

# CENTRAL PENNSYLVANIA TEAMSTERS DEFINED BENEFIT PLAN

# ACTUARIAL VALUATION AS OF JANUARY 1, 2018

Prepared by:



1845 Walnut Street Philadelphia, PA 19103-4755 (215) 587-0700

November 2018

#### **CBIZ Retirement Plan Services**



CBIZ Benefits & Insurance Services, Inc. 1845 Walnut Street, 14<sup>th</sup> Floor Philadelphia, PA 19103 Ph: 844.672.8489 • F: 215.563.9943

www.cbiz.com/retirement

November 7, 2018

Trustees of the Central Pennsylvania Teamsters Defined Benefit Plan PO Box 15223 Reading, PA 19612-5223

#### Dear Trustees:

As requested by the Central Pennsylvania Teamsters, this report was prepared by CBIZ Retirement Plan Services (RPS) to present the results of the actuarial valuation of Central Pennsylvania Teamsters Defined Benefit Plan as of January 1, 2018. The primary purposes of the valuation are to:

- 1. Determine the minimum funding requirements of ERISA (as amended) for the plan year ending December 31, 2018.
- 2. Determine the limitation on maximum deductible contribution for the Plan's tax year ending December 31, 2018 in accordance with IRC Section 404.
- 3. Provide information required by FASB ASC 960, Plan Accounting Defined Benefit Pension Plans.

This report is intended for the sole use of the Plan Sponsor and Plan Administrator to comply with the stated purposes and may not be appropriate for other purposes. Additional determinations may be needed for other purposes, such as meeting employer financial accounting requirements or judging benefit sufficiency for plan termination. This report should not be relied upon for other purposes without consulting CBIZ RPS.

CBIZ RPS has relied upon participant data and financial information provided to us by Central Pennsylvania Teamsters and other organizations designated by Central Pennsylvania Teamsters. We did not audit this data, but we have reviewed it for reasonableness and consistency with prior years. We believe that the information is sufficiently complete to be relied upon for the purposes intended. To the best of our knowledge, all plan participants on January 1, 2018, and all plan provisions in effect on that date have been reflected in the valuation.

Central Pennsylvania Teamsters Defined Benefit Plan November 7, 2018 Page 2

In our opinion, all calculations and procedures conform to generally accepted actuarial principles and practices; the results presented comply with the requirements of the Internal Revenue Code, ERISA, or the FASB Accounting Standards Codification, as applicable. Other than prescribed assumptions, the actuarial assumptions have been selected by CBIZ RPS in concurrence with Central Pennsylvania Teamsters. We believe that each non-prescribed assumption is individually reasonable, and in combination they offer our best estimate of anticipated experience under the Plan.

The actuaries whose signatures appear below meet the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are qualified to render the actuarial opinion contained herein. CBIZ RPS's relationship with the Plan and Plan Sponsor is strictly professional. There are no aspects of the relationship that may impair or appear to impair the objectivity of our work.

We will be pleased to review this report with you at your convenience and answer any questions.

Respectfully submitted:

CBIZ RPS

Joseph F. Hicks, Jr., EA, MAAA

Joseph O. Hicks of.

Senior Vice President

Enrolled Actuary No. 17-06117

Bryan M. McCormick, ASA, MAAA Vice President

Byen M Cornick

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## TRUSTEE SUMMARY

SUMMARY OF RESULTS			
	<u>January 1, 2018</u>	<u>January 1, 2017</u>	
Contributions			
Minimum Required Contribution			
Before Recognition of Credit Balance	\$ 90,434,702	\$ 65,262,081	
After Recognition of Credit Balance	0	0	
12-Year Funding Contribution	\$ 49,313,480	\$ 62,335,887	
Contributions for the Plan Year*	\$ 72,700,000	\$ 70,657,123	
Normal Cost	\$ 24,370,132	\$ 24,534,712	
Unfunded Accrued Liability (UAL)			
Accrued Liability	\$ 1,287,548,058	\$ 1,266,384,697	
Actuarial Value of Assets	1,089,367,302	1,070,469,675	
Unfunded Accrued Liability	198,180,756	195,915,022	
Funding Period to Amortize UAL			
Based on Unit Credit, Actuarial Value of Assets	4.98 years	5.21 years	
Based on Unit Credit, Market Value of Assets	4.47 years	8.40 years	
Based on Entry Age, Actuarial Value of Assets	6.31 years	6.60 years	
Based on Entry Age, Market Value of Assets	5.85 years	9.42 years	
Funded Status (FASB ASC 960)			
Market Value of Assets	\$ 1,106,555,556	\$ 981,945,671	
Present Value of Accumulated Benefits	1,284,548,058	1,263,384,697	
Funded Ratio	86.14%	77.72%	
Unfunded Vested Benefit Liability**			
Vested Benefit Liability	\$ 1,680,452,350	\$ 1,634,380,095	
Unfunded Vested Benefit Liability	573,896,794	652,434,424	
Funded Status (PPA)			
Actuarial Value of Assets	\$ 1,089,367,302	\$ 1,070,469,675	
PPA Liability (Unit Credit)	1,287,548,058	1,266,384,697	
PPA Funded Percentage	84.61%	84.53%	
Participants			
Actively Employed	5,722	5,844	
Vested Terminated	5,084	5,249	
Retirees and Beneficiaries	17,823	17,920	
Total	28,629	29,013	

<sup>\*</sup> Includes \$2,834,994 in withdrawal payments for 2017. Estimated for 2018.



<sup>\*\*</sup> For purposes of determining employer with drawal liability. See page 9 for more details.

#### TRUSTEE SUMMARY

(continued)

#### **COMMENTARY**

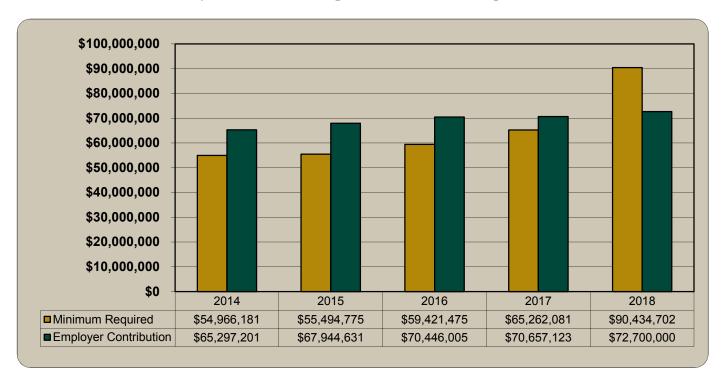
- Plan assets performed very well during 2017, returning 15.85% on a market value basis. The actuarial value of assets, which limits fluctuation by recognizing gains and losses over a 5-year period, returned 4.51% for the year. This return, compared to the 7.50% assumed for the prior valuation, created an actuarial investment loss of \$31.1 million for 2017. A five year history of fund performance is shown on page 8.
- **2** The Plan had a small liability loss for the 2017 plan year of \$3.0 million. This loss, combined with the asset loss described above, yielded a total actuarial loss for 2017 of \$34.1 million.
- The ratio of market value of assets to the present value of accumulated benefits (Exhibit E-1) increased markedly from 77.72% as of January 1, 2017 to 86.14% as of January 1, 2018 due to the strong fund performance. The Plan's funded percentage on an actuarial value basis, used for actuarial certifications under PPA and MPRA (see page 11), remained approximately level, increasing from 84.53% as of January 1, 2017 to 84.61% as of January 1, 2018.
- The minimum required contribution, prior to the recognition of the credit balance, grew from \$65.2 million for 2017 to \$90.4 million for 2018. This increase was due primarily to the expiration of a large amortization credit.
- The Active count decreased by 2.09% compared to last year. It also decreased by 12.6% over the prior 4 years. Additional information can be seen on page 14 of the report.
- **6** There are 2,099 active members between the age of 50 and 60 (36.7% of the active population), with 1,011 of these members having at least 20 years of Credited Service.



### **CONTRIBUTION AMOUNTS**

Exhibit C-1 shows the development of the minimum required contribution. Exhibits C-2 through C-5 contain information needed to develop the minimum contribution. Exhibit D-1 shows the development of the maximum tax-deductible contribution.

Five-Year History of Minimum Required and Actual/Expected Contributions



#### **Notes:**

- 1. The minimum contribution amounts are calculated before application of the credit balance.
- 2. Employer contributions shown above include employer withdrawal liability payments.
- 3. The 2018 employer contribution is estimated based on current contribution rates and the number of active members as of January 2018.

CREDIT BALANCE ANALYSIS									
2014 2015 2016 2017 2018									
Minimum Required before Credit Balance*	\$ 54,966	\$ 55,495	\$ 59,421	\$ 65,262	\$ 90,435				
Credit Balance*	\$ 269,483	\$ 304,516	\$ 344,739	\$ 384,970	\$ 422,075				
Minimum Contribution*	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0				

 $<sup>\</sup>ensuremath{^{*}}$  Rolled forward to the end of year with interest, in thousands.



