Port of Houston Authority Restated Retirement Plan

August 1, 2019 Actuarial Valuation

Prepared by:

Milliman, Inc.

Jake Pringle

EA, MAAA

Katherine Pitzinger

ASA, EA, MAAA

500 Dallas Street, Suite 2550
Houston, TX 77002

Tel +1 713 658 8451
Fax +1 713 658 9656

milliman.com

Issued November 6, 2019

August 1, 2019 Actuarial Valuation of the Port of Houston Authority Restated Retirement Plan

As requested, we have performed an actuarial valuation of the Plan as of August 1, 2019, for the Plan Year ending July 31, 2020. Our findings are set forth in this actuary's report.

Limited Distribution

Milliman's work is prepared solely for the internal business use of the Port of Houston Authority. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, 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 exception(s):

> (a) The Plan Sponsor may provide a copy of Milliman's work, in its entirety, to the Plan's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Plan.
>
> (b) The System may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

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

Reliance

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the Port of Houston Authority of Harris County, Texas. This information includes, but is not limited to, plan documents and provisions, employee data, and financial information. 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.

All costs, liabilities, rates of interest, and other factors for the Plan 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 affecting the Plan.

Limited Use

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Plan. Actuarial computations presented in this report are for purposes of satisfying the funding policy. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the Plan's funding goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Certification

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.

Respectfully submitted,

Milliman, Inc.

Jake Pringle

Katherine Pitzinger

Jake Pringle	Katherine Pitzinger
EA, MAAA	ASA, EA, MAAA
Enrollment Number 17-07457	Enrollment Number 17-08096

Issued November 6, 2019

Table of Contents

Executive Summary

A. Purpose of this Report

The annual actuarial valuations of the Plan are intended to accomplish several purposes including:

- In general, the determination of current levels of employer contributions which, considering prior funding, will accumulate monies sufficient to meet benefit payments when due under the terms of the Plan.
- More specifically, the determination of the minimum suggested contribution for the current Plan Year.
- Preparation of information pertaining to the operation of the Plan which is required either for inclusion in financial statements.
- Review of plan experience for the year ended on the day before the valuation date to ascertain whether the assumptions and methods employed for valuation purposes are reflective of actual events and remain appropriate for prospective application.
- Assessment of the relative funded position of the Plan, i.e., through a comparison of plan assets and projected plan liabilities.

B. Overview of the Report

Our objective in preparing this report is to disclose our findings in a full, clear and meaningful form. To this end we have divided the report into three major sections, a Report Summary, Exhibits, and Appendices.

The Report Summary presents the contribution alternatives, summarizes the valuation results, and discusses the current status of the Plan in light of past experience and future expectations.

The Exhibits provide detailed numerical information concerning the valuation results and the data upon which the results are based.

The Appendices provide a description of the actuarial cost method, summarize actuarial assumptions and valuation procedures, and detail the principal provisions of the Plan upon which the valuation is based. This section also includes other relevant information of a general nature.

C. Actuarial Assumptions

The results shown herein assume a 6.50% long term rate of return, which has been selected by the plan sponsor. Using the Port's current investment policy and Milliman's capital market expectations, a likely range of investment return over a 20 year horizon would be between 4.08% and 6.58% per annum with a 50% likelihood of earning 5.32% (Milliman's best estimate) and a 25% likelihood of earning 6.58%.

Summary of Results

	August 1, 2018	August 1, 2019
Participant Data		
Number of Participants		
Active participants	355	340
Terminated vested participants	178	170
Retired participants	418	430
Disabled participants	10	5
Beneficiaries	111	116
Total Participants	1,072	1,061
Total annual compensation	$30,327,556	$30,401,742
Average annual compensation	85,430	89,417
Assets		
Market Value	$184,287,781	$184,407,686
Investment yield in prior year	7.1%	3.3%
Book Value	166,257,098	168,635,370
Actuarial Value	184,287,781	184,407,686
Investment yield in prior year	7.1%	3.3%
Actuarial Present Values		
Present Value of Benefits	$210,395,155	$222,247,137
Actuarial Value of Assets	184,287,781	184,407,686
Unfunded Present Value of Benefits	26,107,374	37,839,451
Actuarial Accrued Liability	187,261,680	198,409,073
Actuarial Value of Assets	184,287,781	184,407,686
Unfunded Actuarial Accrued Liability	2,973,899	14,001,387
Recommended Contribution		
Funding Policy Contribution	$4,436,764	$5,373,772

Summary of Results

	August 1, 2018	August 1, 2019
Costs and Contributions		
Normal Cost	$4,052,458	$4,173,713
% of total annual compensation	13.4%	13.7%
Funded Status of Accumulated Benefits		
FASB ASC Topic 960 basis		
Present Value of Accumulated Benefits	$166,577,405	$175,551,898
Funded Ratio (Market Value basis)	110.6%	105.04%

Exhibits

Exhibit 1

Summary of Active Participants by Age and Service

Number of Participants by Age and Service Groups

	Years of Credited Service										
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40&Up	Total
0-24	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	5	5	-	-	-	-	-	-	10
35-39	-	-	13	18	3	-	-	-	-	-	34
40-44	-	-	12	14	9	4	1	-	-	-	40
45-49	-	-	11	26	9	9	5	-	-	-	60
50-54	-	-	8	18	5	13	16	2	-	-	62
55-59	-	-	8	15	8	12	7	2	4	-	56
60-64	-	-	9	14	7	12	4	2	3	4	55
65-69	-	-	4	10	2	1	3	-	-	1	21
70&Up	-	-	-	-	2	-	-	-	-	-	2
Total	-	-	70	120	45	51	36	6	7	5	340

