,305,500 | 200,929,002 |
| 2019 | 7.50% | 2,240,983,702 | 777,050,724 | 1,463,932,978 | 188,472,799 |

* 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 3.07% for the first 20 years and 3.05% for each year thereafter and the GAM 94 Basic Mortality Table projected to 2029 were used.

### *Illustrative Section 4281 Valuation as of April 30, 2019*

| | | |
|---|---|---|
| Value of nonforfeitable benefits | | |
| *Participants currently receiving benefits* | $ | 2,271,213,746 |
| *Inactive vested participants* | | 626,549,928 |
| *Active participants* | | 1,016,667,071 |
| *Expenses (per Section 4281 of ERISA)* | | 25,356,065 |
| | | 3,939,786,810 |
| *less:* Fund assets (market value) | | 772,279,905 |
| Value of nonforfeitable benefits in excess of (less than) fund assets | $ | 3,167,506,905 |

## 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*<br>*Actuarial Study as of May 1,* | | *2019* | | *2018* |
|---|---|---|---|---|
| Present value of vested accumulated benefits | | | | |
| *Participants currently receiving benefits* | $ | 1,504,918,961 | $ | 1,486,101,209 |
| *Expenses on parts. currently rec. benefits* | | 41,385,271 | | 40,867,783 |
| *Other participants* | | 736,064,741 | | 718,941,080 |
| *Expenses on other participants* | | 20,241,780 | | 19,770,880 |
| | | 2,302,610,753 | | 2,265,680,952 |
| Present value of nonvested accumulated benefits | | | | |
| *Nonvested accumulated benefits* | | 12,665,681 | | 12,845,362 |
| *Expenses on nonvested benefits* | | 348,306 | | 353,247 |
| | | 13,013,987 | | 13,198,609 |
| Present value of all accumulated benefits | $ | 2,315,624,740 | $ | 2,278,879,561 |
| Market value of plan assets | $ | 772,279,905 | $ | 761,729,009 |
| Interest rate used to value benefits | | 7.50% | | 7.50% |

| *Changes in Present Value of Accumulated Benefits* | | |
|---|---|---|
| Present value of accumulated benefits as of May 1, 2018 | $ | 2,278,879,561 |
| Increase (decrease) due to: | | |
| *Plan amendment* | | - |
| *Change in actuarial assumptions* | | - |
| *Benefits accumulated and experience gain or loss* | | 21,492,822 |
| *Interest due to decrease in discount period* | | 170,915,967 |
| *Benefits paid* | | (151,029,798) |
| *Operational expenses paid* | | (4,633,812) |
| Net increase (decrease) | | 36,745,179 |
| Present value of accumulated benefits as of May 1, 2019 | $ | 2,315,624,740 |

# APPENDICES

## PLAN HISTORY

### Origins/Purpose

The Carpenters Pension Trust Fund – Detroit and Vicinity Pension Plan was established effective May 1, 1957 as a result of collective bargaining agreements between the Carpenters' District Council of Detroit and Vicinity and various employer associations and other employers working within the jurisdiction of the Carpenters' District Council.

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.

Effective May 1, 2002, the Interior Systems Local 1045 Resilient Pension Fund Pension Plan was merged with Carpenters Pension Trust Fund – Detroit and Vicinity Pension Plan.

### Employer Contributions

The Pension Plan is financed entirely by contributions from the employers as specified in the applicable Collective Bargaining Agreements. Contributions began May 1, 1957 at the rate of 3% of wages. The rate has been increased through the years.

### Reciprocity

The Trustees adopted a "Money Follows the Man" Reciprocity Agreement with other signatory funds within the Third District of the United Brotherhood of Carpenters and Joiners of America (AFL-CIO). Also, the Trustees became a party of the International's Reciprocal Agreement for Carpenters Pension Funds, which includes both the Pro-Rata and Money Follows the Man reciprocity types.

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **Plan year** | The 12-month period beginning May 1 and ending the following April 30 |
| **Vesting/credit year** | A participant shall accrue 1 vesting/credit year for each plan year on and after May 1, 1957, during which the participant is credited with 500 or more hours of service. 500 hours of service is equivalent to 435 hours of work. |
| **Break in service** | Plan year with less than 500 hours of service (435 hours of work) |
| **Inactive participant** | No hours of service during 2 consecutive plan years |
| **Normal retirement benefit** | |
| *Eligibility* | Age 65 or 5th anniversary of participation, if later |
| *Monthly amount* | • 4.30% of employer contributions for work performed prior to May 1, 2004, plus<br>• 3.00% of employer contributions for work performed May 1, 2004 – April 30, 2007, plus<br>• 1.00% of employer contributions for work performed on and after May 1, 2007.<br>Payable for Life. |

## SUMMARY OF PLAN PROVISIONS (CONT.)

**Contribution "discounting"**

Contributions that are "discounted" according to the following schedule are not considered in determining benefits.

- Contributions for work performed from June 1, 2006 through May 31, 2007 are generally "discounted" by 22% to 23%.
- Contributions for work performed from June 1, 2007 through May 31, 2008 are generally "discounted" by 16% to 17%. Some contracts are discounted by 35%.
- Contributions for work performed from June 1, 2008 through May 31, 2009 are generally "discounted" by 23% to 23.5%. The Floorlayers contract is discounted by 28%; the Millmen and some other contracts are discounted by 45%.
- Contributions for work performed from June 1, 2009 through May 31, 2010 are generally "discounted" by 37% to 37.5%. The Floorlayers contract is discounted by 42%; the Millmen and some other contracts are discounted by 45%.
- Contributions for work performed from June 1, 2010 through May, 31, 2011 are generally "discounted" by 45% to 46%. The Floorlayers contract is discounted by 51%; the Millmen and some other contracts are discounted by 50%.
- Contributions for work performed from June 1, 2011 through May 31, 2012 are generally "discounted" by 50% to 53%. The Floorlayers contract is discounted by 56%.
- Contributions for work performed from June 1, 2012 through May 31, 2013 are generally "discounted" by 55% to 57.75%. The Floorlayers contract is discounted by 60.75%.
- Contributions for work performed on and after June 1, 2013 are generally "discounted" by 61%. Effective on and after January 1, 2019, the Liberty Fabricating contract is discounted by 20%.