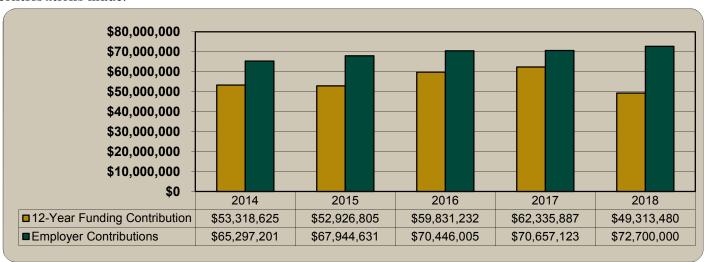
#### 12-YEAR FUNDING CONTRIBUTION

The minimum required contribution shown on the previous page is developed using the assumptions and methods disclosed in the Appendix to this report, and amortizing the unfunded liability over the IRS-mandated funding period. This exhibit develops a contribution based on 12-year funding period in conjunction with the following interest rate and methods:

INTEREST RATE & METHODS				
Interest Rate	7.50%			
Cost Method	Entry Age Normal			
Asset Method	Market Value			
Funding Period	12 Years			

2018 12-YEAR FUNDING CONTRIBUTION & MARGIN					
Normal Cost (w/ Expenses)	\$	14,480,878			
12-Year Amortization of Unfunded		33,050,187			
Interest to Mid-year		1,782,415			
Funding Policy Contribution	\$	49,313,480			
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Estimated Employer Contributions	\$	72,700,000			
Margin	\$	23,386,520			

The table below shows a recent history of the funded policy contribution compared with the actual employer contributions made.





### FUNDED STATUS OF THE PLAN

Many benchmarks can be used to measure how well a plan is funded. For purposes of this report, we focus on the **FASB ASC 960**. Although this measurement provides useful information, it should not be used as a measure of the value of plan liabilities for plan termination purposes. Liabilities for this purpose will be based upon the cost of purchasing annuities from insurance companies and/or providing lump-sum settlements, which may vary significantly based upon prevailing interest rates at the time of termination.

#### FASB ASC 960

FASB ASC 960 compares the value of accumulated benefits, determined using the valuation assumptions, to the market value of assets. Under this method, the value of accumulated benefits is determined as if all employees stopped earning additional benefits on the valuation date but continued working in Covered Employment. This measure must be disclosed in the plan's financial statements. The result of this comparison is shown below. Additional details are shown in Exhibits E-1 and E-2.

	FASB ASC 960 FUNDED STATUS ON JANUARY 1, 2018	
1.	Market Value of Assets	\$ 1,106,555,556
2.	Present Value of Accumulated Benefits	1,284,548,058
3.	Funded Ratio (1) ÷ (2)	86.14%

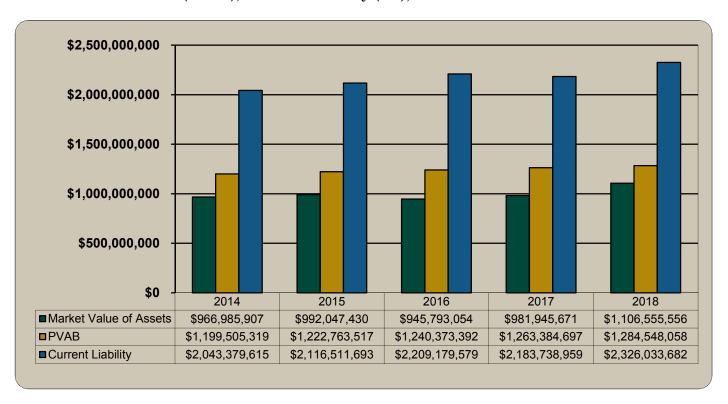


## FUNDED STATUS OF THE PLAN

(continued)

The graph below shows the five-year history of the present value of accumulated benefits on the FASB ASC 960 basis and the Current Liability basis, and the market value of assets.

Five-Year History of Present Value of Accumulated Benefits (PVAB), Current Liability (CL), and Market Value of Assets



**Note:** The FASB ASC 960 accumulated benefits are calculated based on the same actuarial assumptions as those used to determine the plan's long-term funding requirements. Current Liability (C.L.) is determined based on IRS mandated interest rates and mortality assumptions. The FASB ASC 960 and Current Liability interest rates used for the last five years are shown below:

Plan	Interest Rate				
Year	FASB ASC 960	C.L.			
2014	8.00%	3.64%			
2015	8.00%	3.51%			
2016	8.00%	3.28%			
2017	7.50%	3.05%			
2018	7.50%	2.98%			



#### PLAN EXPERIENCE

To determine the plan's liabilities and contribution amounts, we make various assumptions to predict future benefit payments and the amount of assets available to pay these benefits. To the extent actual experience is different from our assumptions, an actuarial gain or loss results. An actuarial gain improves the funded status and decreases future contributions, while an actuarial loss has the opposite effect.

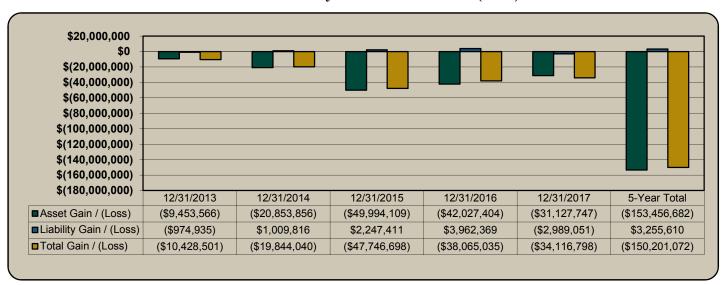
In addition to changes caused by actuarial gains or losses, there are several other reasons why the contribution changes from year to year:

- 1. Changes occur as a result of the normal operation of the actuarial assumptions and funding method as a result of expected retirements, terminations, etc.
- 2. Some changes in actuarial assumptions (e.g., the current liability interest rate) are mandated by law. This in turn may impact plan liabilities and required contributions for the year.
- 3. IRS rules do not allow us to anticipate future new entrants. As a result, additional participants cause contribution increases.

The total net amount of the actuarial gain/(loss) during the prior plan year was (\$34,116,798) as shown in Exhibit B-3. This amount is amortized and subtracted from the other contribution requirements. The breakdown of the gain/(loss) is shown below:

SUMMARY OF THE PRIOR YEAR'S ACTUARIAL GAIN/(LOSS)				
Gain/(Loss) Due to Investment Return				
Gain/(Loss) Due to Liability Experience		(2,989,051)		
Total Gain/(Loss)	\$	(34,116,798)		

Five-Year History of Actuarial Gain / (Loss)



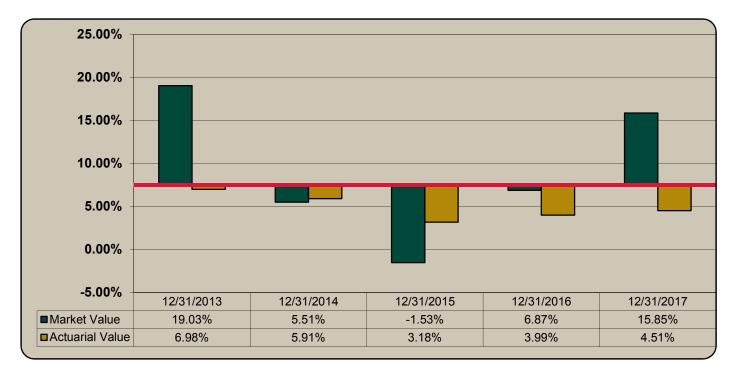


#### PLAN ASSETS AND INVESTMENT PERFORMANCE

The plan is funded through a separate trust. The market value of assets as of January 1, 2018 is \$1,106,555,556. This amount includes \$10,061,571 of accrued employer contributions at year-end. The actuarial value of assets is equal to \$1,089,367,302 as shown in Exhibit F-4.

The rate of return during the prior plan year was 15.85% on a market value basis and 4.51% on an actuarial value basis. These figures are net of investment expenses, and compare to the 7.50% return assumed for last year. Exhibit F-1 shows the calculation of these rates.

The graph below presents the net rates of return in recent years.



**Five-Year History of Investment Returns** 

Five-year average on a time-weighted basis = 8.89% (market value) Five-year average on a time-weighted basis = 4.91% (actuarial value)

**Note**: The approximate returns shown above were calculated under the assumption that all receipts and disbursements occurred in the middle of the year. To the extent that substantial receipts and disbursements occurred on a time-weighted basis at other than the middle of the year, these returns may not be indicative of actual investment performance.



#### UNFUNDED VESTED BENEFIT LIABILITY

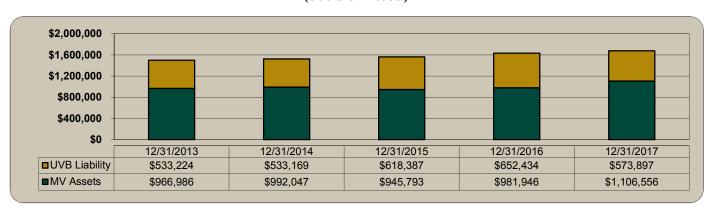
The unfunded vested benefit liability as of December 31, 2017 is the amount used in the determination of withdrawal liability under the Multiemployer Pension Plan Amendments Act of 1980. Except for the discount rate described below, the vested benefit liability was calculated on the same basis as used for the regular valuation of the Plan. The calculation of the unfunded vested benefit liability is shown below:

UNFUNDED VESTED BENEFIT LIABILITY ON DECEMBER 31, 2017			
Vested Benefit Liability*     a. For retired participants and beneficiaries in pay status	\$	1,086,179,120	
b. For other participants c. Total	\$	594,273,230 1,680,452,350	
2. Market Value of Assets	\$	1,106,555,556	
3. Unfunded / (Overfunded) Vested Benefit Liability	\$	573,896,794	

\* The portion of the vested benefits that is matched by the Plan's assets is valued using current annuity market interest rates developed from the Pension Benefit Guaranty Corporation's plan close-out rates as of the determination date. The portion of vested benefits that is matched by assets is determined by comparing the total present value of vested benefits at the PBGC-based rates with the total value of assets. Each vested benefit is treated as covered by assets to the same extent as other vested benefits. The vested benefits for which future withdrawal liability payments are required are valued using the same interest rates that apply for plan funding.