Average Compensation by Age and Service Groups

	Years of Credited Service										
Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40&Up	Average
0-24	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	*	*	-	-	-	-	-	-	*
35-39	-	-	*	*	*	-	-	-	-	-	94,686
40-44	-	-	*	*	*	*	*	-	-	-	73,585
45-49	-	-	*	84,784	*	*	*	-	-	-	82,024
50-54	-	-	*	*	*	*	*	*	-	-	88,072
55-59	-	-	*	*	*	*	*	*	*	-	99,778
60-64	-	-	*	*	*	*	*	*	*	*	90,847
65-69	-	-	*	*	*	*	*	-	-	*	93,102
70&Up	-	-	-	-	*	-	-	-	-	-	*
Average	-	-	97,171	85,966	89,324	82,689	82,825	*	*	*	88,747

*If there are fewer than 20 participants in a cell, the average compensation is not reported.

Exhibit 2

Inactive Participants

Terminated Vested Participants

Age	Number of Participants	Average Annual Benefit
< 30	0	$0
30 - 34	2	4,641
35 - 39	16	5,842
40 - 44	16	6,042
45 - 49	38	9,800
50 - 54	26	13,261
55 - 59	31	12,555
60 - 64	39	8,997
65 & Up	2	6,350
Total	170	$9,820

Retirees, Beneficiaries, and Disabled Participants

Age	Number of Participants	Average Annual Benefit
< 55	7	$11,191
55 - 59	17	21,599
60 - 64	62	24,481
65 - 69	137	20,395
70 - 74	118	21,608
75 - 79	104	17,571
80 - 84	56	14,547
85 - 89	24	11,335
90 & Up	26	14,952
Total	551	$19,256

Exhibit 3

Summary of Plan Assets

The summary of plan assets on a Market Value basis as of July 31, 2019 is shown below.

1.	Assets	
	a. Noninterest-bearing cash	$(382,777)
	b. Interest bearing cash	3,112,822
	c. Domestic fixed income	76,797,988
	d. International fixed income	4,253,004
	e. Other assets	612,324
	f. Domestic Equity	84,925,978
	g. International Equity	15,144,819
	h. Total	184,464,158
2.	Liabilities	
	a. Other liabilities	56,472
	b. Total	56,472
3.	Total [(1h) - (2b)]	$184,407,686

Exhibit 4

Summary of Income and Disbursements

The change in the Market Value of Assets from July 31, 2018 to July 31, 2019 is shown below.

1.	Market Value of Assets as of July 31, 2018	$184,287,781
2.	Income	
	a. Employer contributions for plan year	4,658,000
	b. Net gain (loss) on sale of assets	2,173,460
	c. Unrealized appreciation (depreciation)	(1,031,975)
	d. Other income	5,552,579
	e. Total	11,352,064
3.	Disbursements	
	a. Benefit payments to participants	10,326,046
	b. Investment management fees	662,970
	c. Trustees fees/expenses	243,143
	d. Total	11,232,159
4.	Net increase / (decrease) [(2e) - (3d)]	119,905
5.	Market Value of Assets as of July 31, 2019 [(1) + (4)]	$184,407,686

Exhibit 5

Estimated Investment Return on Market Value of Assets

The estimated investment return on the Market Value of Assets for the plan year ending July 31, 2019, assuming all cash flows of contributions, benefit payments, and administrative expenses are paid at mid-year, is determined below.

1.	Market Value of Assets as of July 31, 2018	$184,287,781
2.	Market Value of Assets as of July 31, 2019	184,407,686
3.	Net non-investment cash flows for plan year ending July 31, 2019	(5,911,189)
4.	Investment income for plan year ending July 31, 2019 [(2) - (1) - (3)]	$6,031,094
5.	Estimated investment return on Market Value of Assets [{2 × (4)} ÷ {(1) + (2) - (4)}]	3.33%

Exhibit 6

Historical Rates of Return

The dollar-weighted rate of return reflects the actual performance of the fund including the effect of the actual timing of receipts and disbursements. The elements entering into the determination of the rate of return are beginning market value, contributions to the trust and benefit payments, investment expenses paid from the trust, and ending market value. The net dollar-weighted rate of return based on the above elements for the Plan Year ending July 31, 2019 was -3.16%:

Plan Year Ending	Total Investment Gain/(Loss)	Average Invested Fund	Yield
07/31/1996	$3,991,173	$54,926,789	7.27%
07/31/1997	$8,961,037	$58,548,587	15.31%
07/31/1998	$6,056,207	$66,046,547	9.17%
07/31/1999	$4,033,354	$68,764,433	5.87%
07/31/2000	$3,077,226	$68,882,625	4.47%
07/31/2001	-$2,875,314	$68,661,797	-4.19%
07/31/2002	-$3,571,980	$63,547,846	-5.62%
07/31/2003	$5,272,970	$59,849,225	8.81%
07/31/2004	$5,738,703	$67,448,868	8.51%
07/31/2005	$8,002,232	$75,807,855	10.56%
07/31/2006	$4,922,109	$84,805,462	5.80%
07/31/2007	$11,080,734	$89,902,372	12.33%
07/31/2008	-$1,973,771	$99,911,288	-1.98%
07/31/2009	-$4,536,184	$97,220,025	-4.67%
07/31/2010	$9,811,218	$94,619,559	10.37%
07/31/2011	$14,673,091	$107,480,533	13.65%
07/31/2012	$5,006,642	$124,139,679	4.03%
07/31/2013	$20,745,073	$130,116,121	15.94%
07/31/2014	$14,686,971	$150,792,014	9.74%
07/31/2015	$7,537,248	$162,067,952	4.65%
07/31/2016	$1,657,217	$164,255,361	1.01%
07/31/2017	$14,220,462	$163,041,995	8.72%
07/31/2018	$12,377,573	$174,209,332	7.11%
07/31/2019	$6,031,094	$181,332,187	3.33%
1996-2019	$154,925,085	$2,476,378,452	6.26%

Exhibit 7

Employer Contributions for Prior Plan Year

The employer contributions for the plan year ending July 31, 2019 were paid or are payable on the dates and in the amounts shown below.

