# Western Conference of Teamsters Pension Plan

## January 1, 2018 Actuarial Valuation

**Prepared by:**

Milliman, Inc.

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August 20, 2018

Board of Trustees
Western Conference of Teamsters Pension Plan

Dear Trustees:

As requested, we performed an actuarial valuation of the Western Conference of Teamsters Pension Plan as of January 1, 2018, for the Plan Year ending December 31, 2018. Our findings are set forth in this actuary's report.

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

For actuarial requirements under ERISA, all costs, liabilities, rates of interest, and other factors under the Plan (except when mandated directly by the Internal Revenue Code and its regulations) have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Plan and reasonable expectations) and which, in combination, offer our best estimate of anticipated experience under the Plan. We completed this actuarial valuation in accordance with our understanding of IRS minimum funding requirements as amended by subsequent legislation, including the Pension Protection Act of 2006 (PPA), the Pension Relief Act of 2010 (PRA) and the Multiemployer Pension Reform Act of 2014 (MPRA), and reflecting all proposed regulations and guidance issued to date.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. Actuarial computations under ERISA are to determine the minimum required, and maximum allowable funding amounts, and the unfunded vested benefit liability for purposes of withdrawal liability for an ongoing plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of ERISA.

For actuarial requirements under FASB ASC Topic 960, all liabilities, rates of interest, and other factors under the Plan have been determined on the basis of actuarial assumptions and methods which are reasonable and consistent with our understanding of FASB ASC Topic 960. Results for other purposes may be significantly different than the results in this report; other calculations may be needed for other purposes, such as judging benefit security at plan termination.

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

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(b) The Trust may distribute certain work products that Milliman and the Trust mutually agree is appropriate for distribution to participating employers, pension participants and other parties as may be required by PPA and MPRA.

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

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

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

Sincerely,

Peter R. Sturdivan, FSA, EA, MAAA
Principal and Consulting Actuary

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

PRS:GC:ccg

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# Summary of Valuation Results

## Overview of Results

| ($ in thousands) | Actuarial Valuation for Plan Year Beginning January 1, 2017 | January 1, 2018 |
|---|---|---|
| **Assets** | | |
| Market Value of Assets | $38,020,891 | $41,896,232 |
| Actuarial Value of Assets | $38,840,852 | $40,212,390 |
| Investment Return (non-dedicated assets) | | |
| Market Value of Assets | 7.95% | 13.90% |
| Actuarial Value of Assets | 5.97% | 6.27% |
| **Funded Status** | | |
| Actuarial Accrued Liability | $42,566,769 | $43,770,547 |
| Market Funded Percentage | 89.3% | 95.7% |
| Actuarial (Pension Protection Act) Funded Percentage | 91.2% | 91.9% |
| **Withdrawal Liability** | | |
| Present Value of Vested Benefits | $40,720,221 | $41,839,296 |
| Assets for Withdrawal Liability | $37,976,193 | $40,212,390 |
| Unfunded Vested Benefit Liability (UVBL) | $2,744,028 | $1,626,906 |
| **Credit Balance and Contribution Requirements** | | |
| Actuarial Accrued Liability | $42,566,769 | $43,770,547 |
| Actuarial Value of Assets | $38,840,852 | $40,212,390 |
| Unfunded Actuarial Accrued Liability | $3,725,917 | $3,558,157 |
| Credit Balance at End of Prior Year | $4,177,724 | $4,593,954 |
| Normal Cost (including expenses) | $959,764 | $1,014,145 |
| Anticipated Contributions | $1,735,000 | $1,857,000 |
| Contribution to Maintain Credit Balance (Middle of Year) | $1,416,001 | $1,489,289 |
| Maximum Deductible Contribution | $62,944,409 | $65,866,037 |
| Actual Contributions | $1,828,897 | To Be Determined |
| **Amortization Period** | | |
| Actuarial Value of Assets | 6.3 years | 5.4 years |
| Market Value of Assets | 8.1 years | 2.6 years |
| **Participant Data** | | |
| Retirees & Beneficiaries[(1)] | 226,870 | 230,157 |
| Vested Inactive Participants | 164,640 | 165,380 |
| Active Participants | 206,340 | 214,100 |
| Total Participants in Valuation | 597,850 | 609,637 |
| **Certification Status** | Green | Green |

[(1)] The figures above are estimated counts. The retired life valuation included 266,773 and 272,980 records as of January 1, 2017, and January 1, 2018, respectively.

## A. Purpose of this Report

This report has been prepared for the Western Conference of Teamsters Pension Plan as of January 1, 2018 to:

- Review the Plan's funded status as of January 1, 2018.
- Review the experience for the plan year ending December 31, 2017, including the Plan's trust fund activity and investment return, and changes in plan participant demographics that impact liabilities.
- Calculate the Plan's funding requirements under ERISA for the plan year beginning January 1, 2018.
- Determine the Plan's Amortization Period as of January 1, 2018.
- Determine the Plan's Unfunded Vested Benefit Liability for withdrawal liability purposes as of December 31, 2017, in accordance with the Multiemployer Pension Plan Amendments Act of 1980.
- Determine the actuarial present value of accumulated plan benefits as of December 31, 2017, for purposes of disclosing the Plan's liabilities under FASB ASC Topic 960.

## B. Plan Provisions

The valuation reflects the plan provisions in effect on January 1, 2018. There were no changes to the plan provisions during the year that affected the valuation.

## C. Actuarial Methods and Assumptions

**Changes in Assumptions**

Other than the assumptions mandated by the IRS, the following changes were made to the assumptions for this valuation in order to reflect recent and anticipated plan experience:

- The discount rate used for the SBA Dedication was changed to 4.05% for 2018 from 4.34% for 2017.
- The form of payment factor was updated to reflect recent plan experience.

The combined impact of these assumption changes was an increase in liabilities of approximately $67 million.

- In addition, the anticipated annual employer contributions were increased to $1.857 billion for purposes of projecting the 2018 Funding Standard Account and determining the Amortization Period.

Details on the updated assumptions can be found in Appendix C of this report.

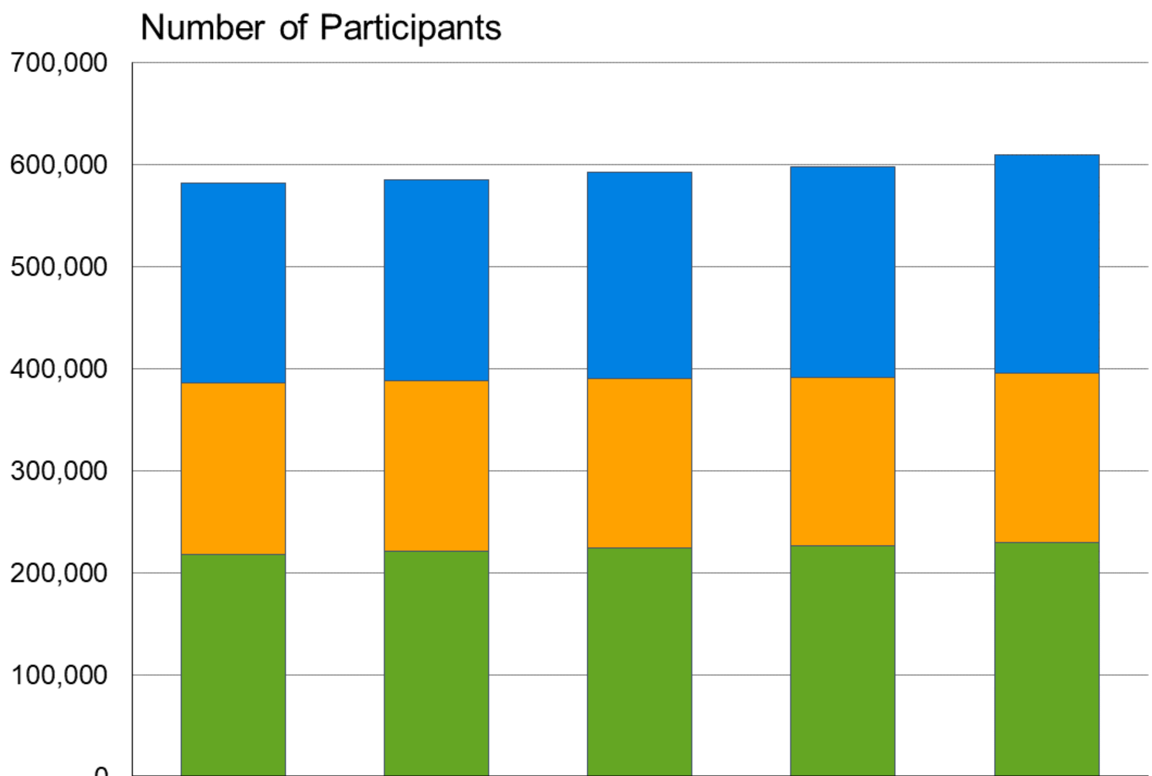
**Changes in Actuarial Methods**

There were no changes in the actuarial funding method for the January 1, 2018 valuation.

## D. Participant Information

### Participant Counts

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

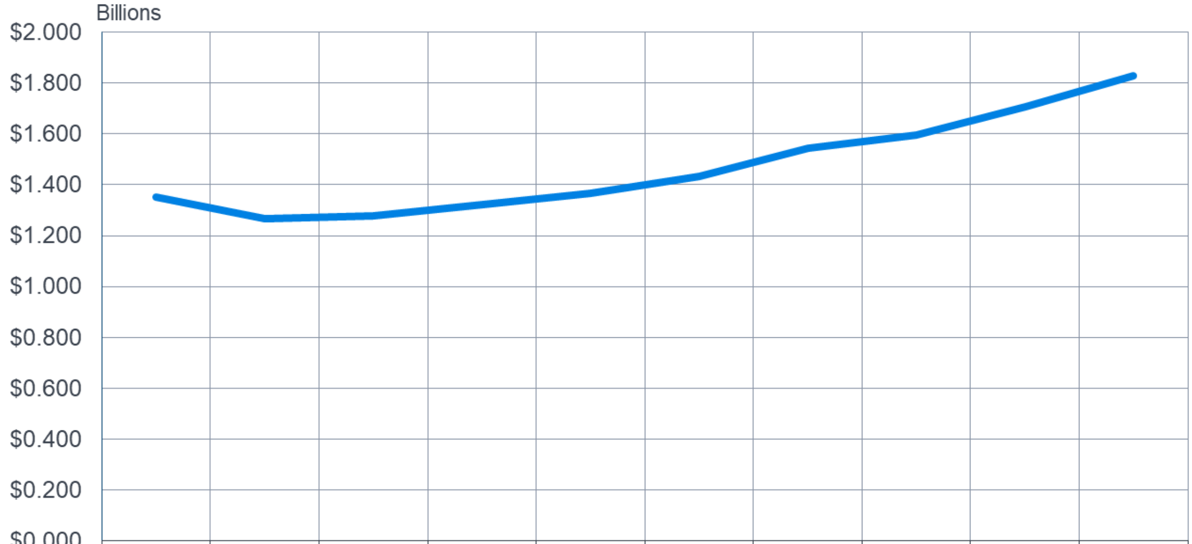



| | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| Active | 195,620 | 197,120 | 202,940 | 206,340 | 214,100 |
| Vested Inactive | 167,940 | 166,440 | 165,920 | 164,640 | 165,380 |
| In Pay | 217,924 | 221,502 | 223,971 | 226,870 | 230,157 |
| Totals | 581,484 | 585,062 | 592,831 | 597,850 | 609,637 |

For valuation purposes, an active participant is not retired, terminated or deceased on the valuation date, has satisfied the participation requirements of the Plan, and worked at least 250 hours in the plan year immediately prior to the valuation date, or worked at least one hour in the plan year immediately prior to the valuation date and worked at least 250 hours in the second plan year preceding the valuation date.

**Contributions**

Based on the hours assumptions and the contribution rates in effect for December 31, 2017, contributions for the plan year beginning January 1, 2018, are expected to be $1,857,000,000. The graph below shows how this level compares with the Plan's historical level of contributions.




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Contributions | $1.351 | $1.265 | $1.276 | $1.323 | $1.367 | $1.431 | $1.544 | $1.596 | $1.706 | $1.829 |

## E. Plan Assets

The Plan's market value of assets is the value of net assets available for benefits as shown on the Plan's financial statements. The Plan's assets are split into dedicated assets and non-dedicated assets.

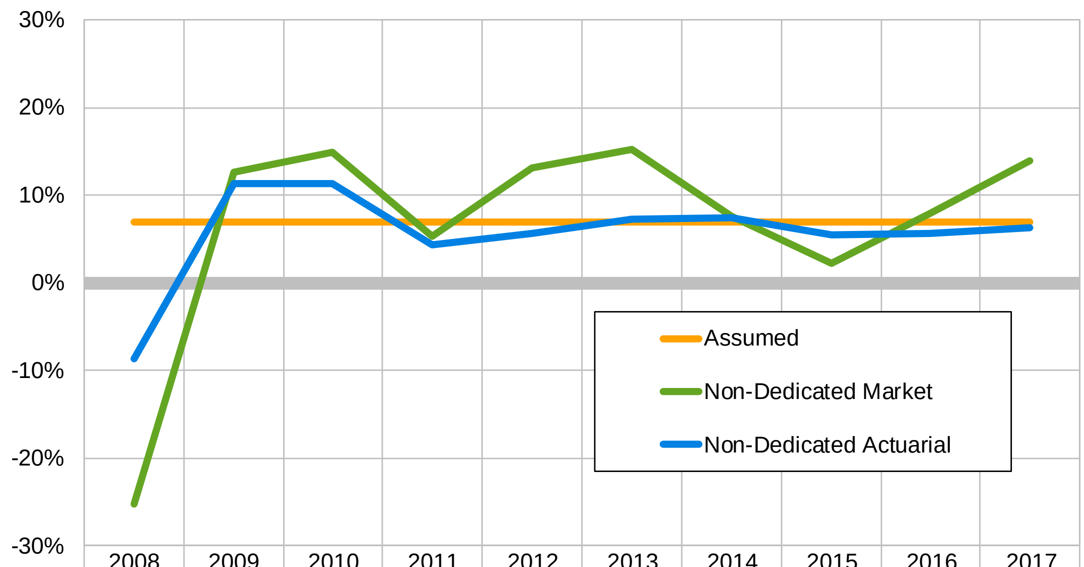
Effective January 1, 2017, the dedicated assets include only the Strategic Bond Account (SBA). The market value of the FDA and 1982/84 Annuity Account (82/84 Account) are combined with non-dedicated assets for purposes of determining the actuarial value of assets.

The Plan uses an asset smoothing method on the non-dedicated portion of the assets that recognizes market value investment gains and losses over a period of five years, except that the Trustees elected to recognize the 2008 investment loss over 10 years under the Pension Relief Act of 2010. For purposes of developing the Unfunded Vested Benefit Liability (UVBL), the Pension Relief Act of 2010 election is ignored. As of January 1, 2018, the 2008 investment loss has been fully recognized under both smoothing methods, so 5-year smoothing now applies throughout.