## SUMMARY OF PLAN PROVISIONS (CONT.)

| | |
|---|---|
| **Early retirement benefit** | |
| *Eligibility* | Age 55 and 10 credit years or age 62 and 3 credit years, has not met Applicable Index Requirement, worked at least 435 hours in the two years prior to retirement. Applicable Index Requirement is 80 points if participant had at least 76 points as of May 1, 2010; otherwise 85 points. |
| *Monthly amount* | Normal reduced by 5/9% for each month under age 62 (unless eligible for grandfathered exception – see below). Payable for life. |
| *Eligibility* | Age 55 and 10 credit years, has met Applicable Index Requirement, worked at least 435 hours in the two years prior to retirement. Applicable Index Requirement is 80 points if participant had at least 76 points as of May 1, 2010; otherwise 85 points. |
| *Monthly amount* | Normal reduced by 1/3rd of 1% for each month under age 62 (unless eligible for grandfathered exception – see below). Payable for life. |
| *Eligibility* | Grandfathered exception: Active at retirement, meets the Applicable Index Requirement on or before August 1, 2015 |
| *Monthly amount* | Early retirement benefit will not be less than normal reduced by 5%. Payable for life. |
| **Vested benefit** | |
| *Eligibility* | Three vesting years, did not work at least 435 hours in the two years prior to retirement |
| *Monthly amount* | 20% of normal after 3 vesting years increasing 20% per year to 100% at 7 vesting years. Payable for life commencing at age 65, or reduced amount (5/9% reduction for each month by which commencement precedes age 65) commencing at early retirement age, if eligible. |

## SUMMARY OF PLAN PROVISIONS (CONT.)

| | |
|---|---|
| **Total and permanent disability benefit** | |
| *Eligibility* | Under age 62, 5 credit years, disability award from the Social Security Administration. |
| *Monthly amount* | The greater of 75% of vested accrued normal or $260, multiplied by vested percentage subject to the following cap:<br>• Capped at $525 for credit years 5-9<br>• Capped at $625 for credit years 10-15<br>• Capped at $725 for credit years 16-19<br>• Capped at $1,050 for credit years 20-24<br>• Capped at $1,350 for 25 or more credit years<br><br>Payable until age 62 (age 65 if receiving workers compensation benefits); terminates upon recovery or death. |
| *Eligibility* | Under age 62, less than 5 credit years, disability award from the Social Security Administration. |
| *Monthly amount* | Lump sum payment equal to actuarial equivalent of vested accrued benefit. Lump sums in excess of $5,000 are suspended while in critical status. |
| **Pre-retirement surviving spouse benefit** | |
| *Eligibility* | Death of married vested participant |
| *Monthly or lump sum amount* | 50% of participant’s joint and 50% survivor. Payable to spouse for life commencing at participant’s earliest retirement age. Lump sums in excess of $5,000 are suspended while in critical status. |
| **Optional forms** | • Joint and 50% survivor with pop-up<br>• Joint and 75% survivor with pop-up<br>• Joint and 100% survivor with pop-up<br>• Life-ten years certain |

## HISTORICAL PLAN MODIFICATIONS

**One-time payment**

*Effective date* — May 1, 1994

*Adoption date* — July 18, 1994

*Provisions* — Retirees and beneficiaries receiving benefits as of 12/1/94 received a one-time payment on 1/1/95 equal to the average 12/1/94 payment ($623).

**Retiree increase**

*Effective date* — January 1, 1997 *(rescinded January 1, 2010)*

*Adoption date* — December 12, 1996

*Provisions* — Retirees and spouses receiving benefits as of 12/31/96 shall receive an increase in monthly benefits which corresponds to the retiree's years of credited service as described below:

| Years of Credited Service | Increase in Monthly Benefit |
|---|---|
| 0 – 9 | $ 50.00 |
| 10 – 19 | 100.00 |
| 20 – 29 | 125.00 |
| 30 + | 150.00 |

**Vesting schedule**

*Effective date* — May 1, 1997

*Adoption date* — December 12, 1996

*Provisions* — Vesting scale changed to 20% at 3 years increasing 20% per year to 100% at 7 years.

Vesting for non-bargained employees remained at 100% for 5 years.

**Normal retirement increase**

*Effective date* — May 1, 1997

*Adoption date* — November 12, 1997

*Provisions* — Normal retirement benefit increased from 3.9% to 4.3% of employer contributions.

## HISTORICAL PLAN MODIFICATIONS (CONT.)

**Pre-retirement survivor annuity increase**

| | |
|---|---|
| *Effective date* | May 1, 1997 |
| *Adoption date* | November 12, 1997 |
| *Provisions* | The pre-retirement survivor annuity increased from joint & 50% survivor to joint and 100% survivor. |

**Retiree increase**

| | |
|---|---|
| *Effective date* | May 1, 1999 *(rescinded January 1, 2010)* |
| *Adoption date* | July 20, 2000 |
| *Provisions* | Retirees and beneficiaries participating in an affiliated healthcare plan received a $100 per month increase. |

**Retiree increase**

| | |
|---|---|
| *Effective date* | May 1, 2000 *(rescinded January 1, 2010)* |
| *Adoption date* | December 18, 2000 |
| *Provisions* | Retirees and beneficiaries participating in an affiliated healthcare plan received a $100 per month increase. |

**Pre-ERISA benefit**

| | |
|---|---|
| *Effective date* | May 1, 2000 |
| *Adoption date* | October 19, 2000 |
| *Provisions* | Participants who are active on or after May 1, 2000 and qualify for the reinstatement of Credit Years and Vesting Years shall have all Plan Years of contributions that remained in the Fund after the participant received his “cash termination benefit’’ before May 1, 1976 reinstated. |