Date of Contribution	Amount
August 23, 2018	$500,000
September 24, 2018	500,000
October 24, 2018	500,000
November 13, 2018	500,000
December 19, 2018	400,000
January 24, 2019	450,000
February 21, 2019	460,000
March 21, 2019	500,000
April 24, 2019	450,000
May 21, 2019	398,000
Total	$4,658,000

Exhibit 8

Credit Balance / (Funding Deficiency) in Funding Standard Account for Prior Plan Year

The Credit Balance / (Funding Deficiency) in the Funding Standard Account as of July 31, 2019 is determined below.

1.	Credit Balance / (Funding Deficiency) as of August 1, 2018		$14,676,656
2.	Charges for plan year		
	a.	Current Annual Cost	7,619,567
	b.	Interest on late quarterly contributions	0
	c.	Total	7,619,567
3.	Credits for plan year		
	a.	Interest on beginning Credit Balance	990,674
	b.	Employer contributions	4,658,000
	c.	Interest on employer contributions	179,583
	d.	Full Funding Credit	0
	e.	Total	5,828,257
4.	Credit Balance / (Funding Deficiency) as of July 31, 2019 [(1) - (2c) + (3e)]		$12,885,347

Exhibit 9

Actuarial Balance Sheet

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

Plan Requirements

1. Present value of active participant benefits	
a. Withdrawal	$7,359,493
b. Retirement	94,105,430
c. Death	1,221,744
d. Disability	5,872,319
e. Total	108,558,986
2. Present value of inactive participant benefits	
a. Retired participants	92,946,092
b. Terminated vested participants	10,045,809
c. Beneficiaries	10,027,191
d. Disabled participants	669,059
e. Total	113,688,151
3. Total plan requirements [(1e) + (2e)]	222,247,137

Plan Resources

4. Actuarial Value of Assets	184,407,686
5. Unfunded Actuarial Accrued Liability	14,001,387
6. Present Value of Future Normal Costs	23,838,064
7. Total plan resources [(4) + (5) + (6)]	$222,247,137

Exhibit 10

Actuarial (Gain) / Loss for Prior Plan Year

The Actuarial (Gain) / Loss for the prior plan year is the difference between the expected and actual Unfunded Actuarial Accrued Liability as of the beginning of the current plan year. The Actuarial (Gain) / Loss for the plan year ending July 31, 2019 is determined below.

1.	Unfunded Actuarial Accrued Liability as of August 1, 2018	$2,973,899
2.	Normal Cost as of August 1, 2018	4,052,458
3.	Interest on (1) and (2) to end of plan year	474,279
4.	Subtotal [(1) + (2) + (3)]	7,500,636
5.	Employer contributions for plan year	4,658,000
6.	Interest on (5) to end of plan year	179,583
7.	Subtotal [(5) + (6)]	4,837,583
8.	Changes in Actuarial Accrued Liability	
	a. Plan amendments	0
	b. Changes in actuarial assumptions	4,770,710
	c. Changes in cost method	0
	d. Total	4,770,710
9.	Expected Unfunded Actuarial Accrued Liability as of August 1, 2019 [(4) - (7) + (8d)]	7,433,763
10.	Actual Unfunded Actuarial Accrued Liability as of August 1, 2019	14,001,387
11.	Actuarial (Gain) / Loss on Actuarial Value of Assets	5,906,076
12.	Actuarial (Gain) / Loss on Actuarial Accrued Liability [(10) - (9) - (11)]	661,548
13.	Actuarial (Gain) / Loss for prior plan year [(11) + (12)]	6,567,624
14.	Actuarial (Gain) / Loss subject to amortization, if any	$6,567,624

Exhibit 11

Charges and Credits for Funding Standard Account

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

1. Charges as of August 1, 2019

	Date Established	Description	Amortization Amount	Remaining Years	Outstanding Balance
a.	August 1, 1994	Plan amendment	$125,317	5.0	$554,629
b.	August 1, 1995	Plan amendment	624,653	6.0	3,220,509
c.	August 1, 1997	Plan amendment	2,735	8.0	17,737
d.	August 1, 2006	Plan amendment	123,184	17.0	1,326,411
e.	August 1, 2013	Plan amendment	388,007	24.0	4,954,897
f.	August 1, 2013	Change in assumptions	502,969	4.0	1,835,069
g.	August 1, 2015	Change in assumptions	537,389	6.0	2,770,605
h.	August 1, 2015	Actuarial loss	134	1.0	134
i.	August 1, 2016	Actuarial loss	1,927,717	2.0	3,737,779
j.	August 1, 2017	Change in assumptions	605,780	8.0	3,928,190
k.	August 1, 2019	Actuarial loss	1,483,941	5.0	6,567,624
l.	August 1, 2019	Change in assumptions	751,539	10.0	5,753,864
m.	Total		7,073,363		34,667,449