The sum of the dedicated assets and the smoothed value of non-dedicated assets is called the actuarial value of assets, and is used for determining the PPA funded percentage, the minimum and maximum contributions under ERISA, and computation of the Amortization Period. The table below shows these values along with the Plan's rate of investment return, net of investment expenses, over the past five years.

| | Prior Year Rate of Return | | ($ in thousands) | | |
|---|---|---|---|---|---|
| **January 1,** | **Market** | **Actuarial** | **Market Value of Assets** | **ERISA Actuarial Value of Assets** | **UVBL Actuarial Value of Assets** |
| **2018** | 13.90% | 6.27% | $41,896,232 | $40,212,390 | $40,212,390 |
| **2017** | 7.95 | 5.97 | 38,020,891 | 38,840,852 | 37,976,193 |
| **2016** | 1.78 | 5.26 | 36,288,138 | 37,692,694 | 35,963,376 |
| **2015** | 7.56 | 7.08 | 36,739,196 | 36,878,833 | 34,284,858 |
| **2014** | 12.59 | 7.33 | 35,193,014 | 35,478,550 | 32,019,915 |

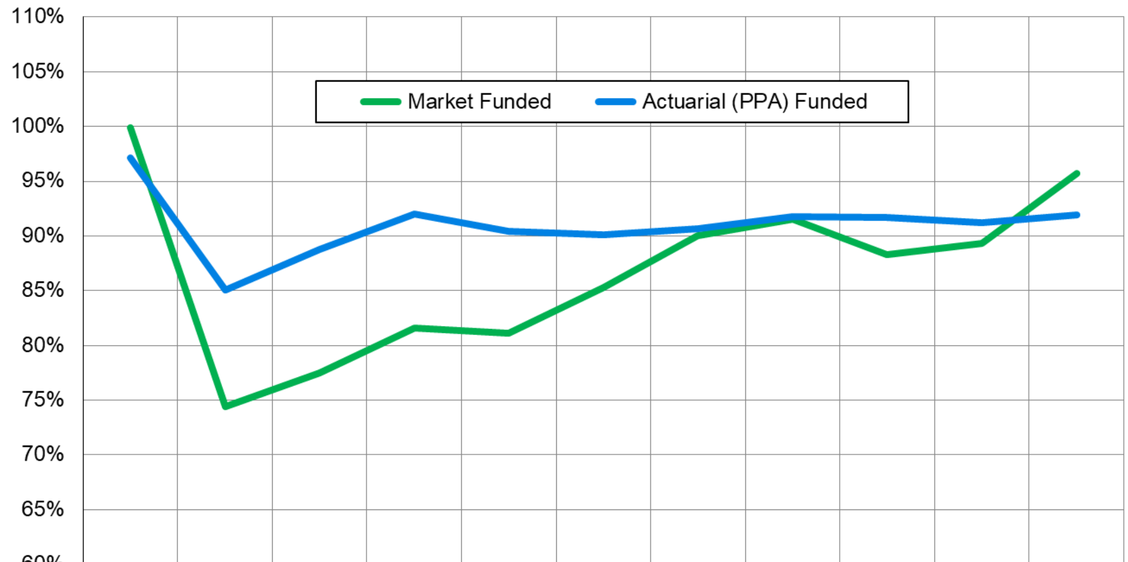
Over the past 20 years, the Plan's total assets have averaged a 6.62% return on a market value basis, net of investment expenses. The Plan's non-dedicated assets have averaged a 6.87% return on a market value basis, net of investment expenses over the same time period. The numerical history can be found on Exhibit 3.3 in this report. The graph below shows the Plan's annual returns on the non-dedicated assets over the last ten years, compared with the Plan's investment return assumption.




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Assumed | 7.0% | 7.0% | 7.0% | 7.0% | 7.0% | 7.0% | 7.0% | 7.0% | 7.0% | 7.0% |
| Non-Dedicated Market | -25.2% | 12.6% | 14.9% | 5.4% | 13.2% | 15.3% | 7.6% | 2.2% | 8.0% | 13.9% |
| Non-Dedicated Actuarial | -8.7% | 11.4% | 11.4% | 4.3% | 5.7% | 7.3% | 7.5% | 5.5% | 5.7% | 6.3% |

## F. Funded Status

An important indicator of the Plan's funded status is the ratio of the Plan's *market value of assets* to the Plan's liability for all benefits earned to date, called the actuarial accrued liability. For purposes of determining the Plan's zone status under the PPA, the Plan's *actuarial value of assets* is compared with this liability measurement. Below is a chart showing a historical comparison of these measurements




| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Market Funded | 99.9% | 74.4% | 77.5% | 81.6% | 81.1% | 85.3% | 90.0% | 91.5% | 88.3% | 89.3% | 95.7% |
| Actuarial (PPA) Funded | 97.1% | 85.1% | 88.8% | 92.0% | 90.4% | 90.1% | 90.7% | 91.8% | 91.7% | 91.2% | 91.9% |

Below is a table that details the relevant information for the past several valuations.

| January 1, | Actuarial Accrued Liability ($ in thousands) | | | | Market Value Funded % | Actuarial Value (PPA) Funded % |
|---|---|---|---|---|---|---|
| | Retirees & Beneficiaries | Vested Inactive | Active | Total | | |
| **2018** | $25,215,056 | $4,794,963 | $13,760,528 | $43,770,547 | 95.7% | 91.9% |
| **2017** | 24,522,851 | 4,626,792 | 13,417,126 | 42,566,769 | 89.3 | 91.2 |
| **2016** | 23,289,314 | 4,591,771 | 13,193,114 | 41,074,199 | 88.3 | 91.7 |
| **2015** | 22,796,728 | 4,494,421 | 12,876,462 | 40,167,611 | 91.5 | 91.8 |
| **2014** | 22,111,382 | 4,422,913 | 12,581,733 | 39,116,028 | 90.0 | 90.7 |

The **Annual Funding Notice** to participants must be distributed within 120 days of the end of the plan year and will include the actuarial (PPA) funded percentage for 2016, 2017, and 2018, as shown above.

## G. Contribution Requirements

### Actuarial Accrued Liability

For computing ERISA minimum and maximum funding requirements, the actuarial cost method takes into account benefits that are earned to date. The resulting liability is called the actuarial accrued liability, and is compared with the actuarial value of assets, as shown below.

| | ($ in thousands) | | |
|---|---|---|---|
| January 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability |
| **2018** | $43,770,547 | $40,212,390 | $3,558,157 |
| **2017** | 42,566,769 | 38,840,852 | 3,725,917 |
| **2016** | 41,074,199 | 37,692,694 | 3,381,505 |
| **2015** | 40,167,611 | 36,878,833 | 3,288,778 |

### Development of Minimum Required Contribution and Credit Balance

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

- Gross normal cost, which includes the cost of benefits allocated to the next plan year and administrative expenses expected to be paid in the next plan year, and
- Amortization payments to the unfunded actuarial accrued liability.

If contributions do not meet these costs, the Plan's credit balance, which was created by contributions in excess of minimum required contributions in past years, may be used to offset the costs. The table below summarizes the Plan's contribution requirements, actual contributions, and credit balance over the last several years.

| ($ in thousands) | | | | | | |
|---|---|---|---|---|---|---|
| December 31, | Normal Cost | Net Amortization Payment | Annual Cost, Beginning of Year | Contribution To Maintain Credit Balance | Actual Contribution | Credit Balance, End of Year |
| **2018** | $1,014,145 | 726,968 | $1,741,113 | $1,489,289 | $1,857,000(1) | $4,973,799 |
| **2017** | 959,764 | 683,228 | 1,642,992 | 1,416,001 | 1,828,897 | 4,593,954 |
| **2016** | 890,316 | 574,107 | 1,464,423 | 1,261,812 | 1,705,556 | 4,177,724 |
| **2015** | 849,190 | 505,410 | 1,354,600 | 1,176,945 | 1,596,395 | 3,727,967 |
| **2014** | 798,458 | 490,486 | 1,288,944 | 1,136,983 | 1,544,129 | 3,304,054 |

(1) Expected based on hours assumption for valuation.

## H. Amortization Period

The Plan's amortization period is a measure of the long-term financial solvency of the Plan. The amortization period is the number of years necessary for a level excess of anticipated employer contributions over the normal cost and administrative expenses to pay off the unfunded actuarial liability or funding shortfall. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets. The funding shortfall is the difference between the actuarial liability and the market value of assets.

PPA requires plans to amortize changes in the unfunded actuarial liability (i.e. annual experience gains and losses, changes in assumptions and plan amendments) over a 15-year period. The average amortization period at any point in time under PPA is about 10 years. Therefore, based on the unfunded actuarial liability, an amortization period of less than 10 years is desired.

| Amortization Period ($ in thousands) | | |
|---|---|---|
| | January 1, 2017 | January 1, 2018 |
| Unfunded Actuarial Liability (UAL) | $ 3,725,917 | $ 3,558,157 |
| Expected Employer Contributions | 1,735,000 | 1,857,000 |
| Expected Expenses | 101,000 | 105,000 |
| Normal Cost (payable monthly) | 894,402 | 946,802 |
| Excess Contributions | $ 739,598 | $ 805,198 |
| Years to Amortize UAL | 6.3 | 5.4 |
| Funding Shortfall on a Market Value basis | $ 4,545,878 | $ 1,874,315 |
| Years to Amortize Market Funding Shortfall | 8.1 | 2.6 |

## I. Unfunded Vested Benefit Liability

Withdrawing employers are assessed a portion of the Plan's unfunded vested benefit liability for withdrawal liability, which is determined by subtracting the Plan's assets (calculated in Exhibit 3.4) from the liability for all *vested* benefits earned to date. The assets for withdrawal liability are identical to the actuarial value of assets. The table below summarizes this information for the past several years.

| | ($ in thousands) | | |
|---|---|---|---|
| December 31, | Present Value of Vested Benefits | Assets For Withdrawal Liability | Unfunded Vested Benefit Liability |
| **2017** | $41,839,296 | $40,212,390 | $1,626,906 |
| **2016** | 40,720,221 | 37,976,193 | 2,744,028 |
| **2015** | 39,234,177 | 35,963,376 | 3,270,801 |
| **2014** | 38,337,368 | 34,284,858 | 4,052,510 |
| **2013** | 37,280,381 | 32,019,915 | 5,260,466 |

## J. Zone Status

**Zone Status**

The following chart shows the Plan's Zone Status that has been reported in the Actuarial Certification since PPA became effective beginning in 2008.

| Plan Year Beginning January 1, | Zone Status |
|---|---|
| **2018** | **Green** |
| **2017** | **Green** |
| **2016** | **Green** |
| **2015** | **Green** |
| **2014** | **Green** |
| **2013** | **Green** |
| **2012** | **Green** |
| **2011** | **Green** |
| **2010** | **Green** |
| **2009** | **Green** |
| **2008** | **Green** |

As shown above, the Plan is neither endangered nor critical for the plan year beginning January 1, 2018.

## K. Plan Experience

**Initial Observations**

We note the following comparisons from last year's valuation:

- Employer contributions in 2017 (exclusive of withdrawal liability payments) increased by 8% to $1.811 billion from $1.673 billion in 2016.
- Benefit payments increased by 3% to $2.76 billion in 2017 from $2.67 billion in 2016.
- Operating expenses in 2017 amounted to 5.6% of total employer contributions; compared with 5.9% in 2016.
- The net assets available for plan benefits on a market value basis increased by approximately $3.9 billion during 2017, compared with an increase of approximately $1.7 billion during the previous year.

**Impact of Plan Experience during Prior Plan Year**

Actuarial gains are produced from more favorable experience than assumed in the previous valuation. On the other hand, actuarial losses are produced from experience less favorable than assumed. The most important of these gains and losses are shown below and described in the paragraphs that follow.

***Investment Return***

The estimated investment return on the net market value of assets was approximately 13.08% for 2017. The corresponding returns for 2016 and 2015 were 7.84% and 1.78% respectively.

The estimated market value investment return for 2017 on non-dedicated assets was about 13.90%, resulting in an approximate $2.37 billion gain over the assumed net investment return of 7.0%.

In the same year, the net investment return on the actuarial value of non-dedicated assets was approximately 6.37%, resulting in an approximate $225 million loss. The investment return on the actuarial value of non-dedicated assets trails the investment return on the market value of non-dedicated assets because of the smoothing of investment gains and losses. The last portion of the 2008 investment loss was recognized in 2017.

The investment return on the actuarial value of total assets was estimated to be 6.27%. This resulted in an actuarial loss of about $209 million.

***Demographic Experience***

The gains and losses due to all non-investment experience during 2017 increased the Plan's actuarial liability by approximately $151 million. The commentary below identifies the major components of the demographic gains and losses experienced during 2017.

**Contribution Rates and Hours Expectations**

Various bargaining parties negotiated increases in contribution rates which, due to the Plan's benefit formula, increased benefits earned during 2017. Additionally, continuing active participants earned larger benefits during 2017 due to higher hours than expected under the current assumptions. We estimated that the increase in the Plan's liabilities was about $39 million due to these factors.

We note that, the increase in liability due to higher contribution rates and higher hours is offset by higher contributions to the Trust and in aggregate, the unfunded actuarial liability is reduced due to contributions exceeding the value of the additional benefits.

Actual new entrants also displayed different demographic characteristics than expected, and likely earned larger benefits than expected under the new entrant assumption. We estimated the increase in liability due to new entrants to be approximately $23 million.

The following is a summary of the remaining major demographic gains and losses.

**Demographic Losses**

A source of demographic loss this year was increases in active participant benefits that were not attributable to increased contributions during the year. These increases are likely due to accrual of past service benefits, changes in PEER level, and other data revisions.

Another source of demographic loss was increases in benefits for participants in pay status. These increases are likely due to working retirees accruing additional benefits.

**Demographic Gains**

Sources of demographic gains include fewer participants retiring from active status and fewer active participants becoming disabled compared with the current assumptions. These gains are consistent with the Plan's experience in recent years.

**Comments**

The overall $89 million loss is small indicating that, in the aggregate, the assumptions produce reasonable results. However, we continue to monitor the demographic experience of the plan on an annual basis in order to confirm that the assumptions remain individually reasonable.

**Sensitivity of Results**

The results presented in this report are dependent upon the actuarial assumptions being realized in the future. To the extent that actual Plan experience differs from the assumptions, future actuarial costs will differ from those presented in this report. For example, actuarial gains and losses emerge in plan years where actual contribution amounts differ from those anticipated by our assumptions.

# SECTION 2
# Introduction

The purpose of this actuarial valuation of the Western Conference of Teamsters Pension Plan is to review last year's activity, compute this year's cost, and test the Plan's funded status. Specifically:

- In Section 3, we summarize the Plan's trust fund activity and measure its investment return.
- In Section 4, we evaluate the Plan's contribution requirements, determine the appropriate charges and credits to the ERISA minimum Funding Standard Account for the plan year ending December 31, 2017, and estimate the credit balance at the end of this year. We also calculate the maximum tax-deductible contribution for the plan year ending December 31, 2018, and the Amortization Period as of January 1, 2018.
- In Section 5, we test the Plan's funded status by comparing the market value of assets with the actuarial present value of accumulated plan benefits, computed in accordance with FASB ASC Topic 960. We also summarize the Plan's Present Value of Vested Benefits in Exhibit 5.3 and calculate the Plan's Unfunded Vested Benefit Liability for withdrawal liability purposes.
- In Section 6, we compare the significant results of this valuation with those of the last four valuations, and provide a 20-year projection of the Plan's expected benefit payments.

The appendices present a summary of the Plan, participant statistics (active, retired, inactive vested), a description of the unit credit actuarial cost method, and a summary of our actuarial assumptions.

# SECTION 3
# Trust Fund Activity

In this section, we show the present status of the Plan's trust fund, trust activity over the past year, and historical investment return.

**Exhibit 3.1** lists the types of assets held and their market value.

**Exhibit 3.2** summarizes the fund's receipts and disbursements during the past year.

**Exhibit 3.3** summarizes the fund's investment return, net of investment-related expenses. The exhibit displays annual rates of return at market value on all assets and non-dedicated assets for each of the last 20 years. For the plan year ended December 31, 2017, the assets of the fund experienced a 13.08% investment return, net of investment-related expenses, when measured at market value. The non-dedicated assets experienced a 13.90% investment return, net of investment expenses for the plan year ending December 31, 2017. This should be compared with our assumed rate of 7.00% net of investment expenses.

**Exhibit 3.4** develops the actuarial value of assets as of December 31, 2017. Since the 2008 investment loss has been fully recognized, this asset value is the same as that used to determine employer liability upon withdrawal from the Plan during 2018.

**Operation of the Actuarial Asset Valuation Method for Non-Dedicated Assets** presents the recognition of investment gains and losses on a market value basis over actuarial expectation.

**Exhibit 3.5** presents the progress of the fund balance for the past 20 years in terms of employer contributions, benefit payments, operating expenses, and net investment income.