	PBGC-Based Rates			
Determination Date	Immediate	Deferred	<b>Deferral Period</b>	
12/31/2013	3.00%	3.31%	20 years	
12/31/2014	3.10%	3.29%	20 years	
12/31/2015	2.46%	2.98%	20 years	
12/31/2016	1.98%	2.67%	20 years	
12/31/2017	2.34%	2.63%	20 years	

Five-Year History of Unfunded Vested Benefit (UVB) Liability (000's omitted)





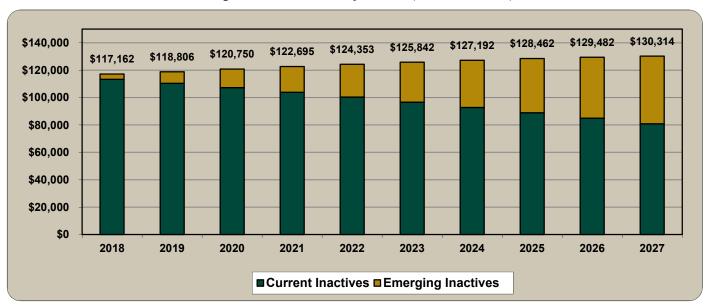
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Plan Services

### PROJECTED BENEFIT PAYMENTS AND CASH FLOW

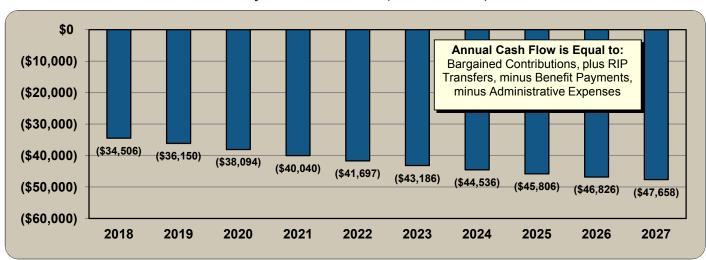
The following graph illustrates the expected benefit payments over the next ten years for participants who are in the plan as of January 1, 2018. This information should assist the plan's investment advisors in determining the liquidity requirements that the plan will face in the near term.

#### **Expected Benefit Payments (in thousands)**



**Note:** Except for anticipated future RIP transfers (assumed to be \$13.16 million per year for these two exhibits), the benefit disbursements and projected cash flow are calculated based on the assumptions used in the valuation.

#### **Projected Cash Flow (in thousands)**



Comment: Mathematically, if two portfolios have the same <u>average</u> rate of return, the portfolio with less period-to-period volatility will have a greater <u>compound</u> rate of return. The larger a plan's negative cash flow, the more susceptible its time-weighted, compound investment return will be to volatility.

#### ANNUAL ACTUARIAL CERTIFICATIONS

The Pension Protection Act of 2006 ("PPA") imposed rules aimed at accelerating the funding of multiemployer defined benefit plans based on current and projected Plan assets and liabilities.

In December 2014, the Multiemployer Pension Reform Act (MPRA) was passed, which extended the provisions of PPA past the originally scheduled sunset of December 31, 2014. In addition, MPRA added three new certification zones, including one called Critical and Declining Status for deeply troubled plans that are projected to be insolvent in the next 14 years. MPRA also eliminated the reorganization test, increased PBGC premiums, and made technical changes to PPA.

This exhibit provides an overview of PPA and MPRA and the Plan's history under them. Certifications and other detailed calculations required under PPA are provided in separate reports, and the information provided herein should not be considered a substitute for those reports.

#### **Annual Certification**

Beginning in 2008, the actuary must annually certify the Plan's status based on the current funded status of the Plan as well as on projections of the Plan's Funding Standard Account (FSA) credit balance and asset sufficiency. For purposes of certification, the funded status is calculated using the actuarial value of assets and the Unit Credit actuarial liability. For plan years beginning on or after 2015, the annual certification is is determined in accordance with the following zone classifications:

#### Critical and Declining

A plan is in Critical and Declining status if it meets the criteria for Critical Status and the plan is projected to become insolvent within 15 years (or within 20 years with an inactive-to-active participant ratio exceeding 2 to 1 or a funded percentage less than 80%).

#### Critical

A plan is in Critical Status if one of the following conditions is met:

- PPA funded percentage under 65% and either a projected FSA deficiency within five years or insufficient assets to pay benefits within seven years.
- A projected FSA deficiency within four years.
- Insufficient assets to pay benefits within five years.
- The present value of vested benefits for inactive participants exceeds that for actives, contributions are less than the normal cost plus interest on the unfunded liability, and there is a projected FSA deficiency within five years.

Projected to be Critical A Plan is Projected to be Critical status if Critical Status is projected within five years.



Plan Services

### ANNUAL ACTUARIAL CERTIFICATIONS

(continued)

Seriously Endangered A plan is in Seriously Endangered status if both of the following conditions are met:

- A PPA funded percentage under 80%.
- A projected FSA deficiency within seven years.

**Endangered** 

A plan is in Endangered Status if only one of the conditions for Seriously Endangered status is met.

Safe due to Special Rule

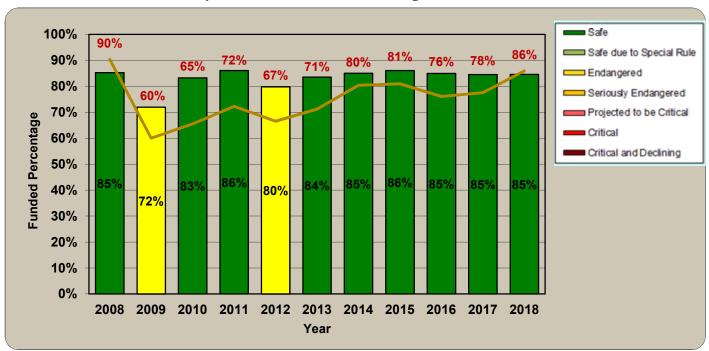
A plan is in Safe due to Special Rule status if the Plan was not critical or endangered for the prior year, and the Plan is projected to be safe by the end of the 10th plan year after the plan year for the certification.

Safe

A plan is in safe status if it does not meet any of the criteria described above.

Plans that are in critical status must adopt a Rehabilitation Plan, consisting of benefit reductions and/or contribution increases, that is designed to exit critical status within 10 years. Similarly, plans that are in either endangered or seriously endangered status must adopt a Funding Improvement Plan to improve the plan's funded status over time by reducing benefits and/or increasing contributions. The chart below shows the Plan's certified status and funded percentage since the effective date of PPA.

#### History of Plan's Funded Percentage and Zone Status



Bars represent the funded percentage based on Actuarial Value of Assets. Line represents the funded percentage based on Market Value

#### PARTICIPANT DATA

Participant information was provided by Central Pennsylvania Teamsters. An audit of the data was not made. However, a thorough check of the data was prepared, reconciling last year's data with the new data. This reconciliation accounted for all changes to the covered population. The result of this reconciliation is shown in Exhibit G-1. Additionally, all data was checked for internal consistency and for consistency with last year's data.

Exhibit G-2 shows the age and service distribution of active participants. Exhibit G-3 shows the distribution of the inactive participants.

Comparing this year's census data to last year's, the number of active participants included in the valuation decreased by 2.1%. The average age of the active participants is 48.3. The average benefit service of this group is 15.0 years.

The number of terminated vested participants in the plan decreased by 3.1%, from 5,249 to 5,084. The average age of the terminated vested participants is 54.7. The average monthly benefit amount for this group is \$326.

The number of retired participants in the plan decreased by 0.5%, from 17,920 to 17,823. The average age of the retired participants is 74.3. The average monthly benefit amount for this group is \$509.

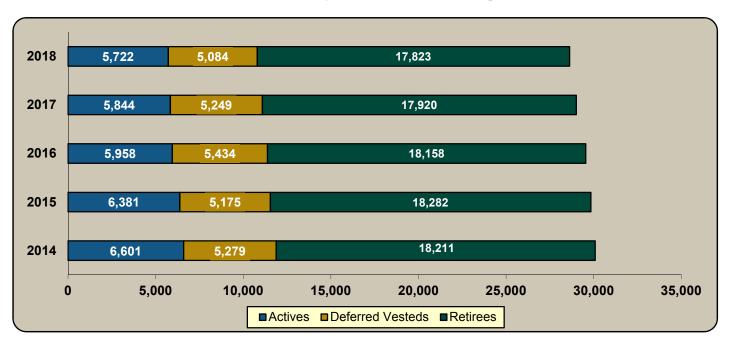


### PARTICIPANT DATA

(continued)

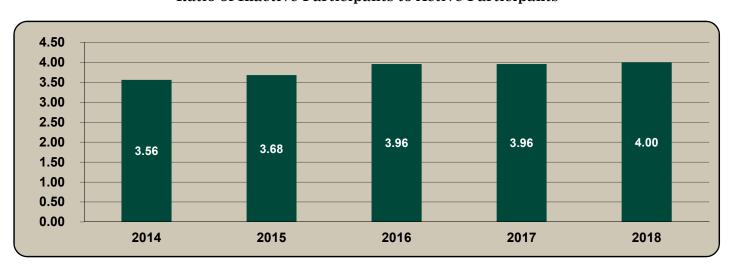
The following graph illustrates the change in participation during the past several years.