**Retiree increase**

| | |
|---|---|
| *Effective date* | July 1, 2001 *(rescinded January 1, 2010)* |
| *Adoption date* | April 26, 2001 |
| *Provisions* | Retirees and beneficiaries who retired between May 1, 2000 and July 1, 2001 and participated in an affiliated healthcare plan received a $100 per month increase. |

## HISTORICAL PLAN MODIFICATIONS (CONT.)

| | |
|---|---|
| **Plan merger** | |
| *Effective date* | May 1, 2002 |
| *Adoption date* | March 19, 2002 |
| *Provisions* | Resilient Floor Decorators Local #2265 Pension Fund was merged into the Fund. |
| **Joint and survivor option** | |
| *Effective date* | January 1, 2002 |
| *Adoption date* | July 18, 2001 |
| *Provisions* | A 75% joint and survivor option was added to the plan. |
| **Disability and employment** | |
| *Effective date* | January 1, 2004 |
| *Adoption date* | April 12, 2004 |
| *Provisions* | The plan was amended to allow disabled participants to resume employment in supervisory capacity and continue to receive disability payments. |
| **Normal retirement decrease** | |
| *Effective date* | May 1, 2004 |
| *Adoption date* | April 12, 2004 |
| *Provisions* | The crediting rate for employer contributions for work performed on and after May 1, 2004 was decreased from 4.30% to 3.00%. Contributions for work performed prior to May 1, 2004 are still credited at 4.30%. |
| **Normal retirement decrease** | |
| *Effective date* | June 1, 2006 |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2006 are generally "discounted" by 22% to 23%. |

## HISTORICAL PLAN MODIFICATIONS (CONT.)

| | |
|---|---|
| **Normal retirement decrease** | |
| *Effective date* | May 1, 2007 |
| *Adoption date* | April 17, 2007 |
| *Provisions* | The crediting rate for employer contributions for work performed on and after May 1, 2008 was decreased from 3.00% to 1.00%. |
| **Non-credited contribution rate change** | |
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2007 are generally "discounted" by 16% to 17%. Some contracts are discounted by 35%. |
| **Change to Index 85 and minimum age 55** | |
| *Effective date* | January 1, 2008 |
| *Adoption date* | April 17, 2007 |
| *Provisions* | For participants who became active on or after January 1, 2008, the age plus service equal to 80 is changed to age 55 and age plus service of 85. |
| **Non-credited contribution rate change** | |
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2008 are generally "discounted" by 23% to 23.5%. The Floorlayers contract is discounted by 28% and the Millmen and some other contracts are discounted by 45%. |

## *HISTORICAL PLAN MODIFICATIONS (CONT.)*

**Non-credited contribution rate change**

| | |
|---|---|
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2009 are generally "discounted" by 37% to 37.5%. The Floorlayers contract is discounted by 42% and the Millmen and some other contracts are discounted by 45%. |

**Non-credited contribution rate change**

| | |
|---|---|
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2010 are generally "discounted" by 45% to 46%. The Floorlayers contract is discounted by 51% and the Millmen and some other contracts are discounted by 50%. |

**Elimination of post-retirement improvements**

| | |
|---|---|
| *Effective date* | January 1, 2010 |
| *Adoption date* | March 10, 2010 |
| *Provisions* | Post-retirement increases granted May 1, 1999; May 1, 2000; June 1, 2001 and December 31 1996 are eliminated. |

**Change to Index 85**

| | |
|---|---|
| *Effective date* | May 1, 2010 |
| *Adoption date* | March 10, 2010 |
| *Provisions* | For participants who are not grandfathered (age plus service of at least 76 on May 1, 2010), the index 80 requirement changed to index 85. Participants who joined the plan on or after May 1, 2007 must also be at least age 55 in order to qualify for index 85. |

## HISTORICAL PLAN MODIFICATIONS (CONT.)

| | |
|---|---|
| **Non-credited contribution rate change** | |
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2011 are generally "discounted" by 52% to 53%. The Floorlayers contract is discounted by 56% and the Millmen and some other contracts are discounted by 50%. |
| **Non-credited contribution rate change** | |
| *Effective date* | June 1, 2011 |
| *Adoption date* | July 12, 2012 |
| *Provisions* | The "cap" on the non-credited contribution rate was removed retroactive to June 1, 2011. |
| **Terms of Reciprocity Agreement** | |
| *Effective date* | June 1, 2012 |
| *Adoption date* | July 12, 2012 |
| *Provisions* | The reciprocity agreement with the Michigan Carpenters' Pension Fund was modified so that only credited amounts are transferred back to the members' home funds. |
| **Non-credited contribution rate change** | |
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2012 are generally "discounted" by 55% to 57.75%. The Floorlayers contract is discounted by 60.75%. |

## HISTORICAL PLAN MODIFICATIONS (CONT.)

**Early retirement benefit**

*Effective date* — August 1, 2013 (retro to September 1, 2008)

*Adoption date* — May 7, 2013

*Provisions* — No unreduced early retirements until age 62. Participants can retire as early as 55 with a reduced benefit. Early retirement reduction will be 5/9% per month prior to age 62 (1/3% per month if applicable Index requirement is satisfied). For active participants who qualify for the grandfather exception, the benefit will be reduced by no more than 5%.

Participants, surviving spouses and beneficiaries who entered pay status between September 1, 2008 and August 1, 2013 will have their benefits recalculated as if the new early retirement rules had been in effect at the time of their retirement, but the benefit will not be reduced by more than 5%.

**Disability benefit**

*Effective date* — August 1, 2013 (retro to September 1, 2008)

*Adoption date* — May 7, 2013

*Provisions* — Participants must now obtain a disability award from the Social Security Administration in order to be eligible for disability benefits under the pension plan. Participants with disability benefits in pay status as of August 1, 2013 that commenced on or after September 1, 2008 must secure a Social Security disability award by August 1, 2015 in order to retain their benefit.