# Exhibit 3.1

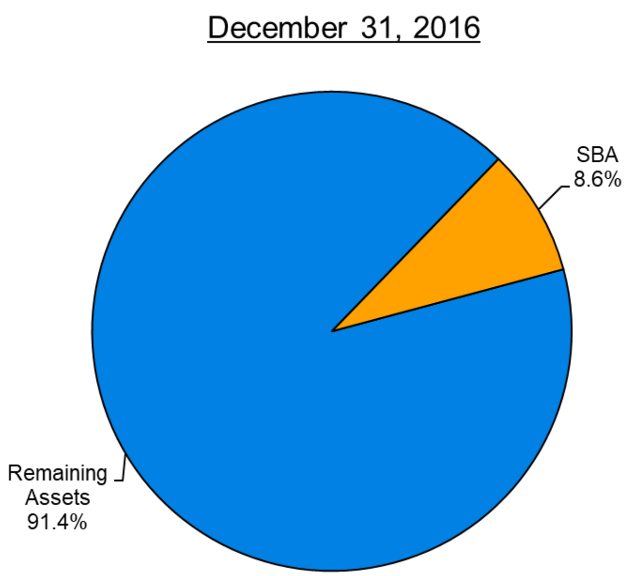
## Market Value of Assets
## (December 31, 2017)

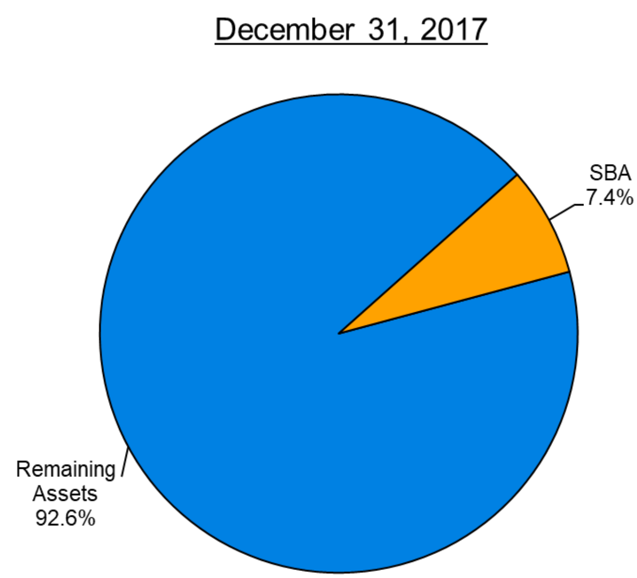
| ASSETS | 2017 |
|---|---|
| INVESTMENTS - at fair value | |
| 103-12 investment entities | $ 1,418,892,971 |
| Cash and cash equivalents | 1,868,255,919 |
| Common/collective trusts | 12,766,289,545 |
| Corporate debt securities | 2,145,003,171 |
| Equity securities | 5,401,907,412 |
| Insurance company contracts | 7,870,737,610 |
| Limited partnerships | 4,851,245,456 |
| Mutual fund | 633,427,848 |
| Other private equity | 1,477,009,096 |
| Pooled separate account | 53,798,529 |
| Real estate | 1,385,239,056 |
| U.S. Government and Government Agency obligations | 503,281,150 |
| | 40,375,087,763 |
| Securities on loan | |
| Corporate debt securities | 12,916,441 |
| Equity securities | 516,498,990 |
| Insurance company contracts | 2,059,172,420 |
| U.S. Government and Government Agency obligations | 38,705,107 |
| | 2,627,292,958 |
| Fair value of collateral held for securities on loan | 2,573,885,359 |
| Total investments | 45,576,266,080 |
| RECEIVABLES | |
| Due from broker for securities sold | 183,749,846 |
| Contributions due from employers - net | 157,600,000 |
| Withdrawal liability receivable - net[1] | 0 |
| Accrued investment income | 56,528,840 |
| Swaps receivable from counterparties | 5,018,437 |
| Forward foreign currency contracts | 62,780,000 |
| Total receivables | 465,677,123 |
| OTHER ASSETS | 5,367,856 |
| CASH | 6,763,474 |
| Total assets | 46,054,074,533 |
| **LIABILITIES AND NET ASSETS** | |
| LIABILITIES | |
| Liability to return collateral held for securities on loan | 2,683,735,936 |
| Securities sold, not yet purchased | 1,096,152,275 |
| Due to broker for securities purchased | 290,366,215 |
| Accounts payable and accrued expenses | 23,361,357 |
| Swaps payable to counterparties | 1,062,057 |
| Forward foreign currency contracts | 63,164,954 |
| Total liabilities | 4,157,842,794 |
| NET ASSETS AVAILABLE FOR BENEFITS | $ 41,896,231,739 |

[1] For valuation purposes, receivable Withdrawal liability payments are excluded from assets.

# Exhibit 3.1
# (Continued)

| ($ in thousands) | | |
|---|---|---|
| | Year Ending December 31, 2016 | Year Ending December 31, 2017 |
| | | |
| a. Strategic Bond Account | $ 3,282,070 | $ 3,115,637 |
| b. All Remaining Assets | 34,738,821 | 38,780,595 |
| c. Net Assets Available for Plan Benefits | $ 38,020,891 | $ 41,896,232 |



# Exhibit 3.2

## Receipts and Disbursements
## (Year Ended December 31, 2017)

| | 2017 |
|---|---|
| ADDITIONS | |
| Investment income | |
| Interest, dividends and other investment income | $ 870,259,427 |
| Net appreciation/(depreciation) in fair value of investments | 4,248,838,559 |
| Net appreciation/(depreciation) in fair value of collateral held for securities on loan | 1,688,081 |
| | 5,120,786,067 |
| Less investment expenses | (224,193,775) |
| Investment income - net | 4,896,592,292 |
| Employer contributions | 1,811,111,077 |
| Employer withdrawal liability income[1] | 17,785,672 |
| Other income | 757,903 |
| Total additions | 6,726,246,944 |
| DEDUCTIONS | |
| Pension benefits | 2,756,869,424 |
| Administrative expenses | 101,977,729 |
| Income tax expense | 3,236,257 |
| Total deductions | 2,862,083,410 |
| NET CHANGE | 3,864,163,534 |
| TRANSFER OF ASSETS TO UNRELATED PLAN | 0 |
| NET ASSETS AVAILABLE FOR BENEFITS | |
| Beginning of year | 38,020,890,831 |
| Adjustment to beginning of year assets | 11,177,374 |
| End of year | $ 41,896,231,739 |

[1] Includes $9,000,000 of withdrawal liability payments held as a receivable as of the end of the prior plan year.

# Exhibit 3.3

## Investment Return

| Market Value of Assets<br>Annual Rate of Investment Return | | | | | |
|---|---|---|---|---|---|
| Annual Rate for One-Year Period | | | Average Annual Rate for Period Ending December 31, 2017 | | |
| Plan Year Ending December 31, | All Assets | Non-Dedicated Assets | Period | All Assets | Non-Dedicated Assets |
| 2017 | 13.08% | 13.90% | 1 | 13.08% | 13.90% |
| 2016 | 7.84% | 7.95% | 2 | 10.43% | 10.89% |
| 2015 | 1.78% | 2.22% | 3 | 7.47% | 7.92% |
| 2014 | 7.56% | 7.56% | 4 | 7.49% | 7.83% |
| 2013 | 12.59% | 15.25% | 5 | 8.49% | 9.27% |
| 2012 | 11.93% | 13.15% | 6 | 9.06% | 9.91% |
| 2011 | 6.26% | 5.35% | 7 | 8.65% | 9.25% |
| 2010 | 13.53% | 14.87% | 8 | 9.25% | 9.93% |
| 2009 | 10.96% | 12.60% | 9 | 9.44% | 10.23% |
| 2008 | -20.58% | -25.23% | 10 | 5.99% | 6.03% |
| 2007 | 5.41% | 5.67% | 11 | 5.93% | 6.00% |
| 2006 | 10.61% | 12.98% | 12 | 6.32% | 6.56% |
| 2005 | 6.05% | 6.55% | 13 | 6.30% | 6.56% |
| 2004 | 9.49% | 10.22% | 14 | 6.52% | 6.82% |
| 2003 | 16.33% | 20.76% | 15 | 7.15% | 7.70% |
| 2002 | -2.29% | -7.56% | 16 | 6.53% | 6.67% |
| 2001 | 2.05% | 0.89% | 17 | 6.26% | 6.32% |
| 2000 | 3.35% | 0.46% | 18 | 6.10% | 5.99% |
| 1999 | 8.08% | 14.06% | 19 | 6.20% | 6.40% |
| 1998 | 14.86% | 16.28% | 20 | 6.62% | 6.87% |

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

# Exhibit 3.4

## Actuarial Value of Assets
## (January 1, 2018)

### Non-Dedicated Asset Reconciliation
**($ in thousands)**

| Year | (1) Market Value of Assets beginning of year | (2) Contributions* | (3) Benefit Payments | (4) Operating Expenses | (5) Other Transactions | (6) Cash Flow (2)-(3)-(4)+(5) | (7) Actual Investment Income | (8) Market Value of Assets End of Year (1)+(6)+(7) |
|---|---|---|---|---|---|---|---|---|
| 2017 | $34,738,820 | $1,828,897 | $2,462,641 | $101,978 | $0 | ($735,722) | $4,777,497 | $38,780,595 |
| 2016 | 32,767,214 | 1,705,556 | 2,350,054 | 98,841 | 138,287 | (605,052) | 2,576,658 | 34,738,820 |
| 2015 | 32,808,706 | 1,596,395 | 2,254,987 | 93,897 | (7,636) | (760,125) | 718,633 | 32,767,214 |
| 2014 | 31,170,197 | 1,544,129 | 2,169,123 | 88,635 | 20,755 | (692,874) | 2,331,383 | 32,808,706 |

### Development of the Actuarial Value of Assets
**($ in thousands)**

| Year | Market Investment Rate of Return | Market Investment Return | Expected Investment Return | Difference between Actual and Expected |
|---|---|---|---|---|
| 2017 | 13.90% | $4,777,497 | $2,405,967 | $ 2,371,530 |
| 2016 | 7.95 | 2,576,658 | 2,267,579 | 309,079 |
| 2015 | 2.22 | 718,633 | 2,270,005 | (1,551,372) |
| 2014 | 7.56 | 2,331,383 | 2,157,663 | 173,720 |

| | | |
|---|---|---|
| Market Value of Non-Dedicated Assets on January 1, 2018 | $ | 38,780,595 |
| Subtract 80% of $2,371,530 gain | | (1,897,224) |
| Subtract 60% of $309,079 gain | | (185,447) |
| Add back 40% of $1,551,372 loss | | 620,548 |
| Subtract 20% of $173,720 gain | | (34,744) |
| Actuarial Value of Non-Dedicated Assets on January 1, 2018 | $ | 37,283,728 |
| Preliminary Actuarial Value as a Percentage of Market Value | | 96.1% |
| Actuarial Value of Non-dedicated Assets (limited to 80%-120% of Market Value) | $ | 37,283,728 |
| Actuarial Value of Dedicated Funds: SBA (see Appendix C) | | 2,928,662 |
| Actuarial Value of Assets on January 1, 2018** | $ | 40,212,390 |

* Includes actual withdrawal liability payments made during the plan year.

** Investment loss for 2008 has been fully recognized as elected under the Pension Relief Act of 2010. Therefore, the Assets for Withdrawal Liability is the same as the Actuarial Value of Assets.

# Exhibit 3.4
# (Continued)

## Operation of the Actuarial Asset Valuation Method for Non-Dedicated Assets ($ in thousands)

| Investment Gain / (Loss) Recognized as of January 1, 2018 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Investment Gain / (Loss) Market over Actuarially Expected | Investment Gain / (Loss) Recognition in Past Years | | | | | Investment Gain / (Loss) Recognized in Current Year | Investment Gain / (Loss) Recognized in Future Years | | | |
| Year | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| 2008 | ($8,646,585) | ($864,659) | ($864,659) | ($864,659) | ($864,659) | ($864,659) | ($864,659) | | | | |
| 2013 | $2,257,262 | | $451,452 | $451,452 | $451,452 | $451,452 | $451,452 | | | | |
| 2014 | $173,720 | | | $34,744 | $34,744 | $34,744 | $34,744 | $34,744 | | | |
| 2015 | ($1,551,372) | | | | ($310,274) | ($310,274) | ($310,274) | ($310,274) | ($310,274) | | |
| 2016 | $309,079 | | | | | $61,816 | $61,816 | $61,816 | $61,816 | $61,816 | |
| 2017 | $2,371,530 | | | | | | $474,306 | $474,306 | $474,306 | $474,306 | $474,306 |
| Net Gains / (Losses) Recognized by Year | | | | | | | ($152,615) | $260,591 | $225,847 | $536,122 | $474,306 |
| Interest on Prior Year Gains / (Losses) | | | | | | | ($71,910) | $104,781 | $86,539 | $70,730 | $33,201 |
| Additional Gains / (Losses) Recognized in Current year because of 80% - 120% Corridor | | | | | | | $0 | | | | |
| Total Gain / (Loss) Recognized by year | | | | | | | ($224,524) | $365,372 | $312,387 | $606,852 | $507,507 |
| Total Gains / (Losses) Deferred and to be Recognized in Future Years | | | | | | | $1,496,866 | $1,236,275 | $1,010,428 | $474,306 | $0 |

# Exhibit 3.5

## Net Cash Flow for Total Fund

**($ in thousands)**

| December 31, | Contributions | Operating Expenses | Benefit Payments | Net Cash Flow | Net Investment Income | Net Cash Flow + Investment Income |
|---|---|---|---|---|---|---|
| 1998 | 873,273 | 48,964 | 1,174,440 | (350,131) | 2,892,689 | 2,542,558 |
| 1999 | 912,445 | 50,024 | 1,230,062 | (367,641) | 1,776,796 | 1,409,155 |
| 2000 | 981,425 | 52,791 | 1,352,093 | (423,459) | 784,219 | 360,760 |
| 2001 | 1,008,409 | 54,737 | 1,437,374 | (483,702) | 893,971 | 410,269 |
| 2002 | 1,030,563 | 57,454 | 1,557,808 | (584,699) | (550,761) | (1,135,460) |
| 2003 | 1,068,717 | 59,761 | 1,649,918 | (640,962) | 3,741,095 | 3,100,133 |
| 2004 | 1,117,378 | 59,232 | 1,746,603 | (688,457) | 2,466,296 | 1,777,839 |
| 2005 | 1,199,154 | 64,061 | 1,838,524 | (703,431) | 1,679,009 | 975,578 |
| 2006 | 1,258,898 | 71,638 | 1,919,384 | (732,124) | 3,045,672 | 2,313,548 |
| 2007 | 1,320,358 | 73,833 | 1,996,396 | (749,871) | 1,677,254 | 927,383 |
| 2008 | 1,350,530 | 80,375 | 2,059,601 | (789,446) | (6,570,632) | (7,360,078) |
| 2009 | 1,264,683 | 87,502 | 2,154,335 | (977,154) | 2,683,399 | 1,706,245 |
| 2010 | 1,276,476 | 84,716 | 2,232,529 | (1,040,769) | 3,537,349 | 2,496,580 |
| 2011 | 1,322,549 | 83,757 | 2,305,404 | (1,066,612) | 1,792,951 | 726,339 |
| 2012 | 1,367,269 | 83,759 | 2,367,600 | (1,084,090) | 3,502,770 | 2,418,680 |
| 2013 | 1,431,091 | 87,541 | 2,458,053 | (1,114,503) | 3,974,410 | 2,859,907 |
| 2014 | 1,544,129 | 88,635 | 2,530,265 | (1,074,771) | 2,620,954 | 1,546,183 |
| 2015 | 1,596,395 | 93,897 | 2,598,766 | (1,096,268) | 645,209 | (451,058) |
| 2016 | 1,705,556 | 98,841 | 2,676,620 | (1,069,905) | 2,802,657 | 1,732,752 |
| 2017 | 1,828,897 | 101,978 | 2,756,869 | (1,029,950) | 4,905,291 | 3,875,341 |
| 20-year total as of 12/31/17 | $25,458,195 | $1,483,496 | $40,042,644 | ($16,067,945) | $38,300,598 | $22,232,654 |

# SECTION 4
# Contribution Requirements and Amortization Period

In this section, we calculate the projected ERISA minimum Funding Standard Account and the maximum tax-deductible limit under the Internal Revenue Code. Under the law, an Enrolled Actuary must calculate costs using an approved actuarial cost method and actuarial assumptions which, in combination, are his best estimate of future Plan experience. We also determine the Plan's Amortization Period which provides the Trustees an additional indication of the Plan's ability to pay all benefits expected to be paid for by the Plan. Our actuarial cost method and assumptions are fully explained in Appendices C and D: the following discussion explains only the highlights of our cost method.

The actuarial present value of projected plan benefits is made up of liabilities for benefits being paid to current retirees and their beneficiaries and of liabilities that are projected to be paid to future retirees. The chart below illustrates the allocation of the actuarial present value of projected plan benefits among these categories of participants.