Five-Year History of Number of Participants



As a plan matures, the ratio of inactive to active participants increases. A higher ratio signifies an increased risk profile associated with actuarial gains and losses that the plan faces. The following graph shows the change in the inactive to active ratio over the past several years.

Ratio of Inactive Participants to Active Participants





#### ACTUARIAL METHODS AND ASSUMPTIONS

Appendix 1 (Section 5) summarizes the actuarial assumptions and methods used to determine plan liabilities and contribution requirements. The changes to the assumptions and methods for the plan year beginning January 1, 2018 are as follows:

- The interest rate used to calculate the RPA current liability was decreased from 3.05% to 2.98%.
- The mortality table used to calculate the RPA current liability was updated to the table described in IRS Revenue Notice 2017-60.

ERISA requires that the actuary use assumptions that represent his or her best estimate of future experience under the plan and reasonably relate to the experience of the plan. We believe that the current actuarial basis meets this requirement. We will monitor the actuarial experience under the plan in future years in order to judge the continuing appropriateness of these assumptions.

#### PLAN PROVISIONS

Appendix 2 (Section 5) summarizes the main provisions of the plan as of the valuation date. There were no changes in benefit provisions since the prior valuation.

To the best of our knowledge, all Plan provisions in effect on the valuation date have been reflected in determining the Plan's liabilities and contribution requirements. All calculations were made assuming the Plan will continue indefinitely.



### SUMMARY AND COMPARISON OF VALUATION RESULTS

		Actuarial Valuation as of			s of
		Ja	anuary 1, 2018	Ja	nuary 1, 2017
1.	<ul> <li>Number of Plan Participants</li> <li>a. Active Participants</li> <li>b. Terminated Vested Participants</li> <li>c. Retired Participants and Beneficiaries</li> <li>d. Total</li> </ul>	5,722 5,084 ries 17,823 28,629		5,844 5,249 17,920 29,013	
2.	RPA Current Liability (value of benefits accrued) (based on a discount rate of 2.98% at 01/01/18 and a discount rate of 3.05% at 01/01/17)	\$	2,326,033,682	\$	2,183,738,959
3.	Actuarial Accrued Liability	\$	1,287,548,058	\$	1,266,384,697
4.	Assets a. Market value b. Actuarial value	\$ \$	1,106,555,556 1,089,367,302	\$ \$	981,945,671 1,070,469,675
5.	Normal Cost a. Amount b. Per participating employee*	\$	$24,370,132 \\ 4,274.71$	\$	24,534,712 4,215.59
6.	Maximum Deductible Contribution a. Amount b. Per participating employee*	\$	2,223,373,987 389,997.19	\$	2,038,244,416 350,213.82
7.	Minimum Required Contribution a. Amount b. Per participating employee*	\$	0 0.00	\$	0 0.00

Current plan year amounts are calculated assuming that contributions will be made in the amounts and on the dates described in Exhibit C-2 and that the receivable contributions for the prior plan year will be made when due. Prior plan year amounts may differ from the prior report if actual contributions were made in different amounts or on different dates than described in the prior report.



<sup>\*</sup> For actives under the plan's assumed retirement age (5,701 for 2018; 5,820 for 2017).

# DETAILS OF ACTUARIAL ACCRUED LIABILITY AND NORMAL COST UNDER THE UNIT CREDIT COST METHOD

1.	Ac	tuarial Accrued Liability		
	a.	Active Participants		
		(i) Retirement benefits	\$ 299,062,615	
		(ii) Termination benefits	3,205,936	
		(iii) Death benefits	7,240,592	
		(iv) Disability benefits	 5,585,714	
		(v) Total Active	_	\$ 315,094,857
	b.	Terminated Vested Participants		100,434,354
	c.	Retired Participants and Beneficiaries		 872,018,847
	d.	Total		\$ 1,287,548,058
2.	No	ormal Cost		
	a.	Retirement benefits		\$ 19,808,492
	b.	Termination benefits		$420,\!515$
	c.	Death benefits		541,603
	d.	Disability benefits		399,522
	e.	Administrative expenses		 3,200,000
	f.	Total		\$ 24,370,132
3.	Pre	esent Value of Future Benefits		
	a.	Active Participants		
		(i) Retirement benefits	\$ 470,227,665	
		(ii) Termination benefits	5,664,537	
		(iii) Death benefits	11,631,408	
		(iv) Disability benefits	 8,389,203	
		(v) Total Active		\$ 495,912,813
	b.	Terminated Vested Participants		100,434,354
	c.	Retired Participants and Beneficiaries		 872,018,847
	d.	Total		\$ 1,468,366,014
4.	Ex	pected Benefit Payments		\$ 117,161,821



## **DETAILS OF CURRENT LIABILITY**

# RPA '94 Based on IRS Mandated Mortality

1.	Applicable Interest Rate		2.98%
2.	Current Liability at Valuation Date		
	a. Active Participants	\$	739,176,968
	b. Terminated Vested Participants		195,234,276
	c. Retired Participants and Beneficiaries		1,391,622,438
	d. Total: $(a) + (b) + (c)$	\$	2,326,033,682
	e. Reduction to exclude		
	pre-participation service		0
	f. Net: (d) - (e)	\$	2,326,033,682
3.	Expected Benefit Payments	\$	117,161,821
4.	Assets at Valuation Date		
	a. Market Value	\$	1,106,555,556
	b. Actuarial Value	\$	1,089,367,302
5.	Funded Percentage at Valuation Date		
	a. Market Value		47.57%
	b. Actuarial Value		46.83%
6.	Current Liability Normal Cost		
	a. Benefits	\$	57,174,563
	b. Administrative expenses	•	3,200,000
	c. Employer normal cost	\$	60,374,563
7.	Vested Current Liability at Valuation Date		
••	a. Active Participants	\$	649,048,481
	b. Terminated Vested Participants	т	195,234,276
	c. Retired Participants and Beneficiaries		1,391,622,438
	d. Total: (a) + (b) + (c)	\$	2,235,905,195



# DEVELOPMENT OF (GAIN) / LOSS AS OF JANUARY 1, 2018

1.	Unfunded Accrued Liability as of January 1, 2017	\$ 195,915,022
2.	Normal Cost as of January 1, 2017	\$ 24,534,712
3.	Interest to the end of the year at 7.50%	\$ 16,533,730
4.	Employer contributions for the 2017 plan year	\$ 70,657,123
5.	Interest on (4) to the end of the plan year	\$ 2,262,383
6.	Expected Unfunded Liability Before Changes as of January 1, 2018: $(1) + (2) + (3) - (4) - (5)$	\$ 164,063,958
7.	Actual Unfunded Liability Before Changes as of January 1, 2018  a. Actuarial Accrued Liability \$ 1,287,548,0   b. Actuarial Value of Assets \$ 1,089,367,30   c. Unfunded Liability: (a) - (b)	198,180,756
8.	(Gain) / Loss as of January 1, 2018  a. Liability (Gain) / Loss \$ 2,989,0    b. Asset (Gain) / Loss \$ 31,127,75    c. Total (Gain)/Loss: (a) + (b)	34,116,798
9.	Change in unfunded due to a change in assumptions	\$ 0
10.	Change in unfunded due to a plan amendment	\$ 0
11.	Change in unfunded due to method change	\$ 0
12.	Unfunded Liability as of January 1, 2018 after changes: $(7) + (9) + (10) + (11)$	\$ 198,180,756
13.	Actual Unfunded Liability as of January 1, 2018  a. Actuarial Accrued Liability (Exhibit B-1, Item 1)  b. Actuarial Value of Assets (Exhibit F-1, Item A5)  c. Unfunded Liability: (a) - (b)  \$ 1,287,548,0 \\ 1,089,367,30 \\	198,180,756



# CALCULATION OF MINIMUM REQUIRED CONTRIBUTION FOR PLAN YEAR ENDING DECEMBER 31, 2018

1.	Regular Minimum Contribution	
	a. Normal cost (Exhibit B-1, Item 2)	\$ 24,370,132
	b. Net amortization charges (Exhibit C-3, Item C, Column 6)	59,755,173
	c. Interest on (a) and (b)	 6,309,397
	d. Total, but not less than zero	\$ 90,434,702
2.	Full funding limitation (Exhibit C-4, Item A9, Column 2)	\$ 1,055,713,827
3.	Minimum required contribution before recognition of credit balance if deposited on or after December 31, 2018: lesser of (1d) or (2)	\$ 90,434,702
4.	Credit balance	
	a. Beginning of year (Exhibit C-2, Item A3)	\$ 392,627,805
	b. Interest to end of year	29,447,085
	c. End of year: (a) + (b)	\$ 422,074,890
5.	Minimum required contribution if deposited on or after	
	December 31, 2018: (3) - (4c), but not less than zero	\$ 0



## FUNDING STANDARD ACCOUNT

### A. Funding Standard Account for Plan Year Ended December 31, 2017

1.	Charges for the Plan Year	
	a. Normal cost	\$ 24,534,712
	b. Amortization charge (on outstanding balance of \$794,905,207)	89,540,292
	c. Interest to end of year on (a) and (b)	 8,555,625
	d. Total charges	\$ 122,630,629
2.	Credits for the Plan Year	
	a. Prior year credit balance	\$ 358,111,981
	b. Amortization credit (on outstanding balance of \$240,878,204)	53,366,092
	c. Employer contributions *	70,657,123
	d. Interest on (a), (b), and (c)	33,123,238
	e. Full funding limitation credit	 0
	f. Total credits	\$ 515,258,434
3.	Credit balance at December 31, 2017: (2f) - (1d)	\$ 392,627,805