2. Credits as of August 1, 2019

	Date Established	Description	Amortization Amount	Remaining Years	Outstanding Balance
a.	August 1, 1994	Change in cost method	$33,751	5.0	$149,375
b.	August 1, 2010	Change in assumptions	240,116	1.0	240,116
c.	August 1, 2017	Actuarial gain	944,222	3.0	2,663,299
d.	August 1, 2018	Change in assumptions	387,481	9.0	2,746,754
e.	August 1, 2018	Actuarial gain	543,013	4.0	1,981,171
f.	Total		2,148,584		7,780,715

3.	Net outstanding balance [(1l) - (2f)]	26,886,734
4.	Credit Balance as of August 1, 2019	12,885,347
5.	Accumulated reconciliation account as of August 1, 2019	
	a. Additional Funding Charges	0
	b. Additional Interest Charges	0
	c. Due to Waived Funding Deficiencies	0
6.	Balance test result [(3) - (4) - (5)]	14,001,387
7.	Unfunded Actuarial Accrued Liability as of August 1, 2019, minimum $0	$14,001,387

Exhibit 12

Present Value of Accumulated Plan Benefits

Accumulated Plan Benefits are benefits earned to date, based on pay history and service rendered to date, expected to be paid in the future to retired, terminated vested, and active participants, and beneficiaries of active or former participants. The Present Value of Accumulated Plan Benefits (determined on a plan continuation basis in accordance with FASB ASC Topic 960) as of August 1, 2019 is shown below.

1. Present Value of vested Accumulated Plan Benefits	
a. Active participants	$56,464,591
b. Retired participants	92,946,092
c. Terminated vested participants	10,045,809
d. Beneficiaries	10,027,191
e. Disabled participants	669,059
f. Total	170,152,742
2. Present Value of non-vested Accumulated Plan Benefits	5,399,156
3. Present Value of all Accumulated Plan Benefits [(1f) + (2)]	175,551,898
4. Market Value of Assets	$184,407,686
5. Funded ratio	
a. Vested benefits [(4) ÷ (1f)]	108.38%
b. All benefits [(4) ÷ (3)]	105.04%

Exhibit 13

Change in Present Value of Accumulated Plan Benefits

The change in the Present Value of Accumulated Plan Benefits (determined on a plan continuation basis in accordance with FASB ASC Topic 960) from August 1, 2018 to August 1, 2019 is shown below.

1.	Present Value of all Accumulated Plan Benefits as of August 1, 2018	$166,577,405
2.	Changes	
	a. Reduction in discount period	11,202,471
	b. Benefits accumulated plus actuarial (gain) / loss	3,901,566
	c. Benefit payments	10,326,046
	d. Plan amendments	0
	e. Change in assumptions	4,196,502
	f. Total [(a) + (b) - (c) + (d) + (e)]	8,974,493
3.	Present Value of all Accumulated Plan Benefits as of August 1, 2019 [(1) + (2f)]	$175,551,898

Appendix A

Summary of Actuarial Assumptions and Methods

The ultimate cost of a pension plan is the excess of actual benefits and administrative expenses paid over actual net investment return on plan assets during the plan's existence until the last payment has been made to the last participant. The plan's "actuarial cost method" determines the expected incidence of actuarial costs by allocating portions of the ultimate cost to each plan year. The cost method is thus a budgeting tool to help ensure that the plan will be adequately and systematically funded. There are several commonly-used cost methods which differ in how much of the ultimate cost is assigned to each prior and future year. Therefore, the pattern of annual contributions varies with the choice of cost method. Annual contributions are also affected by the "asset valuation method" (as well as the plan provisions, actuarial assumptions, and actual plan demographic and investment experience each year).

Actuarial Cost Method

The actuarial cost method used in the valuation of this Plan is known as the entry age normal cost method. Under this method a projected retirement benefit at assumed retirement age is computed for each participant using anticipated future pay increases. The normal cost for each participant is computed as the level percentage of pay which, if paid from each participant's date of employment by the employer or any predecessor employer (thus, entry age) to his assumed retirement date, would accumulate with interest at the rate assumed in the valuation to an amount sufficient to fund his projected retirement benefit. The normal cost for the plan is the total of the individually computed normal costs for all participants including the costs for any death or disability benefits under the plan.

The accrued liability at any point in time for an active participant is the theoretical fund that would have been accumulated on his behalf from his normal cost payments and the earnings thereon for all prior years if the plan had always been in effect. For persons receiving benefits or entitled to a deferred vested retirement income, the accrued liability cost is equal to the present value of their future benefit payments. The accrued liability for the plan is the total of the individually computed accrued liability for all participants. The unfunded accrued liability for the plan is the excess of the accrued liability over the assets which have been accumulated for the plan. This unfunded accrued liability may be liquidated over a period of between five and thirty years (forty years for plans in existence on January 1, 1974) at the convenience of the employer with fixed or variable payments, subject to certain minimum payments on a cumulative basis needed to satisfy the minimum contribution requirements for the plan.

It should be noted that the accrued liability as of any date is not the actuarially computed present value of accrued or accumulated plan benefits as of that date. The accrued liability is the portion of the ultimate cost assigned to prior years by the cost method being used. The actuarially computed present value of accrued or accumulated plan benefits is the present value of retirement benefits which have been accrued or earned to date based only upon service and earnings to date.

The funding cost of the Plan is derived by making certain specific assumptions as to rates of interest, mortality, turnover, etc, which are assumed to hold for many years into the future. Since actual experience may differ somewhat from the assumptions, the costs determined by the valuation must be regarded as estimates of the true costs of the Plan.