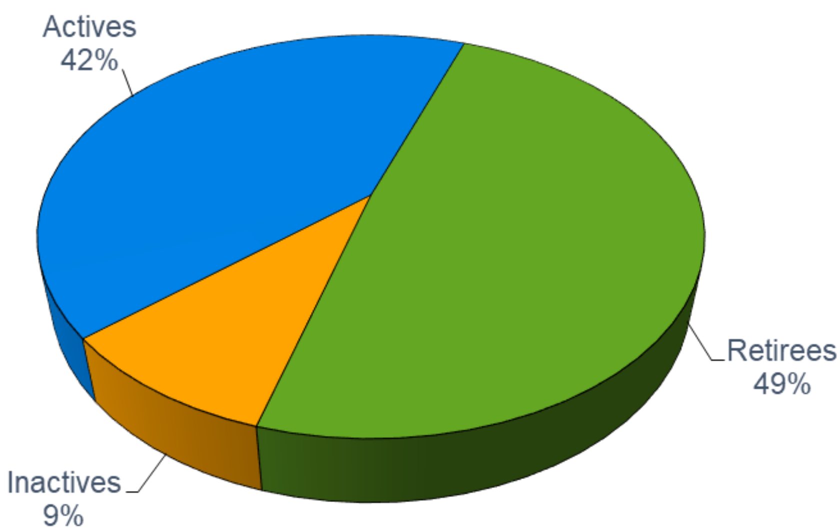



Exhibit 4.1 contains information on the actuarial balance sheet. Plan requirements consist of the actuarial present value of projected plan benefits on January 1, 2018. As illustrated above, 58% of the Plan's liabilities are for benefits to be paid to participants for whom contributions are no longer being made to the Plan. Plan resources consist of the actuarial value of assets and expected contributions to pay for projected future normal costs and expected future payments to eliminate the Plan's unfunded actuarial liability.

Exhibit 4.2 details the changes in the value of the Plan's unfunded actuarial liability from January 1, 2017, to January 1, 2018.  Unfunded actuarial (accrued) liability changes during the year result from benefit accruals, contributions to the Plan, and actuarial gains and losses, which arise from actual experience different from expected.  Changes to Plan provisions, actuarial assumptions, or the Plan's funding method can also impact the unfunded actuarial liability.

This year's normal cost is shown in Exhibit 4.3. The normal cost is the annual cost of benefits allocated to a plan year by the cost method and includes an allowance for operating expenses expected during the plan year.

## ERISA Minimum Funding Requirements

Exhibit 4.4 details the entries to the Plan's Funding Standard Account for the plan year ending December 31, 2017.

Exhibit 4.5 projects the Plan's Funding Standard Account through December 31, 2018, and provides detail on the amortization charges and credits. A positive credit balance is produced by cumulative contributions sufficient to pay normal costs and to amortize the unfunded actuarial liability faster than required.

## Maximum Deductible Contribution

Exhibit 4.6 calculates the maximum deductible contribution for the 2018 plan year. The anticipated contributions are less than the maximum deductible contribution, and are therefore expected to be fully deductible.

## Amortization Period

Exhibit 4.7 displays the calculation of the period to amortize the Plan's unfunded actuarial liability using the actuarial value of assets and the market value of assets.

# Exhibit 4.1

## Actuarial Balance Sheet
## (January 1, 2018)

### Requirements
**($ in thousands)**

| | | | | |
|---|---|---|---|---|
| Present Value of Projected Benefits | | | | |
| Retired Participants | | | $ | 25,215,056 |
| Vested Inactive Participants | | | | 4,794,963 |
| Active Participants | | | | |
| Retirement | $ | 18,914,806 | | |
| Vested Withdrawal | | 1,376,448 | | |
| Death | | 498,256 | | |
| Disability | | 680,131 | | 21,469,641 |
| Total Present Value of Projected Benefits | | | $ | 51,479,660 |

### Resources
**($ in thousands)**

| | | |
|---|---|---|
| Actuarial Value of Assets | $ | 40,212,390 |
| Present Value of Future Normal Costs | | 7,709,113 |
| Unfunded Actuarial Liability | | 3,558,157 |
| Total | $ | 51,479,660 |

# Exhibit 4.2

## Analysis of Change in the Unfunded Actuarial Liability (January 1, 2018)

| **Expected Unfunded Actuarial Liability on January 1, 2018** | | **($ in thousands)** |
|---|---|---|
| Unfunded Actuarial Liability as of January 1, 2017 | | $ 3,725,917 |
| Normal Cost, Including Expenses | | 959,764 |
| Interest on the above items | | 327,998 |
| Contributions | | (1,828,897) |
| Interest on Contributions | | (52,893) |
| Expected Unfunded Actuarial Liability as of January 1, 2018 | | $ 3,131,889 |
| **Changes** | | |
| Assumption changes | $ 19,057 | |
| Discount rate changes on dedicated funds | 47,674 | |
| Method Change | 0 | |
| Demographic (Gain)/Loss | 150,987 | |
| Asset (Gain)/Loss | 208,550 | |
| Total | | 426,268 |
| **Unfunded Actuarial Liability on January 1, 2018** | | $ 3,558,157 |

# Exhibit 4.3

## Normal Cost
## (January 1, 2018)

| | | | ($ in thousands) | |
|---|---|---|---|---|
| **Unit Credit Normal Cost** | | | | |
| Retirement | $ | 742,639 | | |
| Vested Withdrawal | | 101,544 | | |
| Death | | 19,926 | | |
| Disability | | 32,514 | $ | 896,623 |
| **New Entrant Adjustment** | | | | 16,281 |
| **Expenses ($105,000,000 Payable Mid-Year)** | | | | 101,241 |
| **Total Normal Cost (Beginning of Year)** | | | $ | 1,014,145 |

# Exhibit 4.4

## Funding Standard Account
## (Year Ending December 31, 2017)

| **Charges to Funding Standard Account** | **($ in thousands)** |
|---|---|
| Prior Year Fund Deficiency, if any | $ 0 |
| Normal Cost for Year | 959,764 |
| Amortization Charges | 683,228 |
| Interest on Fund Deficiency, Normal Cost, and Amortization Charges | 115,009 |
| Total Charges | $ 1,758,001 |
| **Credits to Funding Standard Account** | |
| Prior Year Credit Balance, if any | $ 4,177,724 |
| Employer Contributions | 1,828,897 |
| Amortization Credits | 0 |
| Interest on Credit Balance, Amortization Credits, and Contributions | 345,334 |
| Total Credits | $ 6,351,955 |
| **Balance** | |
| Credit Balance, if any | $ 4,593,954 |

# Exhibit 4.5

## Projected Funding Standard Account
## (Year Ending December 31, 2018)

| **Charges to Funding Standard Account** | **($ in thousands)** | |
|---|---|---|
| Prior Year Fund Deficiency, if any | $ | 0 |
| Normal Cost for Year | | 1,014,145 |
| Amortization Charges* | | 726,968 |
| Interest on Fund Deficiency, Normal Cost, and Amortization Charges | | 121,878 |
| Total Charges | $ | 1,862,991 |
| **Credits to Funding Standard Account** | | |
| Prior Year Credit Balance, if any | $ | 4,593,954 |
| Expected Employer Contributions | | 1,857,000 |
| Amortization Credits* | | 0 |
| Interest on Credit Balance, Amortization Credits, and Contributions | | 385,836 |
| Total Credits | $ | 6,836,790 |
| **Balance** | | |
| Projected Credit Balance, if any | $ | 4,973,799 |
| **Minimum Required Contribution** | $ | 0 |

* *See table on the following page for detail.*

Amortization Bases

The following table depicts the various entries used to establish the year-by-year charges and credits with respect to the Funding Standard Account.

Before Combine/Offset

| ($ in thousands) | Year Established | Original Balance | 01/01/2018 Balance | Years Remaining | Amortization Payment |
|---|---|---|---|---|---|
| **Charges** | | | | | |
| 2008 Net Investment Loss | 2009 | $4,407,752 | $3,803,310 | 20.000 | $335,519 |
| 2008 Net Investment Loss | 2010 | $588,120 | $513,349 | 20.000 | $45,286 |
| 2008 Net Investment Loss | 2011 | $671,272 | $593,274 | 20.000 | $52,338 |
| 2008 Net Investment Loss | 2012 | $467,560 | $418,858 | 20.000 | $36,951 |
| 2008 Net Investment Loss | 2013 | $875,912 | $796,274 | 20.000 | $70,245 |
| 2008 Net Investment Loss | 2014 | $1,635,968 | $1,511,114 | 20.000 | $133,307 |
| Prior Combined/Offset Base | 2017 | $93,380 | $89,664 | 14.000 | $9,582 |
| Experience Loss | 2018 | $359,537 | $359,537 | 15.000 | $36,893 |
| Assumption Changes | 2018 | $66,731 | $66,731 | 15.000 | $6,847 |
| *Total Charges* | | $9,166,232 | $8,152,111 | | $726,968 |
| **Credits** | | | | | |
| *Total Credits* | | $0 | $0 | | $0 |
| **Net Charges/(Credits)** | | | $8,152,111 | | $726,968 |

Combined/Offset

| ($ in thousands) | Year Established | Original Balance | 01/01/2018 Balance | Years Remaining | Amortization Payment |
|---|---|---|---|---|---|
| **Charges** | | | | | |
| 2008 Net Investment Loss | 2009 | $4,407,752 | $3,803,310 | 20.000 | $335,519 |
| 2008 Net Investment Loss | 2010 | $588,120 | $513,349 | 20.000 | $45,286 |
| 2008 Net Investment Loss | 2011 | $671,272 | $593,274 | 20.000 | $52,338 |
| 2008 Net Investment Loss | 2012 | $467,560 | $418,858 | 20.000 | $36,951 |
| 2008 Net Investment Loss | 2013 | $875,912 | $796,274 | 20.000 | $70,245 |
| 2008 Net Investment Loss | 2014 | $1,635,968 | $1,511,114 | 20.000 | $133,307 |
| Combined/Offset Base | 2018 | $515,932 | $515,932 | 14.820 | $53,322 |
| *Total Charges* | | $9,162,516 | $8,152,111 | | $726,968 |
| **Credits** | | | | | |
| | | $0 | $0 | | $0 |
| *Total Credits* | | $0 | $0 | | $0 |
| **Net Charges/(Credits)** | | | $8,152,111 | | $726,968 |

# Exhibit 4.6

## Maximum Tax-Deductible Contribution
## (Plan Year Ending December 31, 2018)

| | | | | | |
|---|---|---|---|---|---|
| **1. Ten Year Amortization Limitation: (IRC Section 404(a)(1)(A)(iii))** | | | **($ in thousands)** | | |
| Normal Cost | $ | 1,014,145 | | | |
| Amortization of Unfunded Actuarial Liability | + | 473,459 | | | |
| Interest | + | 104,132 | | $ | 1,591,736 |
| **2. Full Funding Limitation: (IRC Section 412(c)(7)(A)(i))** | | | | | |
| Actuarial Liability at Beginning of Year | $ | 43,770,547 | | | |
| Unit Credit Normal Cost, including expenses, at Beginning of Year | + | 1,014,145 | | | |
| Test Value of Assets, at Beginning of Year | - | 40,212,390 | | | |
| Interest | + | 320,061 | | $ | 4,892,363 |
| **3. Unfunded Current Liability** | | | | | |
| 90% of RPA Current Liability, at End of Year | $ | 68,063,547 | | | |
| Actuarial Value of Assets Projected to End of Year | - | 40,119,267 | | $ | 27,944,280 |
| **4. Unfunded Current Liability Limitation: (IRC Section 404(a)(1)(D))** | | | | | |
| 140% of Current Liability at Year End | $ | 105,876,629 | | | |
| Actuarial Value of Assets at Year End | - | 40,010,592 | | | |
| Unfunded Current Liability | | | | $ | 65,866,037 |
| **5. Maximum Tax-Deductible Contribution Lesser of (1) or (2), but not less than (3) or (4)** | | | | $ | 65,866,037 |

There are alternative calculations of the Maximum Deductible Contribution under IRC Section 404 that may produce a different amount than illustrated above. Please consult your tax advisors regarding the deductibility of cash contributions.

# Exhibit 4.6
# (Continued)

The current liability defined under IRC Section 404(a)(1)(D) is developed in the following table. Current liability is determined using a 2.98% interest assumption and mortality as specified by the IRS. The 2.98% interest assumption is within the required corridor of the weighted average of 30-Year Treasury Bond Rates published by the IRS.

| | | ($ in thousands) |
|---|---|---|
| **Current Liability, Beginning of Year** | | |
| Retirees | $ | 35,751,796 |
| Vested Inactive Participants | | 9,949,985 |
| Active Participants | | 28,381,525 |
| Total | $ | 74,083,306 |
| **Changes Expected During 2018 Plan Year** | | |
| Accrual of Benefits | $ | 2,123,414 |
| Expected Benefit Payments | - | 2,809,652 |
| Interest | + | 2,229,096 |
| Total | $ | 1,542,858 |
| **Current Liability, End of Year** | $ | 75,626,164 |

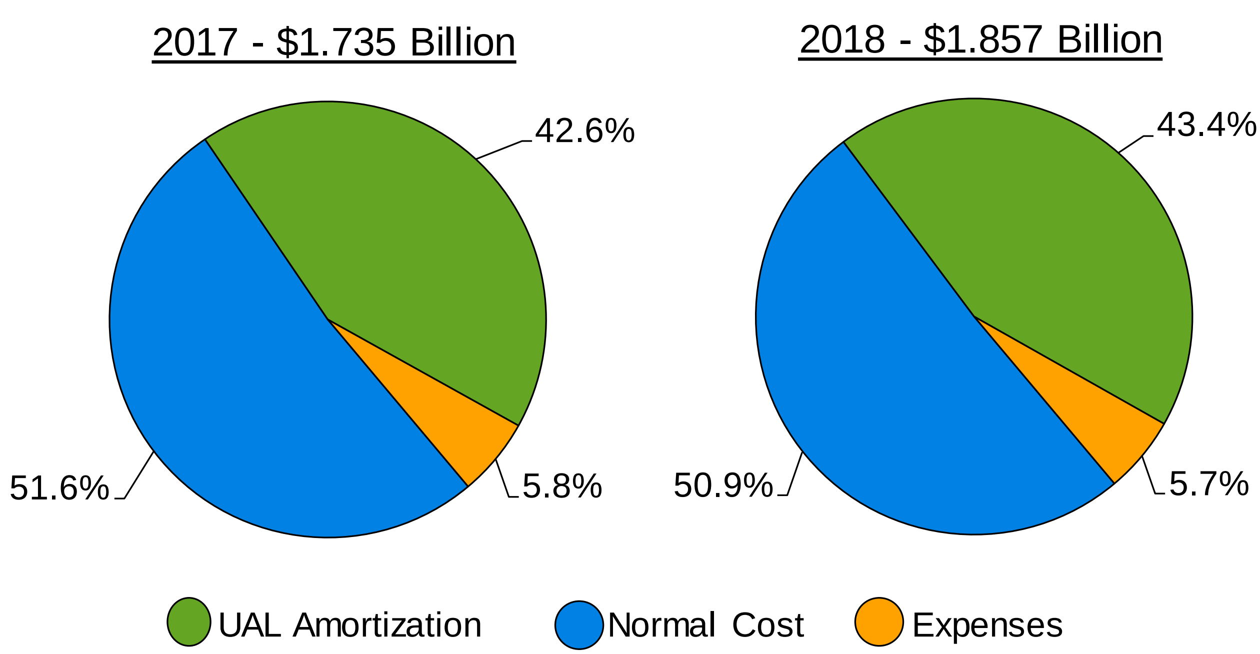
The amortization limitation required by IRC Section 404(a)(1)(A)(iii) is based on a 10-year level dollar amortization of the Unfunded Actuarial Liability of $1,591,736.

# Exhibit 4.7
# Amortization Period

Exhibit 4.7 shows the amortization periods as of the current and prior valuation dates.

| ($ in thousands) | | |
|---|---|---|
| | January 1, 2017 | January 1, 2018 |
| a. Estimated Employer Contributions | $1,735,000 | $1,857,000 |
| b. Expenses | $101,000 | $105,000 |
| c. Normal Cost (payable monthly) | $894,402 | $946,802 |
| d. Estimated Employer Contribution to Amortize Unfunded Actuarial Liability (a.-b.-c.) | $739,598 | $805,198 |
| e. Unfunded Actuarial Liability | $3,725,917 | $3,558,157 |
| f. Amortization Period | 6.3 years | 5.4 years |
| g. Estimated Period to Amortize the Unfunded Actuarial Liability using Market Value of Assets | 8.1 years | 2.6 years |

## Estimated Employer Contributions



# SECTION 5
# Funded Status

In this section, we provide the Plan's funded status by comparing the Fund's Market Value of Assets with the Actuarial Present Value of Accumulated Plan Benefits and the Plan's Present Value of Vested Benefits under FASB ASC Topic 960. As shown on Exhibit 5.1, the Market Value of the Plan's Assets is less than the Present Value of Accumulated Plan Benefits as of December 31, 2017. Exhibit 5.2 shows the change in the Present Value of Accumulated Plan Benefits from December 31, 2016, to December 31, 2017.

Exhibit 5.3 shows the Plan's Unfunded Vested Benefits Liability for purposes of determining withdrawal liability. As of December 31, 2017, the Assets for Withdrawal Liability are less than the Present Value of Vested Benefits. This determination will impact withdrawal liability calculations for employers withdrawing from the Plan during the 2018 plan year.