Additionally, disability benefits commencing on or after September 1, 2008 will be capped in accordance with the following schedule:

| Credit Years | Cap on Monthly Benefit |
|---|---|
| 5-9 | $525 |
| 10-15 | $625 |
| 16-19 | $725 |
| 20-24 | $1,050 |
| 25+ | $1,350 |

## HISTORICAL PLAN MODIFICATIONS (CONT.)

| | |
|---|---|
| **Vested benefit** | |
| *Effective date* | August 1, 2013 |
| *Adoption date* | May 7, 2013 |
| *Provisions* | Participants who fail to cure a break in service by working 435 hours in the two years prior to retirement will have their benefit reduced 5/9% for each month under age 65. |
| **Death benefits** | |
| *Effective date* | August 1, 2013 |
| *Adoption date* | May 7, 2013 |
| *Provisions* | Pre-retirement death benefits discontinued for unmarried participants. Surviving spouse pre-retirement death benefit reduced to 50% of the joint and 50% survivor annuity.<br><br>Pre- and post-retirement lump sum death benefits discontinued. |
| **Non-credited contribution rate change** | |
| *Effective date* | Various dates |
| *Provisions* | The plan was amended so that contributions for work performed on or after June 1, 2013 are generally "discounted" by 61%. |
| **Suspension of benefit rules** | |
| *Effective date* | August 1, 2013 |
| *Adoption date* | May 7, 2013 |
| *Provisions* | Effective for early retirements that commenced on or after September 1, 2008, early retirees who work any hours in prohibited employment will have their benefits suspended to the extent permitted by law. |

## *HISTORICAL PLAN MODIFICATIONS (CONT.)*

| | |
|---|---|
| **Disability benefit settlement** | |
| *Effective date* | August 1, 2013 |
| *Settlement date* | October 18, 2016 |
| *Provisions* | Due to the settlement of a class action lawsuit, the disability benefit change effective August 1, 2013 was partially reversed for retirees receiving a disability benefit as of August 1, 2013 who had an effective date on or after September 1, 2008. Such retirees were restored to 95% of their prior disability benefit amount, and back payments were made retroactive to August 1, 2013. |

## *ACTUARIAL ASSUMPTIONS*

The following assumptions are used throughout this report except as specifically noted herein.

| | |
|---|---|
| **Valuation date** | May 1, 2019 |
| **Interest rates** | |
| *ERISA rate of return used to value liabilities* | 7.50% per year net of investment expenses. |
| *Unfunded vested benefits* | 7.50% per year net of investment expenses |
| *Current liability* | 3.09% (as prescribed by Section 431(c)(6) of the Internal Revenue Code) |
| **Operational expenses** | |
| *Funding* | $4,090,000 for the 2019-2020 plan year, excluding investment expenses. Expenses are assumed to increase 2.25% each year. |
| *ASC 960* | A 2.75% load was applied to the accrued liabilities for 2019. |
| **Pop-up feature** | Retirees receiving a joint and survivor form of benefit have pop-up amounts which are individually estimated. Liabilities for non-retired participants' benefits to be paid after retirement are increased by 0.6%. |
| **Mortality** | |
| *Assumed plan mortality* | 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 required by Section 431(c)(6) of the Internal Revenue Code. |

## *ACTUARIAL ASSUMPTIONS (CONT.)*

**Withdrawal**

T-7 Turnover Table from The Actuary's Pension Handbook (less GAM 51 mortality) – specimen rates shown below. Assumed rate during second year of employment is 50%*, 30% for the third year, and 15% for the fourth and fifth years.

| Age | Withdrawal Rate |
|---|---|
| 25 | .0967 |
| 30 | .0930 |
| 35 | .0871 |
| 40 | .0775 |
| 45 | .0635 |
| 50 | .0422 |
| 55 | .0155 |
| 60 | .0015 |

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

**Disability**

30% of the 1964 OASDI male table - specimen rates shown below:

| Age | Disability Rate |
|---|---|
| 25 | .0003 |
| 30 | .0003 |
| 35 | .0005 |
| 40 | .0007 |
| 45 | .0011 |
| 50 | .0018 |
| 55 | .0030 |
| 60 | .0049 |

## ACTUARIAL ASSUMPTIONS (CONT.)

**Retirement**

*Active lives*

According to the following schedule:

| Age | Without Index 80 or 85 Requirements | With Index 80 or 85 Requirements |
|---|---|---|
| 55 | .10 | .25 |
| 56 | .10 | .25 |
| 57 | .10 | .25 |
| 58 | .10 | .25 |
| 59 | .15 | .25 |
| 60 | .15 | .25 |
| 61 | .30 | .25 |
| 62 | .30 | .40 |
| 63 | .30 | .40 |
| 64 | .05 | .40 |
| 65+ | 1.00 | 1.00 |

Resulting in an average expected retirement age of 59.7

*Inactive vested lives*

Age 59 if at least 10 years of service, and age 62 if less than 10 years of service. It is assumed that inactive vested participants will not qualify for index 80 or 85.

*Disabled lives*

Disability benefit assumed payable until the earliest of age 62, recovery or death. Then normal retirement benefit commences.

**Future hours worked**

*Vested lives* — 1,600 hours per year, 0 after assumed retirement age

*Non-vested lives* — 600 hours per year, 0 after assumed retirement age

**Future hourly contribution rate**

Based on individual's average rate received for the most recent plan year increased to reflect known bargained increases. Additionally, an average "discount" of 61% was assumed.

**Age of participants with unrecorded birth dates**

Based on average entry age of participants with recorded birth dates and same vesting status.

**Marriage assumptions**

65% assumed married with the male spouse 2 years older than his wife.

## ACTUARIAL ASSUMPTIONS (CONT.)

**Optional form assumption**

For the non-retired participants, the following table shows the percent assumed to elect an optional form at retirement.

| Optional form | Married Participants | Single Participants |
|---|---|---|
| Life annuity | 15% | 85% |
| Life-ten year certain | 5% | 15% |
| Joint & 50% survivor | 20% | n/a |
| Joint & 75% survivor | 15% | n/a |
| Joint & 100% survivor | 45% | n/a |

**Deferred beneficiary lump sum payments**

Benefit payments for deferred beneficiaries of deceased participants that are due a lump sum once the plan emerges from critical status are assumed to be paid 20 years after the valuation date.