Asset Valuation Method

For purposes of applying the actuarial cost method, effective October 27, 1996, plan assets are valued at market value. Prior to October 27, 1996, plan assets were invested with American General and were valued at contract value.

Changes in Actuarial Methods since Prior Valuation

None.

ECONOMIC ASSUMPTIONS

Interest Rates

- **For funding purposes:** 6.50% per annum, compounded annually (adopted August 1, 2019).
- **For current liability purposes:** 6.50% per annum, compounded annually (adopted August 1, 2019).

Earnings Progression (adopted August 1, 2015)

Age	Rate	Age	Rate	Age	Rate
20	10.00%	32	6.20%	51	4.30%
21	9.50%	33	5.90%	52	4.10%
22	8.90%	34	5.50%	53	3.90%
23	8.30%	35	5.20%	54-60	3.70%
24	7.70%	36	5.00%	61	3.50%
25	7.30%	37	4.80%	62	3.30%
26	7.20%	38	4.60%	63	3.10%
27	7.10%	39	4.40%	64	2.90%
28	7.00%	40	4.20%	65	2.70%
29	6.90%	41-42	4.30%	66+	2.50%
30	6.80%	43-44	4.40%		
31	6.50%	45-50	4.50%		

Future Social Security Wage Base Increases

4.00% per annum, compounded annually.

Inflation

2.50% per annum, compounded annually (adopted August 1, 2015).

DEMOGRAPHIC ASSUMPTIONS

Mortality

- **For healthy lives:** For Salaried participants, the RP-2014 White Collar Mortality Table adjusted backward to 2006 with MP-2014 and projected forward with Scale MP-2018 Projection for males and females. For Hourly participants, the RP-2014 Blue Collar Mortality Table adjusted backward to 2006 with MP-2014 and projected forward with Scale MP-2018 Projection for males and females (adopted August 1, 2019).
- **For disabled lives:** the RP-2014 Disabled Mortality Table adjusted backward to 2006 with MP-2014 and projected forward with Scale MP-2018 Projection for males and females (adopted August 1, 2019).

Turnover (adopted August 1, 2015)

Age	Rate	Age	Rate	Age	Rate
20-24	5.00%	35	5.60%	48	3.00%
25	12.00%	36	5.40%	49	2.60%
26	11.50%	37	5.20%	50	2.20%
27	10.50%	38	5.00%	51-55	3.60%
28	9.00%	39	4.80%	56	3.10%
29	8.00%	40	4.50%	57	2.60%
30	6.80%	41-43	4.40%	58	2.10%
31	6.60%	44	4.30%	59	1.60%
32	6.30%	45	4.20%	60	1.10%
33	6.10%	46	3.80%	61+	0.00%
34	5.90%	47	3.40%		

Retirement (adopted August 1, 2015)

Age	Rate	Age	Rate
under 55	0%	61-64	25%
55-56	10%	65-69	50%
57-58	15%	70+	100%
59-60	20%		

Disability (adopted August 1, 2015)

Selected rates are as follows:

Age	Rate for Males	Rate for Females
20	0.10%	0.17%
25	0.11%	0.18%
30	0.12%	0.19%
35	0.13%	0.21%
40	0.16%	0.26%
45	0.25%	0.39%
50	0.47%	0.77%
55	0.94%	1.46%
60	1.38%	2.24%

Marital Characteristics

- **For participants not in pay status:** 100% of participants are assumed to be married, with males 3 years older than females.
- **For participants in pay status**: Actual birth dates of spouses are included in the census data, where relevant.

Expenses

Normal Cost is loaded by $750,000 for administrative expenses.

Benefits Not Valued

All benefits are valued.

Special Data Adjustments

None.

Changes Since Last Valuation

Mortality improvement scale for funding and current liability purposes: Effective August 1, 2019, the mortality projection scale was changed from MP-2017 to MP-2018 per year. The mortality assumption was changed to reflect the most recent tables released by the Society of Actuaries.

Interest rate for funding and current liability puposes: Effective August 1, 2019, the interest rate was changed from 6.75% to 6.50% per year. The interest rate was changed to reflect anticipated future asset experience.

Appendix B

Summary of Principal Plan Provisions

This summary of plan provisions is intended to only describe the essential features of the plan. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself.

Definitions

Accrued Benefit: Determined under the fractional rule, equal to that amount which is in the same proportion to the Participant's Normal Retirement Benefit as the Participant's Years of Accrual Service completed as of the date of determination bear to the total Years of Accrual Service the Participant would complete if he were to continue to participate until his Normal Retirement Date.

Actuarially Equivalent: Equality in value such that the present value of the amount under any form of payment is essentially the same as the present value of the amount under the normal form of annuity payment for single participants. Actuarially Equivalent factors are based on the 2019 Applicable Mortality Table blended for Males and Females and an interest rate of 6%.

Average Monthly Compensation: Determined by dividing the total Compensation received during the 5 consecutive Compensation Periods (during the last 10 years of employment) for which Compensation was highest by the number of months during such period. All fractional Compensation Periods will be taken into account.

Compensation: That compensation which is treated as FICA wages without regard to the Social Security taxable wage base, excluding overtime and bonuses. In the case of hourly employees, Compensation as of any date is based on the straight time rate per hour assuming they work 2080 hours per year. Compensation also includes any amounts which are treated as salary reduction contributions and used to purchase non-taxable benefits under Section 125 or 401(k) of the Internal Revenue Code.