# Exhibit 5.1

## Statement of Actuarial Present Value of Accumulated Plan Benefits

| | FASB ASC Topic 960 ($ in thousands) | |
|---|---|---|
| | December 31, 2016 | December 31, 2017 |
| **Vested Benefits** | | |
| Retirees & Beneficiaries | $ 24,516,762 | $ 25,209,307 |
| Vested Inactive Participants | 4,626,756 | 4,794,926 |
| Active Participants | 11,576,703 | 11,835,063 |
| Total | $ 40,720,221 | $ 41,839,296 |
| **Non-Vested Benefits** | | |
| Active and Other Non-Vested Benefits | 1,846,548 | 1,931,251 |
| Total | $ 1,846,548 | $ 1,931,251 |
| **Actuarial Present Value of Accumulated Plan Benefits** | $ 42,566,769 | $ 43,770,547 |
| **Assets** | | |
| Market Value of Assets (MV) | $ 38,020,891 | $ 41,896,232 |
| Actuarial Value of Assets (AV) | $ 38,840,852 | $ 40,212,390 |
| **Funding Ratios** | | |
| Ratio of MV to Present Value of Vested Benefits | 93.4% | 100.1% |
| Ratio of MV to Present Value of Accumulated Plan Benefits | 89.3% | 95.7% |
| **PPA Funding Ratio** | | |
| Ratio of AV to Present Value of Accumulated Plan Benefits | 91.2% | 91.9% |

# Exhibit 5.2

## Statement of Changes in Actuarial Present Value of Accumulated Plan Benefits

| | ($ in thousands) |
|---|---|
| **Value as of December 31, 2016** | $ 42,566,769 |
| Changes | |
| Benefits Accumulated | 862,380 |
| Actuarial (Gain)/Loss | 150,987 |
| Actuarial Method Change | 0 |
| Interest | 2,880,549 |
| Benefit Payments | (2,756,869) |
| Assumption Changes | 66,731 |
| **Net Change** | $ 1,203,778 |
| **Value as of December 31, 2017** | $ 43,770,547 |

# Exhibit 5.3

## Unfunded Vested Benefit Liability

| | ($ in thousands) December 31, 2016 | December 31, 2017 |
|---|---|---|
| **Actuarial Present Value of Vested Benefits** | | |
| Active Participants | $ 11,576,703 | $ 11,835,063 |
| Vested Inactive Participants | 4,626,756 | 4,794,926 |
| Retirees & Beneficiaries | 24,516,762 | 25,209,307 |
| Total | $ 40,720,221 | $ 41,839,296 |
| **UVBL Asset Value** | $ 37,976,193 | $ 40,212,390 |
| **Unfunded Vested Benefit Liability** | $ 2,744,028 | $ 1,626,906 |
| **Excess of the Actuarial Value of Assets over the Vested Benefit Liability** | NA | NA |
| **Percentage Funded** | 93.3% | 96.1% |

# SECTION 6
# History and Projections

**Exhibit 6.1** shows five years of the more important Plan statistics.

- **Investment Return.** Investment return often represents the largest source of actuarial gain or loss.
- **Participant Statistics.** Changes, if any, in the active and inactive participants' characteristics over time can cause significant changes in costs.

**Exhibit 6.2** provides a projection of benefit payments. This can be useful for the investment manager in planning future liquidity requirements.

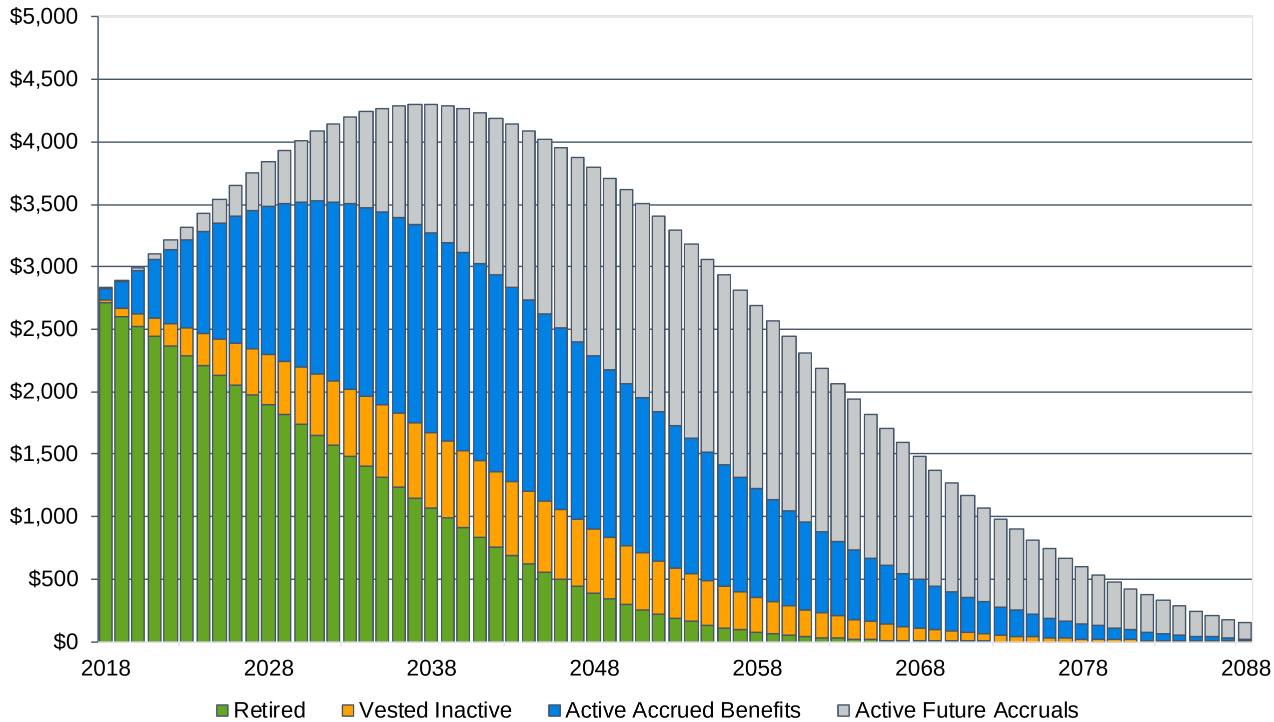
# Exhibit 6.1

## Historical Statistics
## ($ in thousands)

| | January 1, 2014 | January 1, 2015 | January 1, 2016 | January 1, 2017 | January 1, 2018 |
|---|---|---|---|---|---|
| ***Actuarial Present Value of Accumulated Plan Benefits*** | | | | | |
| Vested Benefits | | | | | |
| Retirees | $ 22,103,238 | $ 22,789,078 | $ 23,282,149 | $ 24,516,762 | $ 25,209,307 |
| Inactives | 4,422,913 | 4,494,421 | 4,591,771 | 4,626,756 | 4,794,926 |
| Actives | 10,754,230 | 11,053,869 | 11,360,257 | 11,576,703 | 11,835,063 |
| Total | $ 37,280,381 | $ 38,337,368 | $ 39,234,177 | $ 40,720,221 | $ 41,839,296 |
| Non-Vested Benefits | $ 1,835,647 | $ 1,830,243 | $ 1,840,022 | $ 1,846,548 | $ 1,931,251 |
| Accumulated Plan Benefits | $ 39,116,028 | $ 40,167,611 | $ 41,074,199 | $ 42,566,769 | $ 43,770,547 |
| ***Assets*** | | | | | |
| Market Value of Fund | $ 35,193,014 | $ 36,739,196 | $ 36,288,138 | $ 38,020,891 | $ 41,896,232 |
| Market Value Return in Prior Year | 12.59% | 7.56% | 1.78% | 7.84% | 13.08% |
| Actuarial Value for Funding | $ 35,478,550 | $ 36,878,833 | $ 37,692,694 | $ 38,840,852 | $ 40,212,390 |
| ***Participant Statistics*** | | | | | |
| Retired Participants and Beneficiaries | | | | | |
| Number of Retirees and Beneficiaries | 217,924 | 221,502 | 223,971 | 226,870 | 230,157 |
| Total Annual Benefits | $ 2,458,053 | $ 2,530,265 | $ 2,598,766 | $ 2,671,041 | $ 2,756,869 |
| Active Participants | | | | | |
| Number of Participants | 195,620 | 197,120 | 202,940 | 206,340 | 214,100 |
| Average Age | 43.7 | 43.4 | 43.3 | 43.3 | 43.1 |
| Average Credited Service | 12.4 | 12.3 | 12.0 | 11.9 | 11.4 |
| Vested Inactive Participants | | | | | |
| Number of Participants | 167,940 | 166,440 | 165,920 | 164,640 | 165,380 |
| ***Actuarial Assumptions*** | | | | | |
| Interest Assumption | 7.00% | 7.00% | 7.00% | 7.00% | 7.00% |
| Expected Contributions | $ 1,401,000 | $ 1,500,000 | $ 1,617,000 | $ 1,735,000 | $ 1,857,000 |
| Actual Contributions | $ 1,544,129 | $ 1,596,395 | 1,705,556 | 1,828,897 | TBD |

# Exhibit 6.2

## Projected Benefit Payments
## ($ in millions)




## Detail of Total Projected Payments for Next 20 Years
## ($ in thousands)

| Plan Year | Estimated Payout of Retirement Benefits | Plan Year | Estimated Payout of Retirement Benefits |
|---|---|---|---|
| 2018 | $2,823,998 | 2028 | $3,845,201 |
| 2019 | 2,891,182 | 2029 | 3,932,574 |
| 2020 | 2,991,554 | 2030 | 4,013,375 |
| 2021 | 3,101,565 | 2031 | 4,084,048 |
| 2022 | 3,211,840 | 2032 | 4,144,736 |
| 2023 | 3,319,997 | 2033 | 4,197,507 |
| 2024 | 3,430,868 | 2034 | 4,238,810 |
| 2025 | 3,541,723 | 2035 | 4,270,531 |
| 2026 | 3,647,151 | 2036 | 4,291,769 |
| 2027 | 3,749,072 | 2037 | 4,299,997 |

# Appendix A

## Summary of the Plan

1. **Active Participation**

Non-Seasonal employees for whom contributions are required to be made to the Trust under the terms of a pension agreement become “Active Participants” on the day on which they first accumulate 750 covered hours in the current and immediately preceding calendar years. Seasonal employees become “Active Participants” if they satisfy one-half of the covered hour requirement of Non-Seasonal employees.

2. **Monthly Pension at Normal Retirement**

The monthly pension earned for service prior to 1987 is determined based on the 1986 Plan provisions as outlined in the Actuarial Report as of January 1, 1986. The final five-year average contribution rate used for this determination recognizes contribution rates applicable to all 500 hour years through 1991.

For service after 1986, monthly pension benefits are earned as follows:

| Calendar Year | Contribution Percentage | |
|---|---|---|
| | First 20 Years | After 20 Years |
| 1987-1991 | 2.00% | 2.65% |
| 1992-1996 | 2.30% | 3.05% |
| 1997-1999 | 2.46% | 3.26% |
| 2000-2002 | 2.70% | 3.58% |
| 1/2003-6/2003 | 2.20% | 2.92% |
| 7/2003-2006 | 1.20% | 1.20% |
| 2007 | 1.65% | 1.65% |
| 2008 | 2.00% | 2.65% |
| 2009+ | 1.20% | 1.20% |

3. **Past Service Credits**

A participant is granted credit for the number of years and months of specified types of unbroken employment rendered prior to his or her first covered hour, subject to limits specified in the Plan.

4. **Vesting Service**

A Plan member earns a vesting service year for each year after 1975 during which he or she is credited with at least 500 covered hours (250 covered hours for Seasonal Plan members). For service before 1976, a Plan member is credited with a vesting service year for each year of continuous coverage under the Plan.

5. **Normal Retirement Age**

A participant reaches Normal Retirement Age upon the later of age 65 or an Active participant’s age on the second anniversary of his or her first covered hour.

**6.** **Normal Pension Form**

The normal form of pension for unmarried participants is a Life Only Pension. In general, married participants who do not elect otherwise receive a reduced Employee and Spouse Pension. This reduced amount is an "actuarial equivalent" of the Life Only Pension. Participants who retired under the Employee and Spouse Pension Option will have their pension restored to the amount payable under the Normal Form if the spouse dies first. In the event that the participant dies first, the amount of spouse pension is 66 2/3% of the retiree's pension for those who retired after 1991 with recent coverage; otherwise the amount of spouse pension is 50% of the retiree's pension. In both instances, the actuarial reduction factor for the Employee and Spouse Pension amount is calculated as though the spouse pension benefit would be 50% of the reduced Employee and Spouse Pension.

**7.** **Other Pension Forms**

An Optional Employee and Spouse Pension providing a 75% spouse pension is available. Participants retiring under age 65 may elect a Benefit Adjustment Option with or without the regular or Optional Employee and Spouse Pension.

**8.** **Early Retirement Eligibility Date**

In general, this date is the first day of the month coincident with or immediately following the later of the participant's 55th birthday or the date the individual becomes a vested participant. However, a participant with recent coverage may retire at any age if he or she meets the Rule of 84 (or Rule of 82 or Rule of 80) under the Program for Enhanced Early Retirement (PEER program); that is, the sum of his or her attained age plus years of contributory service is equal to or greater than 84 (or 82 or 80).

**9.** **Monthly Pension at Early Retirement for a Participant with Recent Coverage**

If a participant meets the Rule of 84 and has recent coverage, the monthly pension benefit is reduced by the sum of 0.45% for each of the first 60 months that the early retirement date precedes his or her 62nd birthday plus 0.33% for each month that the early retirement date precedes his or her 57th birthday.

If a participant has recent coverage but does not meet the Rule of 84, his or her monthly pension benefit is reduced by the sum of 0.60% for each of the first 60 months that the early retirement date precedes his or her 62nd birthday plus 0.40% for each month that the early retirement date precedes his or her 57th birthday.

**10.** **Monthly Pension at Early Retirement for a Participant with Current PEER Coverage**

If a participant meets the Rule of 84 (or Rule of 82 or Rule of 80), is a member of a bargaining unit which has negotiated PEER 84 (or PEER 82 or PEER 80) contribution surcharges, and has current PEER coverage, the early retirement benefit equals 100% of the earned pension benefits. A participant has current PEER coverage at his or her retirement effective date if the applicable PEER contributions have been paid for at least 1,000 covered hours in the 24-month period immediately preceding his or her retirement effective date.

**Note:** If a participant is in a category of early retirement where benefits are subsidized (as described in paragraph 1 of Item 9 or in Item 10) and accumulates 25 years of service under the Plan while so covered, then his or her subsidized early retirement benefits are "locked-in" and cannot be forfeited.

**11. Disability Benefit**

Upon a vested participant's total and permanent disability before age 65, the monthly benefit is the greater of (a) 85% of the earned monthly pension benefit or (b) the early retirement pension otherwise payable, provided the vested participant has met the specified recent coverage requirement on the disability onset date.

**12. Vested Benefit Upon Termination of Employment**

Upon termination of employment, a participant is vested in his or her accrued pension, based on past and future service credits, if he or she has completed at least 5 years of vesting service, one of which was completed during or after 1991.

A terminated vested participant may elect early commencement of the earned retirement benefit at any time on or after the Early Retirement Eligibility Date. If the participant does not have recent coverage and has not "locked-in" rights to unreduced pension benefits by having completed 25 years of Plan service before termination, the benefit is reduced by the sum of 0.60% per month for each of the first 60 months that the early retirement date precedes the participant's 65$^{th}$ birthday plus 0.40% per month for each month that such early retirement date precedes the participant's 60$^{th}$ birthday.

Vested participants who are not covered by the current Plan provisions may be subject to additional limitations on their benefits.

**13. Extra Check**

An annual "Extra Check" is payable to: (i.) pre-1985 retirees in the amount of $540 and to (ii.) their eligible survivors in the amount of $450.

**14. Death Benefits**

Upon the death of a participant or pensioner who has met the specified recent coverage requirement, a temporary monthly pension is payable to the surviving children under conditions specified in the Plan.

A pre-retirement benefit to the surviving spouse is payable upon the death of a vested participant. If a married participant had recent coverage at the time of death, the spouse receives an immediate benefit based on the participant's earned benefit. The earned benefit is reduced to reflect early retirement, as specified in the Plan, and the appropriate Employee and Spouse Pension factor. 66 2/3% of the resulting amount is then payable immediately to the spouse. If the participant does not have recent coverage, the benefit is calculated as described above, but a 50% factor is applied in lieu of the 66 2/3% factor, and, if the participant was not eligible to retire on the date of death, commencement of the pension is deferred until the time the participant would have been first eligible to retire.