**QDRO benefits**

Benefits to alternate payee included with participant's benefit until payment commences.

**Section 415 limit assumptions**

*Dollar limit*

$225,000 per year

*Assumed form of payment for those limited by Section 415*

Qualified joint and 100% survivor annuity.

**Benefits not valued**

Lump sum disability for participants under age 62 with less than 5 credit years.

## 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 2019 survey of investment consultants.<br><br>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.<br><br>Due to the special rules related to withdrawal liability for a construction industry plan and the nature of the building trades industry, we believe the valuation interest rate is also appropriate for withdrawal liability purposes. |
| **Mortality** | The RP-2006 Blue Collar Mortality Tables for employees and healthy annuitants 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.<br><br>Mortality is monitored annually and no adjustments are deemed necessary at this time. |
| **Retirement** | Actual rates of retirement by age were last studied for the period May 1, 2012 and April 30, 2015. 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 the period May 1, 2013 and April 30, 2018. The assumed future rates of withdrawal were selected based on the results of this study. No adjustments were deemed necessary at this time. |
| **Future hours worked** | Based on review of recent plan experience adjusted for anticipated future changes in workforce. |

## ACTUARIAL ASSUMPTIONS USED FOR PROJECTIONS

The assumptions used for the credit balance, funded ratio and PPA zone projections are the same as used throughout the report with the following exceptions.

| | |
|---|---|
| **Assumed return on fund assets** | |
| *Current year projections* | 6.50% for the first 10 years (5/1/2019-4/30/2029)<br>7.50% thereafter |
| *Prior year projections* | 6.20% for the first 10 years (5/1/2018-4/30/2028)<br>7.50% thereafter |
| **Expenses** | |
| *Current year projections* | $4,090,000 per year excluding investment expenses. Expenses are assumed to increase 2.25% each year. |
| *Prior year projections* | $4,000,000 per year excluding investment expenses. Expenses are assumed to increase 2.25% each year. |
| **Future total hours worked** | |
| *Current year projections* | 8,200,000 for the plan year ending in 2020<br>8,000,000 for the plan year ending in 2021<br>7,800,000 for the plan year ending in 2022<br>7,000,000 thereafter |
| *Prior year projections* | 8,400,000 for the plan year ending in 2019<br>8,200,000 for the plan year ending in 2020<br>8,000,000 for the plan year ending in 2021<br>7,300,000 for the plan year ending in 2022<br>7,000,000 thereafter |
| **Contribution rate increases since prior year** | None |
| **Plan changes since prior year** | None |
| **Open group projections** | |
| *Current year projections* | Projected normal costs and benefit payment amounts are adjusted using the open group percentage increases from the 2018 valuation. |
| *Prior year projections* | Stable population assumed with new entrants replacing active participants as they withdraw, retire or die. New entrants are based upon entry age of the current active population. |

## *ACTUARIAL ASSUMPTIONS USED FOR PROJECTIONS (CONT.)*

| | |
|---|---|
| **Stochastic modeling** | 500 trials. Future returns are modeled using an expected return of 7.46% for the first 10 years and 8.50% thereafter and a standard deviation of 12.13%, which is representative of the plan's investment portfolio. The expected returns above are a one year value and are not representative of longer term geometric returns as considered when setting the ERISA return assumption. |

## ACTUARIAL METHODS

| | |
|---|---|
| **Funding method** | |
| *ERISA Funding* | Traditional unit credit cost method, effective May 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 effective May 1, 1997. 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 year ended in 2009.<br>• The 130% cap on actuarial value of assets was elected for the plan years beginning in 2009 and 2010.<br>• 30-year amortization of net investment loss was elected with respect to the loss incurred during the plan year ended in 2009. The loss was allocated to future years using the "prospective method" of IRS. The amount of each allocation is shown in Appendix C. |
| **Effective date of amortization extension** | May 1, 2008 |