Compensation in excess of the Statutory Compensation Limit will be disregarded. Statutory Compensation Limit means $280,000 for the Plan Year beginning August 1, 2019, as adjusted in accordance with Code Section 401(a)(17)(B). For purposes of applying this compensation limit, a family member of a Highly Compensated Employee is subject to the single aggregate compensation limit imposed on the Highly Compensated Employee if the family member is either the Employee's spouse or is a lineal descendant who has not attained the age of 19 by the end of the Plan Year.

The Compensation Period is the 12 month period which begins each August 1 and ends each July 31.

Effective Date: August 1, 1988.

The plan was last amended effective December 31, 2012.

Eligible Employee Classification: A classification of employees, the members of which are eligible to participate in the Plan. The Plan covers all employee classifications except leased employees and casual employees.

One Year Break-in-Service: Occurs in any 365-day period following a Participant's date of termination in which an employee does not complete at least one hour of service.

Plan Sponsor: Port of Houston Authority of Harris County, Texas. The Plan Administrator is the Human Resources Manager.

Plan Year: 12 month period beginning August 1 and ending July 31.

Years of Service

For Eligibility purposes: Determined using the Hours of Service Method. A Year of Eligibility Service is credited for each Computation Period during which an Employee is credited with at least 1,000 hours of service. The Computation Period is the 12 consecutive month period beginning with the employee’s employment commencement date and anniversaries thereof. All of an employee's Years of Eligibility Service are taken into account in determining his eligibility to participate.

For Benefit purposes: Determined using the Elapsed Time Method. All of an employee's Years of Benefit Service are taken into account in determining the monthly benefit except:

- service for which the employee was not entitled to receive Compensation; and
- service while the employee was not in an Eligible Employee Classification.

For Accrual purposes: Determined using the Elapsed Time Method. All of an Employee's Years of Accrual Service are taken into account in determining the monthly benefit except:

- service for which the employee was not entitled to receive Compensation; and
- service while the employee was not in an Eligible Employee Classification.

For Vesting purposes: Determined using the Elapsed Time Method. All of an employee's Years of Vesting Service are taken into account in determining Vested Percentage.

Eligibility for Participation

An Employee who is a member of an Eligible Employee Classification will become a participant in the Plan on the August 1st which coincides with or next follows the completion of one Year of Eligibility Service. Plan participation was frozen effective August 1, 2012 for employees hired on/after August 1, 2012.

Normal Retirement

Normal Retirement Date: The first day of the month coincident with or next following the later of attainment of age 65.

Normal Retirement Benefit: A monthly retirement pension benefit commencing on the Participant's Normal Retirement Date payable in the Normal Benefit Form in an amount equal to 2.3% of Average Monthly Compensation multiplied by Years of Benefit Service not in excess of 30.435 years

Normal Benefit Form: Lifetime Pension, 5 Years Certain, a monthly pension benefit payable for the lifetime of the Participant with payments guaranteed for a minimum of 5 years. In the event of the Participant's death prior to the expiration of 5 years, the same monthly pension benefit will be continued to the Participant's Beneficiary for the remainder of the 5 year period.

Early Retirement

Early Retirement Date: The first day of the month so elected by the Participant which coincides with or next follows the date upon which the Participant satisfies one of the following requirements:

- Attainment of age 62; or
- Completion of 30 Years of Vesting Service; or
- The sum of the Participant's age and Years of Vesting Service equals 85 or more, provided the Participant has attained age 55 or more

Early Retirement Benefit: Equal to the Actuarial Equivalent of the Participant's Accrued Benefit determined as of his Early Retirement Date. A Participant may retire on the first day of any month following the satisfaction of (3) above and receive his Accrued Benefit without any Actuarial Equivalent reduction.

The plan offered an enhanced early retirement window to qualified participants effective January 1, 2013.

Late Retirement

Late Retirement Date: The first day of the month coincident with or next following the date of termination of employment if it occurs after the Normal Retirement Date.

Late Retirement Benefit: At actual retirement, the benefit will be equal to the monthly benefit which is based on the Normal Retirement Benefit formula using the Participants' Years of Benefit Service and Compensation through his Late Retirement Date.

Termination

Termination Date: The date of termination of service other than for reasons of retirement, disability, or death.

Termination Benefit: The Accrued Benefit multiplied by the Vested Percentage below, payable at the Normal Retirement Date.

Years of Vesting Service	Vested Percentage
Less than 5	0%
5 or more	100

Preretirement Death

In the event of the death of a Participant prior to the date that he begins to receive a monthly pension benefit under the Plan, the Participant's surviving spouse, if any, will be entitled to receive a preretirement death benefit.

If the Participant has completed of 15 Years of Vesting Service, the Participant's surviving spouse, if any, will be entitled to receive a monthly pension benefit equal to 50% of the Participant's Accrued Benefit determined as of his date of death.

The spouses of Participants with less than 15 Years of Vesting Service at the date of death will receive a Qualified Pre-retirement Survivor Annuity, equal to 50% of the monthly pension benefit which would have been payable had the Participant retired on the day before his death and elected a Joint and 50% Contingent Survivor Pension. A Joint and 50% Contingent Pension provides a monthly pension benefit payable for the lifetime of the Participant and, upon the Participant's death, if the Participant's spouse survives the Participant, a monthly pension benefit will continue for the remaining lifetime of the surviving spouse equal to 50% of the monthly pension benefit which was payable during the joint lifetime of the Participant and the Participant's surviving spouse.

Disability Retirement

Disability Retirement Date: The first day of the month coincident with or next following the date of termination of his employment due to disability provided such Participant has been found to be eligible for a Disability Retirement Benefit.