A single sum death benefit equal to 50% of contributions, subject to a maximum of $10,000, is payable upon the death of an Active or Terminated participant who has completed at least 5 years of vesting service. In addition, for unmarried vested participants who satisfy the recent coverage requirements and would otherwise be eligible to retire, a death benefit of 48 times the participant's accrued pension, reduced to reflect early retirement as specified in the Plan, is payable as a lump sum amount.

Upon the death of a pensioner with a retirement date before January 1, 1992, a single sum benefit of 12 times the monthly normal form pension (Life Only annuity), subject to a maximum of $10,000 is payable. Beginning with retirements in 1992, beneficiaries of retirees with recent coverage who elect a Life Only or Benefit Adjustment Option (without the Spouse Pension) receive a 4-Year Certain death benefit payment equal to 48 times the pensioner's Life Only benefit minus the total monthly payments already received by the pensioner.

If a pensioner retires after January 1, 1992, he or she may elect an Optional Lump Sum Death Benefit equal to 12 times the monthly normal form pension (Life Only annuity). The Optional Lump Sum Death Benefit is paid for by reducing the pensioner's monthly payment.

## 15. <u>Transition Provisions</u>

Certain minimum benefits are provided to participants who were covered by prior versions of the Plan.

## PLAN AMENDMENT HISTORY

The following is a summary of the Plan changes since 2000 that impact the valuation.

| Effective Date | Description of Change |
|---|---|
| 1/1/2011 | Annual "Extra Checks" to pre-1985 retirees and their eligible survivors were made a permanent part of the Plan. |
| 1/1/2009 | A 75% Optional Employee and Spouse Pension was added. Also, a $40 million reserve for extra check payments was established. |
| 1/1/2008 | Effective for calendar year 2008 only, the percentages used to calculate Plan participant account benefits have been increased from 1.20% to 2.00% for participants who have not completed 20 years of service, and from 1.20% to 2.65% for participants who have completed at least 20 years of service. The percentages for years 2009 and later remain at 1.20%. |
| 1/1/2007 | Effective for calendar year 2007 only, the percentage used to calculate Plan participant account benefits was increased from 1.20% to 1.65%. The percentages for years 2008 and later remain at 1.20%. |
| 7/1/2003 | Effective July 1, 2003, the percentage used to calculate Plan participant account benefits has been reduced to 1.20% for the second half of 2003 and all subsequent years. |
| 1/1/2000 | Effective for calendar years 2000, 2001 and 2002, the percentage used to calculate Plan participant account benefits has been increased. An Active participant will earn a monthly pension benefit of 2.70% instead of 2.16% for contributions credited in this period if he/she has not completed 20 year of service. If such participant has completed at least 20 years of contributory service, he/she will earn a monthly pension benefit of 3.58% instead of 2.86% during this same period.<br><br>Effective for calendar years 2003, 2004 and 2005, the percentage used to calculate Plan participant contribution account benefits has been increased. An Active participant will earn a monthly pension benefit of 2.20% instead of 2.00% for contributions credited in this period, if he/she has not completed 20 years of service. If such participant has completed at least 20 years of contributory service, he/she will earn a monthly pension benefit of 2.92% instead of 2.65% during this same period.<br><br>Effective with calendar year 2000, all Disability Pensioner benefits have been increased to 85% of his/her Normal Retirement Benefit unless said Disability Pensioner's benefits are already payable in a greater amount. Spouses of certain deceased Disability Pensioners have had their benefits appropriately adjusted, as applicable. The same 85% "floor" monthly pension benefit shall be paid to all Disability Pensioners and, as applicable, to their spouses for Plan participants who become Disabled Pensioners after calendar year 1999.<br><br>Effective with calendar year 2000, the maximum Child Survivor Benefits have been increased to $1,000 and such increased benefits shall be payable, in general, upon the death of a person who was an Active Participant on 1/1/1987 or thereafter and who otherwise satisfied the applicable recency of employment requirements at the time of death.<br><br>Effective with calendar year 2000, PEER eligible participants with 25 years of contributory service "lock-in" PEER coverage by working at least 1,000 covered hours during any consecutive 24 month period that ends on or after completion of 25 years of contributory service. |

# Appendix B

**Participant Statistics**

The sources of WCT Plan participant data for our actuarial calculations are: (a) extracts from Prudential Investments' Annuitant Benefit Consolidation (ABC) System file, (b) extracts from the T2 Participant Data File (PDF) maintained by Northwest Administrators and Prudential Investments, and (c) extracts from the Western States Food data base supplied by Northwest Administrators.

The following paragraphs describe how the data were prepared for valuation purposes and present statistical characteristics of the data base.

**1. <u>Data Base for Non-Retired Plan Participants</u>**

Northwest Administrators sent us a December 31, 2017, valuation data file that included T2 extract records for all non-retired plan participants who have not incurred a permanent break in service, and all claims and deaths for the last ten years.

From this file containing 545,747 records, we selected the 5% sample valuation file for all active participants, (both vested and non-vested), and for all vested inactive participants. A participant was considered Active as of January 1, 2018 if he or she was not included on the ABC file as retired as of the valuation date, and if he/she earned at least 250 covered hours during 2017, or earned at least 1 covered hour in 2017 and at least 250 covered hours in 2016.

10,221 Non-Seasonal Active 5% sample records representing 204,420 participants were included in the valuation. For this purpose, Active participant records with non-seasonal industry codes or with 1,000 or more covered hours in each of the last two years were considered Non-Seasonal.

484 Seasonal Active 5% sample records representing 9,680 participants were included in the valuation. Active participants with a seasonal industry code and less than 1,000 covered hours in one or both of the last two years were considered Seasonal.

8,269 Vested Inactive 5% sample records representing 165,380 participants were included in the valuation.

526,773 T2 extract records were not used for the valuation. These records primarily represent non-5% sample participant records, pre-valuation date claims, and non-vested inactives.

## 2. Statistical Information

Highlights of the data characteristics for Active Plan participants on January 1, 2018 are shown below, together with corresponding information from the January 1, 2017 and January 1, 2016 Actuarial Reports.

- For actuarial valuation purposes, the Active participant population was 202,940 as of January 1, 2016, 206,340 as of January 1, 2017 and 214,100 as of January 1, 2018. The aggregate proportion of Active participants covered under PEER is 82.1% (including Non-Seasonal and Seasonal employees) on January 1, 2018. All information summarized below was based on 5% sample data.

| NUMBER OF ACTIVE PLAN PARTICIPANTS | | | |
|---|---|---|---|
| **Industry** | As of 1/1/2016 | As of 1/1/2017 | As of 1/1/2018 |
| **All Actives** | | | |
| Non-Seasonal | 192,060 | 196,280 | 204,420 |
| Seasonal | 10,880 | 10,060 | 9,680 |
| Total | 202,940 | 206,340 | 214,100 |
| **PEER Units** | | | |
| Non-Seasonal PEER 80 | 59,080 | 59,400 | 60,640 |
| Non-Seasonal PEER 82 | 4,960 | 4,980 | 4,900 |
| Non-Seasonal PEER 84 | 97,520 | 99,920 | 101,160 |
| Seasonal PEER 80 | 7,760 | 7,340 | 7,200 |
| Seasonal PEER 82 | 340 | 380 | 380 |
| Seasonal PEER 84 | 1,860 | 1,460 | 1,460 |
| Total PEER Participants | 171,520 | 173,480 | 175,740 |
| **Non-PEER Units** | | | |
| Non-Seasonal | 30,500 | 31,980 | 37,720 |
| Seasonal | 920 | 880 | 640 |
| Total Non-PEER Participants | 31,420 | 32,860 | 38,360 |

- The average attained age of Active Plan participants included in the valuation is 42.9 years for Non-Seasonal participants and 48.1 years for Seasonal participants. The corresponding ages as of January 1, 2017 were 43.1 years for Non-Seasonal employees and 47.9 years for Seasonal employees. The average attained ages for all Active participants for the last three years, including the separate PEER units, are summarized below.

**AVERAGE ATTAINED AGES FOR ACTIVE PLAN PARTICIPANTS**

| Industry | As of 1/1/2016 | As of 1/1/2017 | As of 1/1/2018 |
|---|---|---|---|
| **All Actives** | | | |
| Non-Seasonal | 43.1 | 43.1 | 42.9 |
| Seasonal | 47.6 | 47.9 | 48.1 |
| **PEER Units** | | | |
| Non-Seasonal PEER 80 | 44.9 | 44.8 | 44.5 |
| Non-Seasonal PEER 82 | 45.5 | 45.2 | 45.4 |
| Non-Seasonal PEER 84 | 40.9 | 40.9 | 40.8 |
| Seasonal PEER 80 | 48.9 | 48.5 | 48.6 |
| Seasonal PEER 82 | 45.4 | 44.4 | 48.7 |
| Seasonal PEER 84 | 43.6 | 45.7 | 47.0 |
| **Non-PEER Units** | | | |
| Non-Seasonal | 46.1 | 46.3 | 45.8 |
| Seasonal | 45.8 | 47.7 | 45.8 |

- The average number of years of contributory service for Active Plan participants is 11.4 years for Non-Seasonal participants and 12.0 years for Seasonal participants. As of January 1, 2017 the corresponding average number of years of contributory service was 11.9 years for Non-Seasonal employees and 12.1 years for Seasonal employees. The average number of years of contributory service for Active participants during the last three years is compared below.

| AVERAGE CONTRIBUTORY SERVICE YEARS FOR ACTIVE PLAN PARTICIPANTS | | | |
|---|---|---|---|
| **Industry** | As of 1/1/2016 | As of 1/1/2017 | As of 1/1/2018 |
| **All Actives** | | | |
| Non-Seasonal | 12.0 | 11.9 | 11.4 |
| Seasonal | 11.8 | 12.1 | 12.0 |
| **PEER Units** | | | |
| Non-Seasonal PEER 80 | 16.2 | 16.2 | 15.8 |
| Non-Seasonal PEER 82 | 13.4 | 13.2 | 13.3 |
| Non-Seasonal PEER 84 | 10.7 | 10.5 | 10.3 |
| Seasonal PEER 80 | 13.4 | 13.1 | 12.9 |
| Seasonal PEER 82 | 9.1 | 10.3 | 11.1 |
| Seasonal PEER 84 | 6.9 | 8.0 | 7.7 |
| **Non-PEER Units** | | | |
| Non-Seasonal | 8.1 | 7.8 | 6.9 |
| Seasonal | 9.8 | 11.0 | 12.4 |

- The end of year average basic hourly contribution rate for Non-Seasonal Actives included in the valuation was $4.40 as of December 31, 2016 and $4.56 as of December 31, 2017. The average basic hourly contribution rate for Seasonal Actives included in this valuation was $1.11 as of December 31, 2016 and $1.14 as of December 31, 2017. This information is displayed for Active participants, including separate data for PEER units, in the following table.

| AVERAGE BASIC HOURLY CONTRIBUTIONS FOR ACTIVE PLAN PARTICIPANTS | | | |
|---|---|---|---|
| **Industry** | As of 12/31/2015 | As of 12/31/2016 | As of 12/31/2017 |
| **All Actives** | | | |
| Non-Seasonal | $4.22 | $4.40 | $4.56 |
| Seasonal | $1.02 | $1.11 | $1.14 |
| **PEER Units** | | | |
| Non-Seasonal PEER 80 | $5.67 | $6.02 | $6.32 |
| Non-Seasonal PEER 82 | $4.29 | $4.62 | $5.01 |
| Non-Seasonal PEER 84 | $4.20 | $4.38 | $4.61 |
| Seasonal PEER 80 | $1.22 | $1.31 | $1.34 |
| Seasonal PEER 82 | $0.11 | $0.11 | $0.11 |
| Seasonal PEER 84 | $0.23 | $0.27 | $0.34 |
| **Non-PEER Units** | | | |
| Non-Seasonal | $1.48 | $1.47 | $1.51 |
| Seasonal | $1.23 | $1.28 | $1.36 |

- The average contribution rates increased by 4% for non-seasonal active participants and 3% for seasonal active participants during 2017.

## 3. Comparison of Sample Data Characteristics with Full Population Data Characteristics

Each year, we receive Employee Census Reports from the Administrative Office based on the T2 Participant Data File (PDF) for both the full population of the Plan participants and the 5% sample. A comparison of key information from the full population and 5% reports is used to corroborate our assumption that the sample records adequately represent the total population.

## 4. Procedures to Account for Data with Missing or Invalid Birthdates or Gender Codes

Records with missing or invalid birthdates were accounted for by creating valuation input records with imputed dates of birth. Since the average entry age has been approximately 31 in recent years, we assigned dates of birth 31 years prior to the first covered hour date. All remaining fields were taken from the T2 records provided by the administrative office.

Records with missing gender codes were assumed to represent males in the Non-Seasonal group and females in the Seasonal group. We have concluded that this assumption is reasonable based on the population characteristics illustrated in this section.

There were 168 non-retired valuation records, representing 3,360 participants with missing dates of birth. There were 2,367 Non-Seasonal non-retired sample valuation records with missing or invalid gender codes that are assumed to be males and 129 Seasonal non-retired sample valuation records with missing or invalid gender codes that are assumed to be female.

## 5. Healthy Retirees, Disabled Retirees, and Healthy Beneficiaries

We based our actuarial calculations for retired lives on extracts from the ABC retired file provided by Prudential Investments. This file contains records for all Pensioners and Beneficiaries.

We received 285,437 records from Prudential. Of these, 12,457 were disregarded as non-liability records (10,764 deaths, 245 expirations, and 1,448 others, such as cancellations, post-valuation date retirements, etc.), resulting in 272,980 records which we valued. These represent all benefits for approximately 230,157 pensioners and beneficiaries. Approximately 78.9% of these records are for Healthy Retirees, 7.5% are for Disabled Pensioners and Beneficiaries, and 13.6% are for Healthy Beneficiaries. There were no missing birthdates in these records.

## TABLES OF STATISTICAL DATA

In the process of completing the actuarial valuation, we have compiled a considerable amount of statistical information that may prove useful in understanding the operation of the Plan. This information is illustrated in the following tables:

- **TABLE 2018-1 Active Participant Data Summary**
  Participant counts, average hours and average contribution rates are provided for Active participants. The table provides breakdowns of the data by eighty-cent rate bands through $10.40, and for rates over $10.40.

- **TABLES 2018-2N and 2S Distribution of Non-Seasonal and Seasonal Active Participants in PEER and Non-PEER Units by Contribution Rate**
  These tables show the distribution of Non-Seasonal and Seasonal Actives in PEER and Non-PEER units by their basic hourly contribution rates.

- **TABLES 2018-3N, 3S and 3VI Distributions of Non-Seasonal and Seasonal Active Participants by Attained Age and Contributory Service, and of Vested Inactive Participants by Attained Age.**
  The first two tables show how Non-Seasonal and Seasonal active life participants are distributed by attained age and length of service. The third table shows how PEER and Non-PEER vested inactive participants are distributed by attained age, and shows average monthly accrued benefits by age band.

- **TABLE 2018-4 Data Build-Through Report/Participant Reconciliation**
  This table exhibits data reconciliation by status for Active and Vested Terminated participants.

- **TABLE 2018-5 Recent History of New Pensioners**
  Table 2018-5 shows counts, average monthly pensions, and average ages for Healthy Pensioners, Disabled Pensioners and Beneficiaries and Healthy Beneficiaries who were new to the December 31, 2017, retiree data file. The data for Healthy Pensioners is shown by option election.

- **TABLE 2018-6 Historical Statistics by Year of Retirement for Healthy Pensioners**
  For this table, all records representing Healthy Pensioners were analyzed by year of retirement.

- **TABLE 2018-7 through 2018-9 Age/Longevity of Healthy Pensioners, Healthy Beneficiaries, and Disabled Pensioners and Beneficiaries**
  These tables show the distribution of Pensioners and Beneficiaries by attained age group and number of years since retirement or pension commencement, as applicable.