| Date Established | Source of Change in Unfunded Liability | Original Amount | Original Period | Remaining Period Years | Remaining Period Months | 5/1/2019 Outstanding Balance | 5/1/2019 Amortization Payment |
|---|---|---|---|---|---|---|---|
| ***Charges*** | | | | | | | |
| 5/1/1977 | Lath. UAL | | 45 | 3 | 0 | 226,518 | 81,027 |
| 5/1/1977 | UAL | | 45 | 3 | 0 | 13,757,314 | 4,921,122 |
| 5/1/1978 | Amendment | | 45 | 4 | 0 | 2,795,436 | 776,397 |
| 5/1/1979 | Amendment | | 45 | 5 | 0 | 3,975,411 | 914,029 |
| 5/1/1980 | Amendment | | 45 | 6 | 0 | 8,132,803 | 1,611,770 |
| 5/1/1985 | Amendment | | 35 | 1 | 0 | 1,829,126 | 1,829,126 |
| 5/1/1985 | Lath. ben | | 35 | 1 | 0 | 6,656 | 6,656 |
| 5/1/1986 | Amendment | | 35 | 2 | 0 | 2,051,830 | 1,062,993 |
| 5/1/1987 | Amendment | | 35 | 3 | 0 | 7,751,457 | 2,772,771 |
| 5/1/1987 | Method change | | 35 | 3 | 0 | 2,574,503 | 920,922 |
| 5/1/1989 | Amendment | | 35 | 5 | 0 | 3,038,235 | 698,551 |
| 5/1/1990 | Amendment | | 35 | 6 | 0 | 11,809,135 | 2,340,349 |
| 5/1/1991 | Assumptions | | 35 | 7 | 0 | 7,135,211 | 1,253,145 |
| 5/1/1992 | Amendment | | 35 | 8 | 0 | 3,628,550 | 576,270 |
| 5/1/1993 | Assumptions | | 35 | 9 | 0 | 62,752 | 9,150 |
| 5/1/1994 | Amendment | | 35 | 10 | 0 | 5,057,498 | 685,401 |
| 5/1/1995 | Assumptions | | 35 | 11 | 0 | 12,308,721 | 1,565,182 |
| 5/1/1996 | Assumptions | 19,314,830 | 35 | 12 | 0 | 11,667,449 | 1,403,110 |
| 5/1/1997 | Amendment | 115,128,332 | 35 | 13 | 0 | 73,681,683 | 8,434,955 |
| 5/1/1997 | Assumptions | 2,432,702 | 35 | 13 | 0 | 1,556,916 | 178,234 |
| 5/1/1999 | Amendment | 22,642,031 | 35 | 15 | 0 | 15,941,130 | 1,679,932 |
| 5/1/2000 | Amendment | 36,206,741 | 35 | 16 | 0 | 26,516,711 | 2,698,320 |
| 5/1/2000 | Assumptions | 10,287,556 | 35 | 16 | 0 | 7,534,295 | 766,684 |
| 5/1/2000 | Experience | 5,279,519 | 20 | 1 | 0 | 394,110 | 394,110 |
| 5/1/2001 | Experience | 33,142,699 | 20 | 2 | 0 | 5,007,325 | 2,594,157 |
| 5/1/2002 | Amendment | 65,943,178 | 35 | 18 | 0 | 51,648,400 | 4,950,029 |
| 5/1/2002 | Experience | 70,475,288 | 20 | 3 | 0 | 16,013,842 | 5,728,304 |
| 5/1/2003 | Assumptions | 85,964,800 | 35 | 19 | 0 | 69,287,496 | 6,471,832 |
| 5/1/2003 | Experience | 254,431,353 | 20 | 4 | 0 | 76,769,469 | 21,321,738 |
| 5/1/2004 | Experience | 20,035,740 | 20 | 5 | 0 | 7,488,031 | 1,721,652 |
| 5/1/2005 | Experience | 116,546,347 | 20 | 6 | 0 | 51,595,933 | 10,225,349 |
| 5/1/2006 | Assumptions | 32,822,460 | 35 | 22 | 0 | 28,391,953 | 2,487,581 |
| 5/1/2006 | Experience | 61,302,815 | 20 | 7 | 0 | 31,162,996 | 5,473,101 |
| 5/1/2007 | Assumptions | 97,147,893 | 35 | 23 | 0 | 85,677,238 | 7,375,039 |
| 5/1/2007 | Experience | 36,021,921 | 20 | 8 | 0 | 20,550,379 | 3,263,726 |

| Date Established | Source of Change in Unfunded Liability | Original Amount | Original Period | Remaining Period | | 5/1/2019 Outstanding Balance | 5/1/2019 Amortization Payment |
|---|---|---|---|---|---|---|---|
| | | | | Years | Months | | |
| 5/1/2008 | Assumptions | 29,589,137 | 20 | 9 | 0 | 18,641,290 | 2,718,458 |
| 5/1/2008 | Experience | 21,904,410 | 20 | 9 | 0 | 13,799,878 | 2,012,435 |
| 5/1/2009 | Experience | 29,524,251 | 15 | 5 | 0 | 13,618,861 | 3,131,258 |
| 5/1/2009 | Relief 09 Asset Loss | 163,705,587 | 29 | 19 | 0 | 139,921,155 | 13,069,403 |
| 5/1/2010 | Experience | 16,798,389 | 15 | 6 | 0 | 8,974,675 | 1,778,612 |
| 5/1/2011 | Assumptions | 14,968,746 | 15 | 7 | 0 | 9,009,524 | 1,582,326 |
| 5/1/2011 | Expereince | 19,762,045 | 15 | 7 | 0 | 11,894,558 | 2,089,019 |
| 5/1/2011 | Relief 09 Asset Loss | 83,446,610 | 27 | 19 | 0 | 72,778,886 | 6,797,947 |
| 5/1/2012 | Assumptions | 3,586,082 | 15 | 8 | 0 | 2,383,176 | 378,487 |
| 5/1/2012 | Experience | 127,391,921 | 15 | 8 | 0 | 84,660,024 | 13,445,352 |
| 5/1/2012 | Relief 09 Asset | 9,268,532 | 26 | 19 | 0 | 8,177,266 | 763,802 |
| 5/1/2013 | Assumptions | 112,407,257 | 15 | 9 | 0 | 81,230,712 | 11,845,867 |
| 5/1/2013 | Relief 09 Asset Loss | 42,325,699 | 25 | 19 | 0 | 37,815,284 | 3,532,155 |
| 5/1/2014 | Relief 09 Asset Loss | 39,456,467 | 24 | 19 | 0 | 35,778,129 | 3,341,874 |
| 5/1/2015 | Assumptions | 66,762,182 | 15 | 11 | 0 | 55,328,770 | 7,035,631 |
| 5/1/2015 | Experience | 53,022,966 | 15 | 11 | 0 | 43,942,476 | 5,587,744 |
| 5/1/2016 | Amendment | 19,478,191 | 15 | 12 | 0 | 17,068,902 | 2,052,679 |
| 5/1/2016 | Experience | 83,462,560 | 15 | 12 | 0 | 73,138,933 | 8,795,575 |
| 5/1/2017 | Assumptions | 46,472,895 | 15 | 13 | 0 | 42,780,808 | 4,897,475 |
| 5/1/2017 | Experience | 62,924,769 | 15 | 13 | 0 | 57,925,648 | 6,631,231 |
| 5/1/2018 | Experience | 49,896,267 | 15 | 14 | 0 | 47,985,877 | 5,258,242 |
| 5/1/2019 | Experience | 23,355,330 | 15 | 15 | 0 | 23,355,330 | 2,461,266 |
| | | | | ***Total Charges:*** | | **1,567,236,674** | **218,399,552** |