An Active Participant will be eligible for a Disability Retirement Benefit under the Plan upon the occurrence of permanent disability coincident with or following the Participant's completion of 5 Years of Vesting Service.

Disability Retirement Benefit: Equal to the Normal Retirement Benefit to which the Participant would have been entitled if he had continued to be an employee until his Normal Retirement Date with such benefit calculated on the basis of his Average Monthly Compensation as of his Disability Retirement Date. Such benefit will begin on his Normal Retirement Date.

If a Participant satisfies the requirements for a Disability Retirement Benefit and also satisfies the requirements for a Vested Accrued Benefit, the portion of his Disability Retirement Benefit which is the Actuarial Equivalent of his Vested Accrued Benefit will be payable in the Normal Benefit Form (or any optional benefit form) and will be subject to the joint and survivor annuity distribution requirements. The remaining portion, if any, of the Actuarial Equivalent of the Participant's Disability Retirement Benefit will be payable as a Lifetime Pension with a monthly benefit payable for the Participant's lifetime with payments terminating upon his death.

Permanent Disability: A Participant will be considered permanently disabled if he becomes eligible for disability benefits under the Social Security Program and, in the opinion of the Plan Administrator,

- he is prevented from performing the usual duties of his employment or any other employment for which he is reasonably suited as a result of his education, training and experience;
- such disability is likely to be both continuous and permanent;
- such disability occurs on or after the Effective Date of the Plan but prior to the Participant's Normal Retirement Date; and
- such disability is not, in the opinion of the Plan Administrator, the result of injury or disease sustained by the Participant which was diagnosed or discovered subsequent to the date his employment has terminated.

Forms of Payment

Optional benefit forms are available and equal to the Actuarial Equivalent of the Normal Benefit Form and may be in an amount more than or less than that provided by the Normal Benefit Form depending on the option selected. Such distribution may be in one or more of the following forms:

Lifetime Pension, 10 Years Certain: Monthly pension benefit payable for the lifetime of the Participant with payments guaranteed for a minimum of 10 years.

Lifetime Pension, 15 Years Certain: Monthly pension benefit payable for the lifetime of the Participant with payments guaranteed for a minimum of 15 years.

Lifetime Pension, 20 Years Certain: Monthly pension benefit payable for the lifetime of the Participant with payments guaranteed for a minimum of 20 years.

Joint & 50% Survivor Pension: Monthly pension benefit payable during the joint lifetime of the Participant and the Participant's spouse; reduces to 50% of the original amount upon the first death.

Joint & 75% Survivor Pension: Monthly pension benefit payable during the joint lifetime of the Participant and the Participant's spouse; reduces to 75% of the original amount upon the first death.

Joint & 100% Survivor Pension: Monthly pension benefit payable for as long as either the Participant or the Participant's spouse is alive.

Changes in Plan Provisions since Prior Valuation

None

Appendix C

General Rules

General Rules

The Employee Retirement Income Security Act of 1974 (ERISA) requires that an accounting procedure be established and maintained for each retirement plan covered under the Act to determine the minimum funding requirements. This accounting procedure involves the establishment of a "Funding Standard Account." The purpose of this account is to keep track of the funding status of the Plan on a cumulative basis with regard to the minimum required contributions to the Plan. Each Plan Year the account is charged with certain amounts such as the normal cost for the year and the amounts (if any) which are required to amortize the unfunded accrued liability or the unfunded frozen actuarial liability over a specified period of years. Each Plan Year the account is credited with a certain amount such as the plan sponsor's contributions for the year and any amortization payments. At the end of each Plan Year, the cumulative credits to the account must be sufficient to offset the cumulative charges to the account such that the balance is zero, or that a net credit balance exists. A net credit balance represents a margin resulting from contributions made to the Plan in excess of the minimum amounts required. A funding deficiency exists for a Plan Year if, as of the end of the Plan Year, the Funding Standard Account has a net debit balance.

For any Plan Year which is less than a full twelve months in length, the normal cost, amortization charges and amortization credits are reduced on a pro rata basis to reflect the length of the short Plan Year.

The current annual cost for a given Plan Year is equal to the minimum required contribution for the Plan Year before recognition of any credits which may have accumulated from having contributed more than the minimum required contribution for prior Plan Years. If no credits have been accumulated, the minimum required contribution for the Plan Year is equal to the current annual cost.

Timing of Contribution

To avoid a funding deficiency, a contribution sufficient to meet the minimum funding requirements must be made to the trust fund not later than eight and one-half months after the end of the Plan Year. A portion of the minimum required contribution must be contributed prior to the end of each plan quarter. This portion is equal to 6.25% for Plan Years beginning in 1989, 12.50% for Plan Years beginning in 1990, 18.75% for Plan Years beginning in 1991, and 25.00% for Plan Years beginning in 1992 and later. Failure to meet the quarterly contribution schedule will subject the Plan to additional interest charges to its Funding Standard Account.

The Internal Revenue Service will impose a 10% excise tax on any funding deficiency existing as of the end of a Plan Year. If a funding deficiency is not corrected within a specified period determined by the Internal Revenue Service (but not less than 90 days), an excise tax of 100% of the amount of the deficiency will be imposed. This excise tax is non-deductible. Application can be made to the Internal Revenue Service to waive or defer such minimum payment in the event it can be shown to the satisfaction of the Internal Revenue Service that such payment will result in hardship.