<sup>\*</sup> Contributions made, or expected to be made, as follows:

6/30/2017	\$ 2,834,994
6/30/2017	\$ 57,760,558
1/15/2018	\$ 10,061,571



### FUNDING STANDARD ACCOUNT

(continued)

#### B. Projected Funding Standard Account for Plan Year Ending December 31, 2018

1. Charges for the Plan Year	
a. Normal cost (Exhibit B-1, Item 2)	\$ 24,370,132
b. Amortization charge (Exhibit C-3, Item A, Column 6)	90,642,621
c. Interest to end of year on (a) and (b)	8,625,956
d. Total charges	\$ 123,638,709
2. Credits for the Plan Year	
a. Prior year credit balance (A3)	\$ 392,627,805
b. Amortization credit (Exhibit C-3, Item B, Column 6)	30,887,448
c. Interest to the end of year on (a) and (b)	31,763,644
d. Full funding limitation credit (Exhibit C-4, Item B3)	0
e. Total	\$ 455,278,897
3. Minimum required contribution as of	
December 31, 2018: (1d) - (2e), but not less than zero	\$ 0



# SCHEDULE OF REQUIRED AMORTIZATIONS FOR FUNDING STANDARD ACCOUNT AS OF JANUARY 1, 2018

	Date	Initial	Initial Amortization Period	Outstanding	Remaining Amortization Period	Amortization Payment as of Beginning of
	Established	Amount	(Years)	Balance	(Years)	Year
	(1)	(2)	(3)	(4)	(5)	(6)
A. Charges						
1. Method Change	1/1/1997	\$ 1,482,948	30	\$ 824,182	9.000	\$ 120,190
2. Assumption Cha	nge 1/1/1999	14,849,370	30	9,415,872	11.000	1,197,326
3. Assumption Cha	nge 1/1/2001	39,167,309	30	27,455,241	13.000	3,143,030
4. Plan Amendmen	t 1/1/2003	294,195,961	30	223,354,911	15.000	23,537,917
5. 2003 Actuarial I	oss 1/1/2004	61,686,723	15	6,658,104	1.000	6,658,104
6. Experience Loss	1/1/2005	12,286,951	15	2,554,275	2.000	1,323,299
7. Actuarial Loss	1/1/2006	1,432,675	15	430,439	3.000	153,972
8. Assumption Cha	nge 1/1/2006	24,185,822	30	20,107,755	18.000	1,927,145
9. Plan Amendmen	t 1/1/2007	4,253,016	30	3,623,492	19.000	338,454
10. PRA Investment	Loss 1/1/2009	180,067,557	29	158,245,773	20.000	14,439,697
11. Actuarial Loss	1/1/2009	3,947,037	15	2,127,601	6.000	421,651
12. PRA Investment	Loss 1/1/2010	34,482,290	28	30,597,801	20.000	2,792,005
13. Assumption Cha	nge 1/1/2010	49,667,442	15	30,153,515	7.000	5,295,808
14. PRA Investment	Loss 1/1/2011	45,284,465	27	40,609,040	20.000	3,705,516
15. PRA Investment	Loss 1/1/2012	79,197,933	26	71,843,558	20.000	6,555,621
16. Actuarial Loss	1/1/2012	22,931,120	15	16,705,838	9.000	2,436,211
17. Actuarial Loss	1/1/2014	10,428,501	15	8,683,275	11.000	1,104,169
18. Actuarial Loss	1/1/2015	19,844,040	15	17,443,155	12.000	2,097,687
19. Actuarial Loss	1/1/2016	47,746,698	15	44,020,034	13.000	5,039,340
20. Plan Amendmen	t 1/1/2016	649,644	15	598,938	13.000	68,565
21. Actuarial Loss	1/1/2017	38,065,035	15	36,607,630	14.000	4,011,426
22. Assumption Cha	nge 1/1/2017	4,730,695	15	4,549,570	14.000	498,537
23. Plan Amendmen	t 1/1/2017	1,723,263	15	1,657,285	14.000	181,604
24. Actuarial Loss	1/1/2018	34,116,798	15	34,116,798	15.000	3,595,347
Total				\$ 792,384,082		\$ 90,642,621



# SCHEDULE OF REQUIRED AMORTIZATIONS FOR FUNDING STANDARD ACCOUNT AS OF JANUARY 1, 2018

(continued)

				Initial			Remaining	Amortization
				Amortization			Amortization	Payment as of
		Date	Initial	Period	(	Outstanding	Period	Beginning of
		Established	Amount	(Years)		Balance	(Years)	Year
		(1)	(2)	(3)		(4)	(5)	(6)
В.	Credits							
	1. Assumption Change	1/1/1989	\$ 662,566	30	\$	55,036	1.000	\$ 55,036
	2. Assumption Change	1/1/1992	5,292,943	30		1,567,253	4.000	435,284
	3. Assumption Change	1/1/2003	1,370,682	30		1,040,630	15.000	109,665
	4. Actuarial Gain	1/1/2007	8,756,839	15		3,381,518	4.000	939,173
	5. Actuarial Gain	1/1/2008	24,292,024	15		11,308,725	5.000	2,600,110
	6. PRA Asset Relief	1/1/2010	52,800,851	30		47,789,018	22.000	4,187,068
	7. Actuarial Gain	1/1/2010	127,096,178	15		77,161,141	7.000	13,551,672
	8. Actuarial Gain	1/1/2011	62,571,446	15		41,931,983	8.000	6,659,463
	9. Actuarial Gain	1/1/2013	$22,\!157,\!652$	15		17,340,217	10.000	2,349,977
	Total				\$	201,575,521		\$ 30,887,448
<i>C</i> .	Net (A - B)				\$	590,808,561		\$ 59,755,173
D.	Balance Test							
	1. Reconciliation accoun	it due to additi	ional funding char	rges		N/A		
	2. Reconciliation accoun	t due to additi	onal interest char	rges		N/A		
	3. Credit balance				\$	392,627,805		
	4. Balance test: [C - D(1	) - D(2) - D(3)]			\$	198,180,756		
	5. Unfunded accrued lia				\$	198,180,756		



# DEVELOPMENT OF FULL FUNDING LIMITATION AND CREDIT FOR THE PLAN YEAR ENDING DECEMBER 31, 2018

		Maximum Deductible Contribution (1)			Minimum Required Contribution (2)	
<b>A.</b>	Development of Full Funding Limitation		(1)		(2)	
	1. Actuarial accrued liability as of end of year: (Exhibit C-5, Item A2, Column 1)	\$	1,285,316,665	\$	1,285,316,665	
	2. RPA current liability as of end of year: (Exhibit C-5, Item A2, Column 2)	\$	2,335,320,319	\$	2,335,320,319	
	3. RPA current liability minimum: 90% x (2)	\$	2,101,788,287	\$	2,101,788,287	
	<ul> <li>4. Assets at end of year</li> <li>a. Market value (Exhibit C-5, Item B2, Column 1)</li> <li>b. Actuarial value (Exhibit C-5, Item B2, Column 2)</li> <li>c. Lesser of (a) or (b)</li> </ul>	\$ \$	1,064,551,833 1,046,074,460 1,046,074,460	\$ \$	1,064,551,833 1,046,074,460 1,046,074,460	
	5. Asset adjustments					
	a. Credit balance at end of year		N/A	\$	422,074,890	
	b. Net contribution carryover at end of year	\$	0		N/A	
	c. Total asset adjustments	\$	0	\$	422,074,890	
	6. Adjusted assets: (4c) - (5c)	\$	1,046,074,460	\$	623,999,570	
	7. ERISA full funding limitation: (1) - (6), but not less than zero	\$	239,242,205	\$	661,317,095	
	8. RPA Override full funding limitation: (3) - (4b), but not less than zero	\$	1,055,713,827	\$	1,055,713,827	
	9. Full funding limitation: greater of (7) or (8)	\$	1,055,713,827	\$	1,055,713,827	



# DEVELOPMENT OF FULL FUNDING LIMITATION AND CREDIT FOR THE PLAN YEAR ENDING DECEMBER 31, 2018

(continued)

#### B. Development of Credit Due to Full Funding Limitation

1.	. Net charges to funding standard account (Exhibit C-1, Item 1)					
	a.	Normal cost	\$	24,370,132		
	b.	Net amortization charge		59,755,173		
	c.	Interest and penalties		6,309,397		
	d.	Total			\$	90,434,702
2.	Fu	ll funding limitation: (A9, Column 2)			\$	1,055,713,827
3.	Fu	ll funding credit: (1) - (2), but not less than zero			\$	0