| Date Established | Source of Change in Unfunded Liability | Original Amount | Original Period | Remaining Period Years | Remaining Period Months | 5/1/2019 Outstanding Balance | 5/1/2019 Amortization Payment |
|---|---|---|---|---|---|---|---|
| ***Credits*** | | | | | | | |
| 5/1/1990 | Lath. assum | | 30 | 1 | 0 | 27,179 | 27,179 |
| 5/1/1992 | Assumptions | | 30 | 3 | 0 | 1,146,533 | 410,128 |
| 5/1/1999 | Assumptions | 104,779,461 | 30 | 10 | 0 | 62,315,829 | 8,445,154 |
| 5/1/2009 | Amendment | 19,793,553 | 15 | 5 | 0 | 9,130,311 | 2,099,247 |
| 5/1/2009 | Method (Relief) | 77,104,031 | 30 | 20 | 0 | 66,796,844 | 6,095,115 |
| 5/1/2010 | Amendment | 101,829,896 | 15 | 6 | 0 | 54,403,431 | 10,781,743 |
| 5/1/2010 | Relief 09 Asset Loss | 55,383,209 | 28 | 19 | 0 | 47,796,431 | 4,464,449 |
| 5/1/2013 | Amendment | 186,630,145 | 15 | 9 | 0 | 134,867,620 | 19,667,733 |
| 5/1/2013 | Experience | 5,974,815 | 15 | 9 | 0 | 4,317,673 | 629,647 |
| 5/1/2014 | Amendment | 66,875,803 | 15 | 10 | 0 | 52,003,477 | 7,047,605 |
| 5/1/2014 | Assumptions | 24,371,644 | 15 | 10 | 0 | 18,951,696 | 2,568,369 |
| 5/1/2014 | Experience | 25,585,607 | 15 | 10 | 0 | 19,895,693 | 2,696,300 |
| 5/1/2016 | Assumptions | 10,447,082 | 15 | 12 | 0 | 9,154,865 | 1,100,950 |
| 5/1/2018 | Assumptions | 19,745,105 | 15 | 14 | 0 | 18,989,119 | 2,080,808 |
| | | | | ***Total Credits:*** | | **499,796,701** | **68,114,427** |
| | | | | ***Net Charges:*** | | **1,067,439,973** | **150,285,125** |
| | | | | ***Less Credit Balance:*** | | -409,158,686 | |
| | | | | ***Less Reconciliation Balance:*** | | 0 | |
| | | | | ***Unfunded Actuarial Liability:*** | | **1,476,598,659** | |

| Date Established | Source of Change in Unfunded Liability | Original Amount | Original Period | Remaining Period Years | Remaining Period Months | 5/1/2019 Outstanding Balance | 5/1/2019 Amortization Payment |
|---|---|---|---|---|---|---|---|
| ***Charges*** | | | | | | | |
| 5/1/1980 | Amendment | | 40 | 1 | 0 | 1,968,335 | 1,968,335 |
| 5/1/1990 | Amendment | | 30 | 1 | 0 | 2,858,095 | 2,858,095 |
| 5/1/1991 | Assumptions | | 30 | 2 | 0 | 2,893,032 | 1,498,800 |
| 5/1/1992 | Amendment | | 30 | 3 | 0 | 1,892,397 | 676,928 |
| 5/1/1993 | Assumptions | | 30 | 4 | 0 | 38,099 | 10,582 |
| 5/1/1994 | Amendment | | 30 | 5 | 0 | 3,400,071 | 781,747 |
| 5/1/1995 | Assumptions | | 30 | 6 | 0 | 8,899,222 | 1,763,658 |
| 5/1/1996 | Assumptions | 19,314,830 | 30 | 7 | 0 | 8,905,807 | 1,564,111 |
| 5/1/1997 | Amendment | 115,128,332 | 30 | 8 | 0 | 58,641,261 | 9,313,161 |
| 5/1/1997 | Assumptions | 2,432,702 | 30 | 8 | 0 | 1,239,112 | 196,791 |
| 5/1/1999 | Amendment | 22,642,031 | 30 | 10 | 0 | 13,465,972 | 1,824,932 |
| 5/1/2000 | Amendment | 36,206,741 | 30 | 11 | 0 | 22,892,415 | 2,911,009 |
| 5/1/2000 | Assumptions | 10,287,556 | 30 | 11 | 0 | 6,504,505 | 827,116 |
| 5/1/2002 | Amendment | 65,943,178 | 30 | 13 | 0 | 46,096,382 | 5,277,036 |
| 5/1/2003 | Assumptions | 85,964,800 | 30 | 14 | 0 | 62,640,517 | 6,864,082 |
| 5/1/2005 | Experience | 116,546,347 | 15 | 1 | 0 | 12,487,456 | 12,487,456 |
| 5/1/2006 | Assumptions | 32,822,460 | 30 | 17 | 0 | 26,416,962 | 2,604,837 |
| 5/1/2006 | Experience | 61,302,815 | 15 | 2 | 0 | 12,635,292 | 6,545,995 |
| 5/1/2007 | Assumptions | 97,147,893 | 30 | 18 | 0 | 80,293,182 | 7,695,370 |
| 5/1/2007 | Experience | 36,021,921 | 15 | 3 | 0 | 10,717,651 | 3,833,805 |
| 5/1/2008 | Assumptions | 29,589,137 | 15 | 4 | 0 | 11,318,470 | 3,143,561 |
| 5/1/2008 | Experience | 21,904,410 | 15 | 4 | 0 | 8,378,899 | 2,327,132 |
| 5/1/2009 | Experience | 29,524,251 | 15 | 5 | 0 | 13,618,861 | 3,131,258 |
| 5/1/2009 | Relief08 Asset Loss | 163,705,587 | 29 | 19 | 0 | 139,921,155 | 13,069,403 |
| 5/1/2010 | Experience | 16,798,389 | 15 | 6 | 0 | 8,974,675 | 1,778,612 |
| 5/1/2011 | Assumptions | 14,968,746 | 15 | 7 | 0 | 9,009,524 | 1,582,326 |
| 5/1/2011 | Experience | 19,762,045 | 15 | 7 | 0 | 11,894,558 | 2,089,019 |
| 5/1/2011 | Relief 09 Asset Loss | 83,446,610 | 27 | 19 | 0 | 72,778,886 | 6,797,947 |
| 5/1/2012 | Assumptions | 3,586,082 | 15 | 8 | 0 | 2,383,176 | 378,487 |
| 5/1/2012 | Experience | 127,391,917 | 15 | 8 | 0 | 84,660,018 | 13,445,352 |
| 5/1/2012 | Relief 09 Asset Loss | 9,268,532 | 26 | 19 | 0 | 8,177,266 | 763,802 |
| 5/1/2013 | Assumptions | 112,407,257 | 15 | 9 | 0 | 81,230,712 | 11,845,867 |
| 5/1/2013 | Relief 09 Asset Loss | 42,325,699 | 25 | 19 | 0 | 37,815,284 | 3,532,155 |
| 5/1/2014 | Relief 09 Asset Loss | 39,456,467 | 24 | 19 | 0 | 35,778,129 | 3,341,874 |
| 5/1/2015 | Assumptions | 66,762,182 | 15 | 11 | 0 | 55,328,770 | 7,035,631 |