  The count for Disabled Pensioners and Beneficiaries is somewhat inflated by the existence of record pairs for many of the Disabled Retirees receiving an increase because of the increase in the floor percentage from 62% to 85%, effective January 1, 2000.

| TABLE 2018-1<br>Active Participant Data Summary | | | |
|---|---|---|---|
| | 5% Sample | | |
| Contribution Rates | No. of Participants (Times 20) | Avg. 2017 Hrs. per Participant | Avg. 2017 Contrib. Rate |
| **Seasonals - Food Processing** | | | |
| All Contribution Rates | 9,680 | 561 | $1.14 |
| **Regulars - Food Processing** | | | |
| All Contribution Rates | 7,460 | 1,880 | $1.99 |
| **Non-Seasonals - Non-Food Processing** | | | |
| $0.80 and under | 12,740 | 1,679 | $0.43 |
| Over $0.80 but not more than $1.60 | 31,460 | 1,727 | $1.23 |
| Over $1.60 but not more than $2.40 | 19,260 | 1,746 | $2.00 |
| Over $2.40 but not more than $3.20 | 15,580 | 1,779 | $2.83 |
| Over $3.20 but not more than $4.00 | 22,320 | 1,844 | $3.67 |
| Over $4.00 but not more than $4.80 | 16,060 | 1,865 | $4.38 |
| Over $4.80 but not more than $5.60 | 14,240 | 1,916 | $5.19 |
| Over $5.60 but not more than $6.40 | 5,360 | 1,907 | $5.96 |
| Over $6.40 but not more than $7.20 | 4,660 | 1,874 | $6.83 |
| Over $7.20 but not more than $8.00 | 5,500 | 1,379 | $7.58 |
| Over $8.00 but not more than $8.80 | 16,500 | 1,390 | $8.54 |
| Over $8.80 but not more than $9.60 | 22,220 | 1,709 | $9.25 |
| Over $9.60 but not more than $10.40 | 8,560 | 1,610 | $9.94 |
| Over $10.40 | 2,500 | 1,950 | $10.61 |
| Total Non-Seasonals - Non-Food Processing | 196,960 | 1,734 | $4.65 |

| TABLE 2018-2N<br>Distribution of Non-Seasonal Active Participants<br>in PEER and Non-PEER Units by Contribution Rate | | | |
|---|---|---|---|
| End of Year Contribution Rate | Number of PEER Actives | Number of Non-PEER Actives | Total Number of Actives |
| $0.80 and under | 2,760 | 10,220 | 12,980 |
| Over $0.80 but not more than $1.60 | 18,500 | 15,400 | 33,900 |
| Over $1.60 but not more than $2.40 | 15,780 | 5,160 | 20,940 |
| Over $2.40 but not more than $3.20 | 13,960 | 4,720 | 18,680 |
| Over $3.20 but not more than $4.00 | 20,880 | 1,440 | 22,320 |
| Over $4.00 but not more than $4.80 | 15,940 | 120 | 16,060 |
| Over $4.80 but not more than $5.60 | 14,020 | 220 | 14,240 |
| Over $5.60 but not more than $6.40 | 5,240 | 120 | 5,360 |
| Over $6.40 but not more than $7.20 | 4,620 | 40 | 4,660 |
| Over $7.20 but not more than $8.00 | 5,220 | 280 | 5,500 |
| Over $8.00 but not more than $8.80 | 16,500 | 0 | 16,500 |
| Over $8.80 but not more than $9.60 | 22,220 | 0 | 22,220 |
| Over $9.60 but not more than $10.40 | 8,560 | 0 | 8,560 |
| Over $10.40 | 2,500 | 0 | 2,500 |
| Total for All Rates | 166,700 | 37,720 | 204,420 |

| PEER Eligibility Statistics (Non-Seasonal Actives) | | | |
|---|---|---|---|
| PEER Unit | Number of Actives | Percentage of Non-Seasonal Actives by PEER Unit | Prior Year's Percentage of Non-Seasonal Actives by PEER Unit |
| Non-PEER | 37,720 | 18.4% | 16.3% |
| PEER 84 | 101,160 | 49.5% | 50.9% |
| PEER 82 | 4,900 | 2.4% | 2.5% |
| PEER 80 | 60,640 | 29.7% | 30.3% |

**TABLE 2018-2S**
**Distribution of Seasonal Active Participants in PEER and Non-PEER Units by Contribution Rate**

| End of Year Contribution Rate | Number of PEER Actives | Number of Non-PEER Actives | Total Number of Actives |
|---|---|---|---|
| $0.40 and under | 1,980 | 120 | 2,100 |
| Over $0.40 but not more than $0.80 | 0 | 0 | 0 |
| Over $0.80 but not more than $1.20 | 180 | 0 | 180 |
| Over $1.20 but not more than $1.60 | 6,660 | 460 | 7,120 |
| Over $1.60 but not more than $2.00 | 180 | 0 | 180 |
| Total for Rates $2.00 and under | 9,000 | 580 | 9,580 |
| Over $2.00 but not more than $2.40 | 0 | 0 | 0 |
| Over $2.40 but not more than $2.80 | 40 | 0 | 40 |
| Over $2.80 but not more than $3.20 | 0 | 60 | 60 |
| Over $3.20 but not more than $3.60 | 0 | 0 | 0 |
| Over $3.60 but not more than $4.00 | 0 | 0 | 0 |
| Total for Rates over $2.00 but not more than $4.00 | 40 | 60 | 100 |
| Total for Rates over $4.00 | 0 | 0 | 0 |
| Total for All Rates | 9,040 | 640 | 9,680 |

**PEER Eligibility Statistics (Seasonal Actives)**

| PEER Unit | Number of Actives | Percentage of Seasonal Actives by PEER Unit | Prior Year's Percentage of Seasonal Actives by PEER Unit |
|---|---|---|---|
| Non-PEER | 640 | 6.6% | 8.7% |
| PEER 84 | 1,460 | 15.1% | 14.5% |
| PEER 82 | 380 | 3.9% | 3.8% |
| PEER 80 | 7,200 | 74.4% | 73.0% |

**TABLE 2018-3N**

**Distribution of Non-Seasonal Active Participants by Attained Age and Contributory Service**

| | Years of Contributory Service | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Age Last Birthday** | Less than 5 | 5 – 9 | 10 – 14 | 15 – 19 | 20 – 24 | 25 – 29 | 30 and Over | Total |
| Under 20 | 1,100 | 0 | 0 | 0 | 0 | 0 | 0 | 1,100 |
| 20 - 24 | 13,000 | 880 | 0 | 0 | 0 | 0 | 0 | 13,880 |
| 25 - 29 | 13,660 | 5,320 | 1,260 | 0 | 0 | 0 | 0 | 20,240 |
| 30 - 34 | 12,720 | 5,160 | 6,020 | 1,100 | 0 | 0 | 0 | 25,000 |
| 35 - 39 | 7,860 | 4,180 | 6,480 | 4,660 | 400 | 0 | 0 | 23,580 |
| 40 - 44 | 6,000 | 3,280 | 5,620 | 4,680 | 3,760 | 240 | 0 | 23,580 |
| 45 - 49 | 5,520 | 3,680 | 5,000 | 4,620 | 4,020 | 4,140 | 480 | 27,460 |
| 50 - 54 | 4,080 | 2,760 | 4,400 | 4,660 | 4,020 | 4,020 | 2,740 | 26,680 |
| 55 - 59 | 3,780 | 2,460 | 4,200 | 4,420 | 2,620 | 2,820 | 4,120 | 24,420 |
| 60 - 64 | 2,000 | 1,940 | 2,080 | 2,720 | 1,500 | 1,380 | 3,880 | 15,500 |
| 65 - 69 | 700 | 340 | 360 | 260 | 180 | 100 | 420 | 2,360 |
| 70 and Over | 420 | 100 | 60 | 20 | 0 | 0 | 20 | 620 |
| Total | 70,840 | 30,100 | 35,480 | 27,140 | 16,500 | 12,700 | 11,660 | 204,420 |

| TABLE 2018-3S<br><br>Distribution of Seasonal Active Participants<br>by Attained Age and Contributory Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Years of Contributory Service | | | | | | | |
| **Age Last Birthday** | Less than 5 | 5 – 9 | 10 - 14 | 15 - 19 | 20 – 24 | 25 - 29 | 30 and Over | Total |
| Under 20 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 80 |
| 20 - 24 | 400 | 40 | 0 | 0 | 0 | 0 | 0 | 440 |
| 25 - 29 | 480 | 120 | 20 | 0 | 0 | 0 | 0 | 620 |
| 30 - 34 | 620 | 100 | 60 | 40 | 0 | 0 | 0 | 820 |
| 35 - 39 | 300 | 80 | 100 | 120 | 0 | 0 | 0 | 600 |
| 40 - 44 | 240 | 200 | 100 | 140 | 20 | 0 | 0 | 700 |
| 45 - 49 | 320 | 120 | 280 | 260 | 60 | 60 | 0 | 1,100 |
| 50 - 54 | 360 | 160 | 300 | 300 | 240 | 220 | 20 | 1,600 |
| 55 - 59 | 300 | 240 | 240 | 340 | 240 | 280 | 120 | 1,760 |
| 60 - 64 | 80 | 160 | 240 | 240 | 180 | 280 | 340 | 1,520 |
| 65 - 69 | 40 | 80 | 20 | 40 | 0 | 20 | 60 | 260 |
| 70 and Over | 60 | 0 | 40 | 40 | 0 | 20 | 20 | 180 |
| Total | 3,280 | 1,300 | 1,400 | 1,520 | 740 | 880 | 560 | 9,680 |

**TABLE 2018-3VI**

**Distribution of Vested Inactive Participants by Attained Age**

| Ages | Number PEER | Average Monthly Benefit | Number Non PEER | Average Monthly Benefit |
|---|---|---|---|---|
| 20 - 24 | 0 | $0 | 40 | $35 |
| 25 - 29 | 0 | $0 | 1,980 | $325 |
| 30 - 34 | 0 | $0 | 6,860 | $359 |
| 35 - 39 | 0 | $0 | 11,700 | $441 |
| 40 - 44 | 0 | $0 | 16,500 | $489 |
| 45 - 49 | 60 | $2,345 | 26,920 | $499 |
| 50 - 54 | 340 | $2,047 | 33,860 | $551 |
| 55 - 59 | 540 | $1,852 | 32,320 | $530 |
| 60 - 64 | 440 | $1,621 | 24,440 | $477 |
| 65 - 69 | 60 | $1,183 | 6,400 | $277 |
| 70 and over | 60 | $1,876 | 2,860 | $168 |
| Total | 1,500 | $1,822 | 163,880 | $485 |

| TABLE 2018-4<br>Data Build-Through Report<br>Participant Reconciliation | |
|---|---|
| **Active Participants 1/1/2017** | **206,340** |
| New Participants | |
| Non-Vested | 26,600 |
| Vested | 3,740 |
| Rehires | 1,240 |
| Terminations | |
| Non-Vested | (11,900) |
| Vested | (6,880) |
| Retirements | (4,900) |
| Deaths | (140) |
| Data Adjustments | 0 |
| **Active Participants 1/1/2018** | **214,100** |
| **Vested Terminations 1/1/2017** | **164,640** |
| New Vested Terminations | 7,280 |
| Rehires | (1,240) |
| Retirements | (4,360) |
| Deaths | (40) |
| Data Adjustments | (900) |
| **Vested Terminations 1/1/2018** | **165,380** |

**TABLE 2018-5**

**Recent History of New Pensioners**
**Option Elections, Average Monthly Pensions and Average Ages**
(Based on Number of Participants)

| | 1/1/2017 | | | 1/1/2018 | | |
|---|---|---|---|---|---|---|
| Option | Count | Average Monthly Pension | Average Age As of January 1 2017 | Count | Average Monthly Pension | Average Age As of January 1 2018 |
| Life Only | 2,773 | $953 | 64.2 | 3,084 | $923 | 64.4 |
| Benefit Adjustment | 2,280 | $1,536 | 59.5 | 2,373 | $1,525 | 59.4 |
| Employee and Spouse | 2,080 | $1,147 | 64.5 | 2,214 | $1,102 | 64.7 |
| Employee and Spouse with Benefit Adjustment | 1,567 | $1,718 | 60.1 | 1,506 | $1,740 | 60.2 |
| All Healthy Pensioners | 8,700 | $1,290 | 62.3 | 9,177 | $1,256 | 62.5 |
| Disabled Pensioners and Beneficiaries | 595 | $1,092 | 56.5 | 598 | $1,162 | 56.6 |
| Healthy Beneficiaries | 345 | $576 | 54.3 | 374 | $389 | 52.2 |
| Total | 9,640 | $1,252 | 61.7 | 10,149 | $1,218 | 61.8 |

Notes: This exhibit includes all pensions associated with participants new to the ABC files as of December 31, 2016 and 2017.

The average monthly pension amount shown for the Benefit Adjustment Option and the Employee and Spouse with Benefit Adjustment Option is the sum of the lifetime portion of the benefit, plus any temporary benefit remaining as of December 31, 2016 and 2017.

| TABLE 2018-6<br><br>**Historical Statistics by Year of Retirement for Healthy Pensioners**<br>(Based on Number of Records) | | | | |
|---|---|---|---|---|
| Year of Retirement | Number of Surviving Retirees | Average Age at Retirement | Average Age as of 1/1/2018 | Average Monthly Pension |
| 1992 and prior | 19,205 | 58.6 | 88.1 | $466 |
| 1993 – 1997 | 21,131 | 59.2 | 81.5 | $777 |
| 1998 – 2002 | 32,272 | 59.6 | 76.8 | $913 |
| 2003 – 2007 | 44,321 | 60.6 | 73.0 | $913 |
| 2008 – 2012 | 51,814 | 61.6 | 68.9 | $843 |
| 2013 – 2017 | 46,665 | 61.7 | 64.3 | $1,102 |
| Total | 215,408 | 60.6 | 72.9 | $884 |
| Total Last Year | 209,508 | 60.5 | 72.7 | $882 |

**TABLE 2018-7**

**Age / Longevity of Healthy Pensioners**
(Based on Number of Records)

| Attained Age Group | Years Since Pension Commencement | | | | | | |
|---|---|---|---|---|---|---|---|
| | Less than 1 | 1 – 4 | 5 – 9 | 10 - 14 | 15 - 19 | Greater than 19 | Total |
| Under 50 | 13 | 45 | 18 | 10 | 0 | 1 | 87 |
| 50 - 54 | 376 | 736 | 126 | 25 | 10 | 2 | 1,275 |
| 55 - 59 | 1,290 | 5,681 | 1,542 | 152 | 29 | 6 | 8,700 |
| 60 - 64 | 2,180 | 9,714 | 9,265 | 2,323 | 106 | 19 | 23,607 |
| 65 - 69 | 2,518 | 20,229 | 12,408 | 9,899 | 1,668 | 71 | 46,793 |
| 70 - 74 | 102 | 3,719 | 24,064 | 11,545 | 9,334 | 788 | 49,552 |
| 75 - 79 | 0 | 56 | 4,219 | 16,532 | 10,932 | 7,372 | 39,111 |
| 80 - 84 | 0 | 1 | 137 | 3,679 | 8,158 | 12,106 | 24,081 |
| 85 - 89 | 1 | 4 | 21 | 138 | 1,989 | 11,558 | 13,711 |
| 90 - 94 | 0 | 0 | 12 | 15 | 40 | 6,436 | 6,503 |
| 95 - 99 | 0 | 0 | 2 | 2 | 4 | 1,738 | 1,746 |
| 100 and Over | 0 | 0 | 0 | 1 | 2 | 239 | 242 |
| Total | 6,480 | 40,185 | 51,814 | 44,321 | 32,272 | 40,336 | 215,408 |

**TABLE 2018-8**

**Age / Longevity of Healthy Beneficiaries**
(Based on Number of Records)

| | Years Since Pension Commencement | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Attained Age Group** | Deferred | Less than 1 | 1 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | Greater than 19 | Total |
| 39 and Under | 4 | 39 | 277 | 272 | 140 | 20 | 0 | 752 |
| 40 - 44 | 20 | 6 | 53 | 59 | 35 | 13 | 4 | 190 |
| 45 - 49 | 47 | 21 | 118 | 130 | 77 | 45 | 23 | 461 |
| 50 - 54 | 77 | 40 | 218 | 223 | 163 | 112 | 86 | 919 |
| 55 - 59 | 39 | 53 | 438 | 514 | 404 | 254 | 286 | 1,988 |
| 60 - 64 | 15 | 41 | 446 | 876 | 781 | 512 | 526 | 3,197 |
| 65 - 69 | 0 | 10 | 300 | 950 | 1,246 | 1,102 | 1,026 | 4,634 |
| 70 - 74 | 1 | 3 | 92 | 666 | 1,452 | 1,731 | 2,233 | 6,178 |
| 75 - 79 | 0 | 0 | 23 | 194 | 813 | 1,709 | 4,057 | 6,796 |
| 80 - 84 | 0 | 0 | 2 | 59 | 288 | 715 | 4,531 | 5,595 |
| 85 - 89 | 0 | 0 | 1 | 13 | 43 | 187 | 3,554 | 3,798 |
| 90 - 94 | 0 | 0 | 0 | 3 | 3 | 37 | 2,024 | 2,067 |
| 95 - 99 | 0 | 0 | 0 | 0 | 0 | 8 | 571 | 579 |
| 100 and Over | 0 | 0 | 0 | 0 | 1 | 2 | 96 | 99 |
| Total | 203 | 213 | 1,968 | 3,959 | 5,446 | 6,447 | 19,017 | 37,253 |

**TABLE 2018-9**

**Age / Longevity of Disabled Pensioners and Beneficiaries**
(Based on Number of Records)

| | Years Since Pension Commencement | | | | | | |
|---|---|---|---|---|---|---|---|
| **Attained Age Group** | Less than 1 | 1 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | Greater than 19 | Total |
| 39 and Under | 1 | 29 | 45 | 21 | 27 | 34 | 157 |
| 40 - 44 | 3 | 30 | 68 | 30 | 11 | 15 | 157 |
| 45 - 49 | 5 | 83 | 152 | 84 | 45 | 43 | 412 |
| 50 - 54 | 17 | 234 | 320 | 185 | 122 | 88 | 966 |
| 55 - 59 | 51 | 664 | 766 | 406 | 245 | 201 | 2,333 |
| 60 - 64 | 29 | 753 | 1,258 | 805 | 438 | 453 | 3,736 |
| 65 - 69 | 2 | 212 | 978 | 1,078 | 710 | 777 | 3,757 |
| 70 - 74 | 0 | 0 | 155 | 783 | 949 | 1,296 | 3,183 |
| 75 - 79 | 0 | 0 | 0 | 138 | 594 | 1,813 | 2,545 |
| 80 - 84 | 0 | 0 | 0 | 0 | 82 | 1,748 | 1,830 |
| 85 - 89 | 0 | 0 | 0 | 0 | 0 | 894 | 894 |
| 90 - 94 | 0 | 0 | 0 | 0 | 0 | 291 | 291 |
| 95 - 99 | 0 | 0 | 0 | 1 | 1 | 52 | 54 |
| 100 and Over | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Total | 108 | 2,005 | 3,742 | 3,531 | 3,224 | 7,709 | 20,319 |

# Appendix C

## Actuarial Assumptions and Cost Methods

# Actuarial Assumptions

### Investment Earnings Assumptions

Effective January 1, 2017, the Fixed Dollar Account and 1982/1984 Annuity Account are treated as non-dedicated assets for purposes of the valuation.