# DEVELOPMENT OF PROJECTED END-OF-YEAR AMOUNTS FOR CALCULATION OF FULL FUNDING LIMITATION

		ERISA Actuarial Accrued Liability (1)	]	RPA '94 arrent Liability Based on IRS adated Mortality (2)
Liabilities		` ,		` ,
1. Applicable interest rate		7.50%		2.98%
<ul> <li>2. Projection to end of year</li> <li>a. Beginning-of-year liability</li> <li>b. Normal cost, net of expenses</li> <li>c. Expected benefit payments</li> <li>d. Interest to end of year on (a) thru (c)</li> <li>e. Projected end-of-year amount: (a) + (b) + (c) + (d)</li> </ul>	\$ 	1,287,548,058 $21,170,132$ $(117,161,821)$ $93,760,296$ $1,285,316,665$	\$	2,326,033,682 57,174,563 (117,161,821) 69,273,895 2,335,320,319
		Market Value (1)		Actuarial Value (2)
Asset Values				
1. Applicable interest rate		7.50%		7.50%
<ul> <li>2. Projection to end of year</li> <li>a. Beginning-of-year amount</li> <li>b. Expected benefit payments</li> <li>c. Expected expenses</li> </ul>	\$	1,106,555,556 (117,161,821) (3,200,000)	\$	1,089,367,302 (117,161,821) (3,200,000)
	<ol> <li>Applicable interest rate</li> <li>Projection to end of year         <ul> <li>a. Beginning-of-year liability</li> <li>b. Normal cost, net of expenses</li> <li>c. Expected benefit payments</li> <li>d. Interest to end of year on (a) thru (c)</li> <li>e. Projected end-of-year amount: (a) + (b) + (c) + (d)</li> </ul> </li> <li>Asset Values         <ul> <li>1. Applicable interest rate</li> </ul> </li> <li>Projection to end of year         <ul> <li>a. Beginning-of-year amount</li> </ul> </li> </ol>	<ol> <li>Applicable interest rate</li> <li>Projection to end of year         <ul> <li>a. Beginning-of-year liability</li> <li>b. Normal cost, net of expenses</li> <li>c. Expected benefit payments</li> <li>d. Interest to end of year on (a) thru (c)</li> <li>e. Projected end-of-year amount: (a) + (b) + (c) + (d)</li> </ul> </li> <li>Asset Values</li> <li>Applicable interest rate</li> <li>Projection to end of year         <ul> <li>a. Beginning-of-year amount</li> </ul> </li> </ol>	Actuarial Accrued Liability (1)	Actuarial Accrued Accrued Liability Mar



# CALCULATION OF MAXIMUM DEDUCTIBLE CONTRIBUTION FOR TAX YEAR ENDING DECEMBER 31, 2018 BASED ON PLAN YEAR ENDING DECEMBER 31, 2018

1.	Regular maximum contribution a. Normal cost (Exhibit B-1, Item 2) b. Ten-year amortization of unfunded accrued liability c. Interest on (a) and (b) to end of tax year d. Total	\$	24,370,132 26,857,811 3,842,096 55,070,039
2.	Full funding limitation (Exhibit C-4, Item A9, Column 1)	\$	1,055,713,827
3.	Lesser of (1d) or (2)	\$	55,070,039
4.	Minimum required contributions for plan years ending within or before the current tax year	\$	0
5.	Unfunded current liability  a. Current liability at end of tax year  b. Reduction for pre-participation service  c. Current liability interest rate  d. Interest on (b) to end of year: (b) x (c)  e. Adjusted current liability: [(a) - (b) - (d)] x 140%  f. Actuarial value of assets at end of tax year (Exhibit C-5, Item B2, Column 2)  g. Asset adjustments for contribution deductions  (Exhibit C-4, Item A5b, Column 1)  h. Actuarial value interest rate (Exhibit C-5, Item B1, Column 2)  i. Interest on (g) to end of year: (g) x (h), but not less than zero  j. Unfunded current liability: (e) - (f) + (g) + (i), but not less than zero	\$ \$ \$ \$ \$	$2,335,320,319\\0\\2.98\%\\0\\3,269,448,447\\1,046,074,460\\0\\7.50\%\\0\\2,223,373,987$
6.	Maximum deductible contribution: greatest of (3), (4), or (5j)	\$	2,223,373,987



# PRESENT VALUE OF ACCUMULATED BENEFITS AS OF JANUARY 1, 2018 IN ACCORDANCE WITH FASB ASC 960

		Ja	anuary 1, 2018	Ja	anuary 1, 2017
1.	Number of Participants a. Retiree and beneficiaries b. Terminated participants with deferred benefits c. Participating employees d. Total		17,823 5,084 5,722 * 28,629		17,920 5,249 5,844 29,013
2.	Present Value of Vested Accumulated Benefits a. Retiree and beneficiaries b. Terminated participants with deferred benefits c. Participating employees d. Total	\$	872,018,847 100,434,354 262,446,246 1,234,899,447	\$	859,940,466 98,610,728 255,189,453 1,213,740,647
3.	Present Value of Nonvested Accumulated Benefits for Participating Employees	\$	49,648,611	\$	49,644,050
4.	Present Value of Total Accumulated Benefits	\$	1,284,548,058	\$	1,263,384,697
5.	Market Value of Assets	\$	1,106,555,556	\$	981,945,671
6.	Benefit Security Ratio  a. Retiree benefit security ratio: (5) ÷ (2a)  b. Vested benefit security ratio: (5) ÷ (2d)  c. Benefit security ratio: (5) ÷ (4)		126.90% 89.61% 86.14%		114.19% 80.90% 77.72%

**Actuarial Assumptions:** The same actuarial assumptions were used to value the FASB ASC 960 liabilities as were used for purposes of determining the plan's funding requirements, as described in the appendices. In particular the valuation interest rate of 7.50% was used.



st Of these, 4,072 are fully vested.

# RECONCILIATION OF PRESENT VALUE OF ACCUMULATED PLAN BENEFITS

1.	Present value of accumulated benefits at January 1, 2017	\$ 1,263,384,697
2.	Increases / (Decreases) during the year	
	a. Due to benefits accumulated and gains and losses*	\$ 39,798,082
	b. Due to decrease in the discount period	90,655,470
	c. Actual benefits paid	(109,290,191)
	d. Due to plan amendment	0
	e. Due to change of assumptions	0
	f. Net increase (decrease): $(a) + (b) + (c) + (d) + (e)$	\$ 21,163,361
3.	Present value of accumulated benefits at January 1, 2018: (1) + (2f) (Exhibit E-1, Item 4, Column 1)	\$ 1,284,548,058

<sup>\*</sup> For FASB ASC 960 reporting, this is a balancing item and includes the effects of new entrants.

### SUMMARY OF ASSET VALUES AND RATES OF RETURN

#### A. Summary of Asset Values

1.	Fair Value of Assets	\$ 1,090,824,094
2.	Amounts Receivable	21,581,848
3.	Amounts Payable	5,850,386
4.	Market Value of Assets: $(1) + (2) - (3)$	\$ 1,106,555,556
5.	Actuarial Value of Assets	\$ 1,089,367,302

В.	Ra	te of Return		Market Value (1)	_	Actuarial Value (2)
	1.	Plan assets as of January 1, 2017	\$	981,945,671	9	1,070,469,675
	2.	Employer contributions		70,657,123		70,657,123
	3.	Benefit payments made		(109,290,191)		(109, 290, 191)
	4.	Expenses paid from the trust		(3,246,939)		(3,246,939)
	5.	Transfers to/(from) the plan		13,155,870		13,155,870
	6.	Investment return, net of expenses		153,334,022		47,621,764
	7.	Plan assets as of January 1, 2018: (1) + (2) + (3) + (4) + (5) + (6)	\$	1,106,555,556	4	1,089,367,302
	8.	Approximate rate of return (net of investment expe	nent expenses) on average invested assets			
		a. Average invested assets <sup>1</sup>	\$	967,583,603	9	1,056,107,607
		b. Rate of return: $(6) \div (8a)$		15.85%		4.51%
	9. Approximate rate of return (net of total expenses) on average invested assets					
		a. Average invested assets <sup>2</sup>	\$	969,207,072	4	1,057,731,076
		b. Rate of return: $[(6) + (4)] \div (9a)$		15.49%		4.20%

- 1. Determined using the Schedule B (Form 5500) methodology: [Item 1 + Item  $2 \div 2$  + Item  $3 \div 2$  + Item  $4 \div 2$  + Item  $5 \div 2$ ]
- 2. Determined using the Schedule B (Form 5500) methodology: [Item 1 + Item 2÷2 + Item 3÷2 + Item 5÷2]



# STATEMENT OF ASSETS AS OF DECEMBER 31, 2017

1.	Total noninterest-bearing cash				11,462,393
2.	Receivables a. Employer contributions b. Other c. Total: (a) + (b)	\$	10,061,571 11,520,277	. \$	21,581,848
3.	General Investments  a. Interest-bearing cash  b. U.S. Government securities  c. Corporate debt instruments  d. Corporate stocks  e. Real estate  f. Value of interest in common/collective trusts  g. Value of interest in pooled separate accounts  h. Value of interest in master trusts  i. Value of interest in 103-12 investment entities  j. Value of interest in registered investment companies  k. Value of funds held in limited partnerships  l. Other	\$	270,509 $61,895,184$ $125,010,155$ $403,720,630$ $0$ $70,930,798$ $105,031,273$ $0$ $166,900,576$ $47,720,533$ $90,977,646$ $6,851,491$		
	m. Total: [add (a) through (l)]			\$	1,079,308,795
4.	Employer-related investments (Securities and Real Property)			\$	0
5.	Buildings and other property used in plan operation			\$	52,906
6.	Total assets: $(1) + (2c) + (3m) + (4) + (5)$			\$	1,112,405,942
7.	Liabilities  a. Benefits claims payable  b. Other payables and/or liabilities  c. Total liabilities: (a) + (b)	\$	0 5,850,386	. \$	5,850,386
8.	Net Assets: (6) - (7c)			Φ	1,106,555,556