| Date Established | Source of Change in Unfunded Liability | Original Amount | Original Period | Remaining Period Years | Remaining Period Months | 5/1/2019 Outstanding Balance | 5/1/2019 Amortization Payment |
|---|---|---|---|---|---|---|---|
| 5/1/2015 | Experience | 53,022,966 | 15 | 11 | 0 | 43,942,476 | 5,587,744 |
| 5/1/2016 | Amendment | 19,478,191 | 15 | 12 | 0 | 17,068,902 | 2,052,679 |
| 5/1/2016 | Experience | 83,462,560 | 15 | 12 | 0 | 73,138,933 | 8,795,575 |
| 5/1/2017 | Assumptions | 46,472,895 | 15 | 13 | 0 | 42,780,808 | 4,897,475 |
| 5/1/2017 | Experience | 62,924,769 | 15 | 13 | 0 | 57,925,648 | 6,631,231 |
| 5/1/2018 | Experience | 49,896,267 | 15 | 14 | 0 | 47,985,877 | 5,258,242 |
| 5/1/2019 | Experience | 23,355,330 | 15 | 15 | 0 | 23,355,330 | 2,461,266 |
| | | | | ***Total Charges:*** | | **1,272,352,122** | **181,450,484** |

### *Credits*

| Date Established | Source of Change in Unfunded Liability | Original Amount | Original Period | Remaining Period Years | Remaining Period Months | 5/1/2019 Outstanding Balance | 5/1/2019 Amortization Payment |
|---|---|---|---|---|---|---|---|
| 5/1/1990 | Lath. assum | | 30 | 1 | 0 | 27,179 | 27,179 |
| 5/1/1992 | Assumptions | | 30 | 3 | 0 | 1,146,533 | 410,128 |
| 5/1/1999 | Assumptions | 104,779,461 | 30 | 10 | 0 | 62,315,829 | 8,445,154 |
| 5/1/2009 | Amendment | 19,793,553 | 15 | 5 | 0 | 9,130,311 | 2,099,247 |
| 5/1/2009 | Method (Relief) | 77,104,031 | 30 | 20 | 0 | 66,796,844 | 6,095,115 |
| 5/1/2010 | Amendment | 101,829,896 | 15 | 6 | 0 | 54,403,431 | 10,781,743 |
| 5/1/2010 | Relief08 Asset Loss | 55,383,209 | 28 | 19 | 0 | 47,796,431 | 4,464,449 |
| 5/1/2013 | Amendment | 186,630,145 | 15 | 9 | 0 | 134,867,620 | 19,667,733 |
| 5/1/2013 | Experience | 5,974,815 | 15 | 9 | 0 | 4,317,673 | 629,647 |
| 5/1/2014 | Amendment | 66,875,803 | 15 | 10 | 0 | 52,003,477 | 7,047,605 |
| 5/1/2014 | Assumptions | 24,371,644 | 15 | 10 | 0 | 18,951,696 | 2,568,369 |
| 5/1/2014 | Experience | 25,585,607 | 15 | 10 | 0 | 19,895,693 | 2,696,300 |
| 5/1/2016 | Assumptions | 10,447,082 | 15 | 12 | 0 | 9,154,865 | 1,100,950 |
| 5/1/2018 | Assumptions | 19,745,105 | 15 | 14 | 0 | 18,989,119 | 2,080,808 |
| | | | | ***Total Credits:*** | | **499,796,701** | **68,114,427** |

| | | |
|---|---|---|
| ***Net Charges:*** | **772,555,421** | **113,336,057** |
| ***Less Credit Balance:*** | -704,043,238 | |
| ***Less Reconciliation Balance:*** | 0 | |
| ***Unfunded Actuarial Liability:*** | **1,476,598,659** | |

## 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:<br><br>• Funded percentage is less than 65%, and, inability to pay nonforfeitable benefits and expenses for next 7 years, or<br><br>• Projected funding deficiency (not recognizing extensions) in the current year or next 3 years (next 4 years if funded at less than 65%), or<br><br>• (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<br><br>• 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:<br><br>• Funded percentage is less than 80%, or<br><br>• Projected funding deficiency in the current year or next 6 years.<br><br>A non-critical plan that meets both of the preceding criteria is considered "Seriously Endangered"<br><br>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:<br>• Projected funding deficiency in the current year or next 9 years (including amortization extensions), or,<br>• Projected insolvency within the next 30 years | |
| ***GETTING OUT:*** | |
| Plan emerges from Critical Status when it meets all of the following:<br>• No longer meets any of the Critical Status tests, and,<br>• No projected funding deficiencies in the current year or next 9 years (including amortization extensions), and,<br>• No projected insolvencies in the next 30 years<br>A plan with a 5-year amortization extension under IRC Section 431(d) emerges from Critical Status when it meets all the following:<br>• No projected funding deficiencies in the current year or next 9 years (including amortization extensions), and,<br>• 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<br>• No suspension of contributions<br>• No exclusion of new or younger employees<br>• 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<br>• 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."*