***Strategic Bond Account (SBA)***

The assumed rate of return for these assets is 4.05%. This assumption is used to value 85.20% of the pension benefits related to service through December 31, 1985, based on December 31, 1984, Plan provisions and not covered by the prior asset dedications.

***Remaining Assets***

The assumed rate of investment return which is used to value all benefits expected to be paid out of remaining assets and future contributions is 7.00%, net of investment expenses.

### Post-retirement Mortality Rates

Healthy Males

- RP2014 Blue Collar Male Employee/Healthy Annuitant table, adjusted to base year of 2006
- Ages up through 63, set to 90% of the adjusted table
- Ages 64-68, set to 85% of the adjusted table
- Ages 69-73, set to 90% of the adjusted table
- Ages 79 and later, set to 110% of the adjusted table
- All projected with fully generational improvements using Scale MP-2016 from 2006 forward.

Healthy Females

- Ages up through 49, RP2014 Blue Collar Female Employee table
- Ages 50 and above, RP2014 Blue Collar Female Healthy Annuitant table
- Set forward one year, and projected 6 years using female Scale BB; projection scale also set forward one year
- Ages 79 through 119, 95% of the resulting mortality rate after projection is used.
- All projected with fully generational improvements using Scale MP-2016 from 2017 forward.

Disabled Males

- RP2014 Disabled Male Annuitant table, adjusted to base year of 2006, then projected 15 years using Scale BB.
- Ages 54-58, set to 85% of the adjusted table
- Ages 59-63, set to 90% of the adjusted table
- Ages 64-73, set to 80% of the adjusted table
- All projected with fully generational improvements using Scale MP-2016 from 2017 forward.

Disabled Females

- RP2014 Disabled Female Annuitant table, adjusted to base year of 2006, set back 2 years and then projected 15 years using Scale BB, set back 2 years.
- Projected with fully generational improvements using Scale MP-2016 from 2017 forward.

The following tables show the life expectancies for healthy and disabled retirees under the mortality assumptions described above at the current and future valuation dates.

| Assumed Years of Life Expectancy – Healthy Males | | | | | |
|---|---|---|---|---|---|
| Age | 2018 | 2023 | 2028 | 2033 | 2038 |
| 55 | 27.7 | 28.2 | 28.7 | 29.1 | 29.6 |
| 60 | 23.2 | 23.7 | 24.1 | 24.6 | 25.0 |
| 65 | 19.0 | 19.4 | 19.8 | 20.2 | 20.6 |
| 70 | 15.0 | 15.3 | 15.7 | 16.1 | 16.4 |

| Assumed Years of Life Expectancy – Healthy Females | | | | | |
|---|---|---|---|---|---|
| Age | 2018 | 2023 | 2028 | 2033 | 2038 |
| 55 | 31.5 | 32.0 | 32.4 | 32.9 | 33.4 |
| 60 | 26.8 | 27.2 | 27.6 | 28.0 | 28.5 |
| 65 | 22.3 | 22.6 | 23.1 | 23.5 | 23.9 |
| 70 | 18.0 | 18.4 | 18.8 | 19.1 | 19.5 |

| Assumed Years of Life Expectancy – Disabled Males | | | | | |
|---|---|---|---|---|---|
| Age | 2018 | 2023 | 2028 | 2033 | 2038 |
| 55 | 22.4 | 23.0 | 23.5 | 24.1 | 24.7 |
| 60 | 19.1 | 19.6 | 20.1 | 20.6 | 21.1 |
| 65 | 16.0 | 16.4 | 16.8 | 17.3 | 17.7 |
| 70 | 12.8 | 13.1 | 13.5 | 13.9 | 14.3 |

| Assumed Years of Life Expectancy – Disabled Females | | | | | |
|---|---|---|---|---|---|
| Age | 2018 | 2023 | 2028 | 2033 | 2038 |
| 55 | 27.1 | 27.7 | 28.2 | 28.8 | 29.4 |
| 60 | 23.3 | 23.8 | 24.3 | 24.9 | 25.4 |
| 65 | 19.7 | 20.1 | 20.6 | 21.0 | 21.5 |
| 70 | 16.2 | 16.6 | 17.0 | 17.4 | 17.8 |

### Pre-retirement Mortality Rates

The assumed annual rates of healthy mortality for males is based on the RP2014 Blue Collar Male Employee table with the same adjustments and projection scale as the Post-Retirement table.

The assumed annual rates of healthy mortality for females is based on the RP 2014 Blue Collar Female Employee table with the same adjustments and projection scale as the Post-Retirement table.

### Retirement Rates

Retirement rates apply only to retirement eligible participants.

For active PEER participants, different rates apply before and after eligibility for unreduced retirement. For active non-PEER participants, different rates apply before and after meeting the contributory service requirements for Table Two early retirement factors or age requirements for unreduced retirement.

For vested terminated participants, different rates apply for participants who are assumed to have recent PEER coverage, recent non-PEER coverage, and no recent coverage at retirement.

***Active Participant Retirement Rates***

| Age | PEER - Before Contributory Service Requirement | PEER - After Contributory Service Requirement | Non-PEER - Before Contributory Service Requirement | Non-PEER - After Contributory Service Requirement |
|---|---|---|---|---|
| <= 48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 49 | 0.00 | 0.12 | 0.00 | 0.03 |
| 50 | 0.00 | 0.12 | 0.00 | 0.03 |
| 51 | 0.00 | 0.12 | 0.00 | 0.03 |
| 52 | 0.00 | 0.12 | 0.00 | 0.03 |
| 53 | 0.00 | 0.12 | 0.00 | 0.03 |
| 54 | 0.01 | 0.10 | 0.01 | 0.03 |
| 55 | 0.01 | 0.10 | 0.01 | 0.03 |
| 56 | 0.01 | 0.10 | 0.01 | 0.03 |
| 57 | 0.01 | 0.10 | 0.01 | 0.03 |
| 58 | 0.01 | 0.10 | 0.02 | 0.03 |
| 59 | 0.05 | 0.15 | 0.02 | 0.03 |
| 60 | 0.05 | 0.15 | 0.02 | 0.03 |
| 61 | 0.20 | 0.20 | 0.15 | 0.15 |
| 62 | 0.20 | 0.20 | 0.15 | 0.15 |
| 63 | 0.15 | 0.15 | 0.15 | 0.15 |
| 64 | 0.50 | 0.50 | 0.40 | 0.40 |
| 65 | 0.50 | 0.50 | 0.40 | 0.40 |
| 66 | 0.30 | 0.30 | 0.30 | 0.30 |
| 67 | 0.30 | 0.30 | 0.30 | 0.30 |
| 68 | 0.30 | 0.30 | 0.30 | 0.30 |
| 69 | 0.30 | 0.30 | 0.30 | 0.30 |
| >= 70 | 1.00 | 1.00 | 1.00 | 1.00 |

***Vested Terminated Participant Retirement Rates***

| Age | Less than 25 years of Contributory Service | 25 or more years of Contributory Service | PEER Eligible on Valuation Date |
|---|---|---|---|
| <= 48 | 0.00 | 0.00 | 0.00 |
| 49 | 0.00 | 0.15 | 0.40 |
| 50 | 0.00 | 0.15 | 0.50 |
| 51 | 0.00 | 0.15 | 0.40 |
| 52 | 0.00 | 0.15 | 0.35 |
| 53 | 0.00 | 0.15 | 0.35 |
| 54 | 0.04 | 0.15 | 0.35 |
| 55 | 0.04 | 0.05 | 0.25 |
| 56 | 0.04 | 0.05 | 0.20 |
| 57 | 0.04 | 0.05 | 0.20 |
| 58 | 0.04 | 0.05 | 0.20 |
| 59 | 0.04 | 0.05 | 0.20 |
| 60 | 0.04 | 0.05 | 0.15 |
| 61 | 0.10 | 0.20 | 0.25 |
| 62 | 0.10 | 0.15 | 0.25 |
| 63 | 0.10 | 0.10 | 0.15 |
| 64 | 0.30 | 0.30 | 0.50 |
| 65 | 0.30 | 0.30 | 0.50 |
| 66 | 0.15 | 0.20 | 0.30 |
| 67 | 0.10 | 0.10 | 0.30 |
| 68 | 0.10 | 0.10 | 0.30 |
| 69 | 0.15 | 0.15 | 0.30 |
| >= 70 | 1.00 | 1.00 | 1.00 |

**Disability Retirement**

Disability rates apply only to employees with 4 or more years of vesting service.

| Age Last Birthday | Examples of Annual Probability of Disability Retirement |
|---|---|
| | |
| 32 | 0.0006 |
| 37 | 0.0008 |
| 42 | 0.0011 |
| 47 | 0.0017 |
| 52 | 0.0030 |
| 57 | 0.0052 |

### Employee Termination Rates

The termination rates shown below exclude death, disability and retirement rates. Termination rates are not applied when an individual is eligible for retirement. Below are the annual probabilities of employment termination for active employees.

***Seasonal Participant Termination Rates***

| Years of Service: | < 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | >= 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age 15 - 30 | 0.30 | 0.35 | 0.30 | 0.15 | 0.15 | 0.10 | 0.09 | 0.07 | 0.06 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 |
| Age 31 - 40 | 0.25 | 0.25 | 0.20 | 0.10 | 0.10 | 0.10 | 0.09 | 0.07 | 0.06 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 |
| Age 41 -50 | 0.12 | 0.15 | 0.15 | 0.10 | 0.10 | 0.07 | 0.09 | 0.07 | 0.06 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 |
| Age >= 51 | 0.12 | 0.15 | 0.15 | 0.10 | 0.10 | 0.07 | 0.09 | 0.07 | 0.06 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 |

***Non-Seasonal Participant Termination Rates***

| Years of Service: | < 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | >= 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age 15 - 30 | 0.20 | 0.25 | 0.20 | 0.15 | 0.12 | 0.12 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 |
| Age 31 - 40 | 0.16 | 0.18 | 0.15 | 0.12 | 0.10 | 0.10 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 |
| Age 41 -50 | 0.14 | 0.15 | 0.12 | 0.10 | 0.08 | 0.08 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 |
| Age >= 51 | 0.13 | 0.13 | 0.10 | 0.10 | 0.08 | 0.08 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 | 0.02 | 0.01 |

### Future Annual Hours and Contributions

Projected benefit amounts for future years were calculated assuming that: (a) Active Non-Seasonal employees work an average of 1,800 hours per year; (b) Active Seasonal employees work an average of 600 hours per year; and (c) contribution rates in effect as of December 31 prior to the valuation date.

A non-retired participant was considered Active as of the valuation date, if he or she earned at least 250 covered hours during the prior year, or at least 1 covered hour in the prior year and at least 250 covered hours in second prior year.

### Expected Annual Employer Contributions

The annual employer contributions expected during 2018 have been assumed to be $1.857 billion. This amount is used to determine the projected Funding Standard Account and the expected amortization period of the UAL.

### Provision for Non-investment Expenses

Administrative expenses are assumed to be $105 million per year, payable mid-year.

### Sample Valuation Data

We have relied on data supplied by Prudential Investments and Northwest Administrators. The actuarial values for non-retired participants are based on a sample of the employees covered under the Plan, as described in Appendix B. The actuarial values for records with valid data are adjusted for sampling and incomplete data, and the results are assumed to represent the values of the entire covered group.

### Form of Payment

Participants without recent coverage are assumed to elect the single life annuity. Participants with recent coverage are assumed to elect a four year certain and life annuity. A factor of 1.0038 is applied in order to account for the availability of a subsidized joint and survivor benefit.

### Probability of Marriage

Non-retired participants are assumed to have a probability of marriage of 80%.

### Spouse Age Difference

Where applicable, husbands are assumed to be two years older than their wives.

### Past Employment

Total past employment (continuous past employment plus special past employment) for each employee was calculated as the number of years from year of union membership until year of coverage, but not less than the known continuous past employment for the employee.

### Survivor Benefit Costs

The family composition of covered employees was assumed to be similar to that tabulated in the 15th Actuarial Valuation published by the Railroad Retirement Board. This assumption was used to estimate the probability that an employee will be survived by a beneficiary eligible for a survivor benefit and to establish the probable duration of the benefit.

### Inactive Participants

Vested inactive participants who are 75 or older as of the valuation date are assumed to be deceased and excluded from this valuation. Inactive participants who are coded as a claim for more than one year are expected to be either deceased or not eligible for a benefit from the Plan. We assume that any such participants do not have and will not create any liability for the Plan.

### Actuarial Value of Assets

The SBA was valued on an amortized cost basis. The actuarial value of the SBA at January 1, 2018 was $2,928,662,000.

The remaining assets were valued using a smoothing procedure under which market value gains and losses are recognized at the rate of 20% per year over five years. The actuarial value of the remaining assets may not be greater than 120% or less than 80% of the market value.

The actuarial value of assets for purposes of determining the unfunded vested benefit liability is the same method used for ERISA funding purposes.

### Actuarial Cost Method

The Unit Credit actuarial cost method was used for this valuation. Under this method, the Actuarial Liability is the Accrued Benefit Liability for all participants included on the valuation date.

The Normal Cost is:

(i.) the expected increase in Accrued Benefit Liability for these participants resulting from benefits earned during the current year, plus,

(ii.) as permitted under section 1.412(c)(3)-1(d)(2) of the Regulations, the expected increase in Accrued Benefit Liabilities resulting from new participants who are covered employees on the valuation date. The additional cost for these employees is based on a sample population that has the same demographic characteristics of a representative cross-section of recent new entrants, reflecting the actuary's best estimate of the number of new hires and number of hours worked by covered employees who are expected to become new participants in the Plan.

Each year, all Funding Standard Account charge and credit amounts to be amortized, except those set up due to PRA 2010, are combined and offset under IRC 431(b)(5).

Assumption Changes Incorporated in This Valuation

- The current liability interest rate was decreased from 3.05% to 2.98% to remain within the IRS prescribed corridor.
- The current liability mortality tables were changed from annuitant / non-annuitant projected version of the RP-2000 Mortality Tables for 2017 to the annuitant / non-annuitant projected version of the RP-2000 Mortality Tables for 2018 as prescribed by the IRS.
- The anticipated annual employer contributions were increased to $1.857 billion based on recent plan experience.
- The form of payment factor was updated to reflect recent plan experience and the changes to the mortality assumptions.

**Method Changes Incorporated in This Valuation**

There are no method changes for the January 1, 2018 valuation.