## RECONCILIATION OF MARKET VALUE OF ASSETS

1.	Market Value of Assets as of January 1, 2017		\$ 981,945,671
2.	Contributions <ul> <li>a. Bargained</li> <li>b. Withdrawal payments</li> <li>c. Other</li> <li>d. Total contributions: (a) + (b) + (c)</li> </ul>	\$ 67,822,129 2,834,994 0	\$ 70,657,123
3.	Earnings on investments  a. Interest  b. Stock dividends  c. Net gain (loss) on sale of assets  d. Unrealized appreciation (depreciation) of assets  e. Net investment gain (loss) from common/collective trusts  f. Net investment gain (loss) from pooled separate accounts  g. Net investment gain (loss) from master trusts  h. Net investment gain (loss) from 103-12 investment entities  i. Net investment gain (loss) from registered investment companies  j. Total earnings: [add (a) through (i)]	\$ 0 19,074,537 0 133,934,775 0 0 0	\$ 153,009,312
4.	Other income		\$ 324,710
<ul><li>5.</li><li>6.</li></ul>	Benefit payment and payment to provide benefits  a. Directly to participants or beneficiaries  b. To insurance carriers for the provision of benefits  c. Total payments: (a) + (b)  Interest expense	\$ 109,290,191	\$ 109,290,191 0
7.	Administrative expenses  a. Professional fees  b. Contract administrator fees  c. Investment advisory and management fees  d. Other  e. Total administrative expenses: [add (a) through (d)]	\$ $1,038,315 \\ 0 \\ 0 \\ 2,208,624$	\$ 3,246,939
8.	Transfers to (from) the plan		\$ 13,155,870
9.	Net assets at end of year: $(1) + (2d) + (3j) + (4) - (5c) - (6) - (7e) + (8)$		\$ 1,106,555,556



## ACTUARIAL VALUE OF ASSETS

1.	Market Value of Assets as of January 1, 2017	\$	981,945,671
2.	Contributions for the prior plan year		70,657,123
3.	Participant account transfers		13,155,870
4.	Benefit payments		(109,290,191)
5.	Administrative expenses		(3,246,939)
6.	Expected Investment Return at $7.50\%$ on:  a. Market Value of Assets as of January 1, 2017 \$ 73,645,7  b. Contributions for the prior plan year 2,262,7  c. Participant account transfers 493,7  d. Benefit payments (4,098,7  e. Administrative expenses (121,7  f. Total: (a) + (b) + (c) + (d) + (e)	383 345 382)	72,181,511
7.	Actual Investment Return as of December 31, 2017	\$	153,334,022
8.	Investment Gain/(Loss): (7) - (6f)	\$	81,152,511
9.	Market Value of Assets as of January 1, 2018	\$ 1	,106,555,556
10.	Total Deferred Gain/(Loss)  Plan Investment Percent Percent Deferred Year Gain/(Loss) Recognized Deferred Gain/(Loss)		
	a.       2017       \$ 81,152,511       20%       80%       \$ 64,922,         b.       2016       (10,068,288)       40%       60%       (6,040,         c.       2015       (92,584,681)       60%       40%       (37,033,         d.       2014       (23,294,551)       80%       20%       (4,658,         e.       Total	973) 872)	17,188,254
11.	Preliminary Actuarial Value of Assets as of January 1, 2018: (9) - (10e)	\$ 1	,089,367,302
12.	Corridor a. 80% of Market Value: 0.80 x (9) b. 120% of Market Value: 1.20 x (9)	\$ \$ 1	885,244,445 .,327,866,667
13.	Actuarial Value of Assets as of January 1, 2018: (11), but not less than (12a) nor more than (12b)	\$ 1	.,089,367,302



## RECONCILIATION OF PARTICIPANT DATA

			Actives	Pensioners & Beneficiaries	Deferred Vested Participants	Total
1.	Partici	pants in Prior Valuation	5,844	17,920	5,249	29,013
2.	Chang	e During the Year Due to:				
	a.	New entrants (prior to valuation date)	573	0	0	573
	b.	New entrants (on valuation date)	0	0	0	0
	c.	Returns to active employment	22	0	(22)	0
	d.	Retirements	(189)	490	(301)	0
	e.	Deaths with beneficiary	(3)	(194)	(6)	(203)
	f.	Deaths without beneficiary	(10)	(695)	(30)	(735)
	g.	New beneficiaries	0	202	1	203
	h.	Vested terminations	(202)	0	202	0
	i.	Non-vested terminations	(313)	0	0	(313)
	j.	QDRO	0	1	0	1
	k.	Lump sum payments	0	0	0	0
	1.	End of certain period	0	(4)	0	(4)
	m.	Benefits suspended	0	(12)	12	0
	n.	Data corrections	0	115	(21)	94
	0.	Total increase	(122)	(97)	(165)	(384)
3.	Partici	pants in Current Valuation	5,722	17,823	5,084	28,629



## AGE / SERVICE DISTRIBUTION OF ACTIVE PARTICIPANTS

Average Age: 48.26

Average Service: 15.04

# of Males: 5,412

# of Females:

310

Attained Years of Credited Service								Total			
Age	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Number
Under 25	105	83	1	0	0	0	0	0	0	0	189
25-29	111	188	33	0	0	0	0	0	0	0	332
30-34	97	170	76	35	1	0	0	0	0	0	379
35-39	72	176	77	116	37	1	0	0	0	0	479
40-44	54	152	84	151	67	32	2	0	0	0	542
45-49	58	158	102	149	198	146	71	3	0	0	885
50-54	55	151	80	131	149	148	254	95	3	0	1,066
55-59	34	99	70	105	125	134	224	196	44	2	1,033
60-64	12	54	39	89	74	65	110	100	89	36	668
65-69	5	4	12	13	16	8	23	20	17	18	136
70 & Over	0	0	0	2	0	2	2	1	1	5	13
Total	603	1,235	574	791	667	536	686	415	154	61	5,722



## AGE DISTRIBUTION OF INACTIVE PARTICIPANTS

Normal, Early, and Deferred Vested Retirements\* Terminated Participants & Beneficiaries with Rights to Future Benefits \*\*

		. 011101100
Age Last		Annual
Birthday	Number	Benefit
Under 45	2	\$ 2,688
45-49	14	24,096
50-54	60	207,888
55-59	585	4,612,254
60-64	2,053	15,023,294
65-69	3,305	23,571,077
70-74	3,734	26,447,345
75-79	3,375	18,378,186
80 & Over	4,695	20,700,247
Total	17,823	\$ 108,967,075

to ruture benefits ""				
Annual				
Benefit				
\$ 3,606,574				
2,979,526				
4,434,474				
4,843,254				
2,956,805				
808,532				
157,724				
64,164				
51,914				
\$ 19,902,967				

Total					
	Annual				
Number	Benefit				
721	\$ 3,609,262				
591	3,003,622				
1,086	4,642,362				
1,953	$9,\!455,\!508$				
3,059	17,980,099				
3,610	24,379,609				
3,785	26,605,069				
3,393	18,442,350				
4,709	20,752,161				
22,907	\$ 128,870,042				

Average age	74.31	54.74
Average monthly benefit	\$509	\$326



<sup>\*</sup> Including surviving spouses in pay status.

<sup>\*\*</sup> Including surviving spouses eligible for future payment.

Interest Rates Funding

7.50% per year, compounded annually, net of investment expenses.

**Current Liability** 

The highest interest rate within the permissible range prescribed under IRC Section 431(c)(6)(E); valued at 2.98% as of January 1, 2018.

**Mortality** 

**Healthy Lives** Sex Distinct RP-2000 Combined Healthy Blue Collar Mortality Table.

Disabled Lives 1957-66 Social Security Administration Experience as shown in PBGC

Publication #501, Table 5.

Current Liability IRS 2018 Static Mortality, as prescribed, including update in underlying

mortality as described in IRS Revenue Notice 2017-60.

These tables are assumed to reflect both expected mortality rates as of the measurement date and any expected mortality improvement after

the measurement date.

**Retirement** Active rates of retirement are based on age and service. Sample rates

are shown below for participants with 20 years of service:

Attained Age	Rate of Retirement
55	0.01
56	0.01
57	0.05
58	0.05
59	0.05
60	0.05
61	0.07
62	0.16

Attained Age	Rate of Retirement
63	0.16
64	0.16
65	0.25
66	0.25
67	0.25
68	0.25
69	0.25
70	1.00

Vested terminated participants are assumed to retire at age 57.

Participants are assumed to terminate employment for reasons other than death, disability, or retirement according to Scale T-2 from the Actuary's Pension Handbook, with rates graduated from tabular at age 40 to zero at age 50.



Withdrawal

(continued)

**Disability** Probability of becoming disabled according to Sarason's Advanced

Pension Table pages XXXIX, with rates graduated from tabular at age

50 to zero at age 55.

**Expenses** An amount equal to the actual expenses (excluding investment

expenses) paid in the preceding Plan Year, rounded to the nearest \$100,000, added to the Normal Cost. For the plan year beginning

January 1, 2018, this amount is assumed to be \$3,200,000.

Marital Status 80% of participants who have not yet commenced receipt of benefit are

assumed to be married. Wives are assumed to be three years younger

than their husbands.

**Form of Payment** Benefits are assumed to be paid as a three-year certain and life annuity.

**Reciprocity Allowance** \$3 million has been added to the accrued liability to account for

reciprocity benefits.

**Asset Valuation Method** Recognition of gains and losses above or below the assumed rate of

return over a 5-year period, adjusted, if necessary, to remain no greater than 120% of market value, nor less than 80% of market value. As allowed by the Pension Relief Act of 2010, the loss from the 2008 plan

year is being recognized over a 10-year period.

Actuarial Cost Methods The Unit Credit Cost Method (used for minimum funding)

Normal Cost - For each active participant, the present value of the benefit

expected to be earned during the year.

Actuarial Accrued Liability - For each active participant, the present value of the benefit accrued as of the valuation date. For each

terminated participant, the present value at the valuation date of his

pension entitlement.



(continued)

### **Actuarial Cost Methods**

The Entry Age Normal Cost Method (used for funding policy)

Normal Cost - For each active participant, the level amount which if paid each year from his hire date to assumed retirement date would accumulate to the amount needed at retirement date to provide the participant's expected pension.

Actuarial Accrued Liability - For each active participant, the amount needed at the valuation date to provide his expected pension at retirement, less the present value of his expected future normal cost amounts. For each terminated participant, the present value at the valuation date of his pension entitlement.

# Changes since the Prior Valuation

The current liability interest rate was updated from 3.05% to 2.98% to reflect the change in IRS mandated rates.

The current liability mortality table was updated as described in IRS Revenue Notice 2017-60.



(continued)

### Rationale for Selection of Significant Actuarial Assumptions

Interest Rate The interest rate assumption used for funding purposes is based on

historical data, both current and future market expectations, and professional judgment. In setting the long-term investment return assumption, the Plan's Investment Consultant provided future investment expectations based on the Plan's asset allocation.

Mortality The mortality assumption is based on historical and current

demographic data, adjusted to reflect estimated future experience, and professional judgment. Experience studies wherein actual experience is compared to expected experience are performed

periodically.

**Retirement** The retirement decrements for active participants are based on

studies of Plan experience. The retirement age assumption for vested terminated participants (57) represents the unreduced retirement

age for pre-1987 benefit accruals.

Withdrawal A standard withdrawal table has been selected which results in a

similar level of aggregate annual withdrawal as the Plan has

experienced over recent years.

**Disability** Because the Fund does not have enough data to do a fully credible

experience analysis with respect to disability during active employment, the current assumption has been selected based on observations of recent disabilities, the actuary's experience with plans of a similar size, plan design, workforce composition,

geography, and discussions with the Plan Sponsor.

Plan Expenses Expenses paid from the plan trust are estimated by reviewing

historical fees paid from the trust and adjusting for PBGC premiums

and other expenditures expected to be paid in this Plan Year.

Marital Status The current assumption has been selected based on the actuary's

experience with plans of a similar size, plan design, and workforce

composition.

**Introduction** There are two pieces to the benefit. The first piece is the accrued benefit

as of 12/31/1986 (Pre-RIP Benefit) and the second piece is the benefit accrued based on all service after 01/01/2003 (Future Service Date).

Payment of the <u>Pre-RIP Benefit</u> is generally based on the provisions of the plan at that time. Following is a summary of those provisions.

**Vesting Service** Each year during which the participant works at least 1,000 hours.

Benefit Service Prior to 1987: Each year during which the participant works at least

1,800 hours in covered employment. A partial year of benefit service is earned for a year in which less than 1,800 hours but more than

1,000 hours are worked.

**Normal Retirement Date** The later of age 57 or the fifth anniversary of participation.

Normal Retirement Pension The monthly amount varies by benefit level and was frozen as of

12/31/1986.

Early Retirement Date Separation from covered employment on or after age 55 with five or

more years of vesting service.

Early Retirement Pension The Normal Retirement Pension, actuarially reduced for

commencement prior to age 57.

**Disability Pension** An active participant with at least 15 years of benefit service who has

been awarded disability benefits by the Social Security

Administration and is not eligible for a Normal Retirement Pension may be eligible for a disability benefit. The monthly benefit is payable as of the Social Security Entitlement date with no reduction

for early commencement.

Single Sum Death Benefit The beneficiary of an active participant who dies will receive a lump

sum death benefit. The amount of benefit is based on the number of

years of Pre-RIP benefit service completed prior to death.

**Termination Benefit** Participants are 100% vested in their accrued pension after five years

of vesting service, with benefits payable at age 57, or a reduced

pension payable as early as age 55, if eligible.



(continued)

**Pre-Retirement** 

**Spouse's Death Benefit** If a vested participant or vested former participant dies before his

pension begins, his surviving spouse will be entitled to a lifetime pension. The amount of such pension will be the same as the spouse would have received if the participant had (i) separated from covered employment on the date of death, (ii) survived until the later of the earliest retirement date or date of death, (iii) retired having elected a Qualified Joint and Survivor Annuity, and (iv) died on the next day.

**Normal Form of Payment** 

For single participants: Three-year Certain and Continuous annuity.

For married participants: 50% Joint and Survivor annuity.

### Payment of the Future Service Benefit is based on the following summary of provisions.

**Vesting Service** Each plan year during which the participant works at least 1,000

hours.

Benefit Service Prior to 1987: Each plan year during which the participant works at

least 1,800 hours in covered employment. A partial year of benefit service is earned for a plan year in which less than 1,800 hours but

more than 1,000 hours are worked.

 $\underline{1987-2001}$ : Each plan year during which the participant works at

least 1,000 hours in covered employment.

<u>2002</u>: 1,500 hours in covered employment. A partial year of benefit service is earned for a plan year in which less than 1,500 hours but

more than 1,000 hours are worked.

<u>2003</u> and later: Each plan year during which the participant works at least 1,800 hours in covered employment. A partial year of benefit service is earned for a plan year in which less than 1,800 hours but

more than 1,000 hours are worked.

**Normal Retirement Date** The later of age 65 and the completion of five years of vesting service.



(continued)

Normal Retirement Pension From Future Service Date: For each year of Benefit Service, the monthly benefit accrual is equal to the lesser of (i) 1.25% of Employer Contributions made on behalf of the member, or (ii) \$140 (\$160 for 2006, \$170 for 2007, \$180 for 2008 and \$165 for 2012).

> In addition to the above, a monthly benefit accrual equal to 1.25% of the aggregate Employer Contributions from August 1, 2014 through July 31, 2016 generated by a contribution rate greater than \$10.145 per hour.

### **Early Retirement Pension** Eligibility

Separation from covered employment at any age with less than 15 years of Benefit Service, or separation from covered employment before the attainment of age 57 with 15-29 years of Benefit Service.

### **Early Retirement Pension** Amount

The Normal Retirement Pension, reduced 0.5% for each month by which the actual benefit commencement date precedes age 65.

### **Special Early Retirement** Eligibility

Separation from covered employment on or after the attainment of age 57 with 15-29 years of Benefit Service.

### Special Early Retirement **Pension Amount**

The Normal Retirement Pension, reduced 0.25% for each month by which the actual benefit commencement date precedes age 65.

### Service Pension Eligibility

Separation from covered employment on or after the attainment of age 50 with 30 or more years of Benefit Service.

### Service Pension Amount

The Normal Retirement Pension, reduced 0.5% for each month by which the actual benefit commencement date precedes age 57.

### **Combined Minimum Retirement Benefit** Eligibility

Separation from covered employment on or after age 57 with 25 or more years of Benefit Service.

In addition, a member must be eligible under the "2-Year" and "45-Day" rules described in the Plan document in order to be eligible for this benefit, and must not have previously withdrawn any part of his/her RIP balance or commenced a DB benefit.



(continued)

To be eligible for the <u>highest level</u> of the Combined Benefit Minimum, a member must have at least 20 years of Benefit Service at the UPS or Freight contribution rate, or 15 years of Benefit Service at the UPS or Freight contribution rate, including the last 10 consecutive years before retirement.

# Combined Minimum Retirement Benefit

The sum of the Pre-1987 and Future Service retirement benefit cannot be less than the excess, if any, of (a) over (b):

- a) \$3,100, prorated for contributions that are at less than the "full" contribution level.
- b) The annuity equivalent of the RIP Account Balance as of the date of benefit commencement, based on the UP 1984 Mortality Table and a 7.0% discount rate.

### **Disability Pension**

An active participant with at least 15 years of vesting service who has been awarded disability benefits by the Social Security Administration and is not eligible for a Normal Retirement Pension may be eligible for a disability benefit. The monthly benefit is payable as of the Social Security Entitlement date with no reduction for early commencement.

### Single Sum Death Benefit

None.

### Pre-Retirement Spouse's Death Benefit

If a vested active or former participant dies before his pension begins, his surviving spouse will be entitled to a lifetime pension. The amount of such pension will be the same as the spouse would have received if the participant had (i) separated from covered employment on the date of death, (ii) survived until the later of the earliest retirement date or date of death, (iii) retired having elected a Qualified Joint and Survivor Annuity, and (iv) died on the next day.

For purposes of calculating the amount of pre-retirement spouse's death benefit, vested active participants who have 15-29 years of Benefit Service at their date of death will be considered to have been eligible for the Plan's Special Early Retirement Pension (beginning at age 57), regardless of their age at death.



(continued)

Termination Benefit Participants are 100% vested in their accrued pension after five years

of vesting service, with benefits payable at age 65, or a reduced

pension payable as early as age 57.

Normal Form of Payment For single participants: Three-year Certain and Continuous annuity.

For married participants: 50% Joint and Survivor annuity.

Changes since the Prior

Valuation None.