Appendix D

Description of the Maximum Deductible Contribution Limit

General Rules

A plan sponsor can deduct for income tax purposes only such amounts that fall within the permissible limits set forth in Section 404(a) of the Internal Revenue Code as amended. Any contributions in excess of such limits will be subject to a nondeductible 10% excise tax. This excise tax will be imposed annually on any accumulated undeducted contributions until such contributions are deducted.

The general rule on the deductibility of employer contributions is that the amount required to meet minimum funding standards may be deducted.

A second rule permits the employer to deduct annually the amount necessary to fund, with respect to each participant, the unfunded present value of the participant's future benefits over the participant's remaining future service. However, if the remaining unfunded present value with respect to any three participants is more than 50% of the total remaining unfunded cost, the amount of remaining unfunded cost attributable to these participants must be distributed over a period of at least five years.

A third rule permits the employer to deduct annually an amount equal to the normal cost of the Plan plus an amount necessary to amortize any initial accrued liability or any increase or decrease in such accrued liability over a period of ten years.

A fourth rule provides that the tax deduction for any particular year cannot exceed the amount needed to bring the Plan to a fully funded status. (This amount is called the full funding limitation). That is, no deductions can be taken for contributions that would raise the plan assets to a level above the greater of (1) the Plan's accrued liability, or (2) 90% of the current liability of the Plan as of the end of the Plan Year, less Plan assets as of the end of the Plan Year.

A fifth rule permits employees with more than 100 plan participants to deduct annually an amount equal to 150% of the current liability of the Plan as of the end of the Plan Year less plan assets as of the end of the Plan Year, even if such amount exceeds the full funding limitation.

Maintenance of Stock Bonus or Profit Sharing Plan

An additional limitation is imposed if (1) the plan sponsor maintains a stock bonus or a profit-sharing trust for any employees who are also participants of the defined benefit plan and (2) any contributions paid into such a trust are deductible in the current fiscal year. The total amount that is otherwise deductible cannot exceed the greater of (1) 25% of covered payroll or (2) the amount required to meet the minimum funding standards.

Fiscal Year versus Plan Year

Although the deductible limit applies for an employer's fiscal year, the deductible limit is determined on the basis of a Plan Year. If the employer's fiscal year coincides with the Plan Year, the deductible limit on the fiscal year is the deductible limit for the Plan Year that coincides with that year.

If the employer's fiscal year does not coincide with the Plan Year, the deductible limit for a given fiscal year of the employer is one of the following alternatives:

- The deductible limit determined for the Plan Year commencing within the fiscal year.
- The deductible limit determined for the Plan Year ending within the fiscal year.
- A weighted average of alternatives (1) and (2).Such an average may be based, for example, upon the number of months of each Plan Year falling within the fiscal year.

The employer must use the same alternatives for each fiscal year unless consent to change is obtained from the Commissioner of the Internal Revenue Service.

For any fiscal year which is less than a full twelve months in length, the normal cost and any amortization charges or credits are generally reduced on a pro rata basis to reflect the length of the short fiscal year

Timing of Contribution

For purposes of making a tax-deductible contribution for a given fiscal year, the contribution must be paid over to the trustee not later than the due date for the tax return. If an extension for the tax return is received, the extension will also apply to the latest date that a deductible contribution may be made.

Appendix E

Glossary

Glossary

Accrued Liability: That portion, as determined by a particular actuarial cost method, of the actuarial present value of plan benefits and expenses which is not provided by future normal costs. The accrued liability at any point in time for an active participant is the theoretical fund that would have been accumulated on his behalf from his normal cost payments and the earnings thereon for all prior years if the plan had always been in effect. For persons receiving benefits or entitled to a deferred vested retirement income, the accrued liability cost is equal to the present value of their future benefit payments. The accrued liability for the plan is the total of the individually computed accrued liability for all participants. Also referred to as Actuarial Accrued Liability.

Accumulated Plan Benefit: The amount of an individual's pension benefit (whether or not vested) which has been earned as of a specified date based upon service and compensation to that date. Also referred to as Accrued Benefit.

Actuarial Assumptions: Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and national pension benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the actuarial value of assets; and other relevant items.

Actuarial Cost Method: A particular technique used to establish the amount and incidence of the annual actuarial cost of plan benefits.

Actuarial Equivalent: Of equal actuarial present value, determined as of a given date with each value based upon the same set of actuarial assumptions.

Actuarial Gain or Loss: A measure of the difference between actual experience and that which is expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Actuarial Value of Assets: The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an actuarial valuation.

Additional Funding Charge: Amount which is required to be contributed for the Plan Year to amortize a portion of the unfunded Current Liability existing as of the beginning of the Plan Year for employers with more than 100 plan participants.

Amortization Payments: That portion of the pension plan contribution which is designated to pay interest on and to amortize the unfunded accrued liability or the unfunded frozen actuarial liability.

Current Annual Cost: The minimum required contribution for a plan year before recognition of any credits which may have accumulated from having contributed more than the minimum required contribution for prior plan years and before the application of any full funding limitation. If no credits have been accumulated, the minimum required contribution for a plan year is equal to the current annual cost.

Current Liability: The present value of all Accumulated Plan Benefits, determined using a restricted interest rate which must be within a range of 90% to 100% of the average rate on the composite corporate bond index during the previous four years.

ERISA: The Employee Retirement Income Security Act of 1974.

Frozen Actuarial Liability: That portion of the present value of future benefits which is separated as of a valuation date and frozen under certain actuarial cost methods. Generally this separated portion is the sum of an initial unfunded accrued liability and any increments or decrements in the accrued liability subsequently established as a result of changes in plan benefits or actuarial assumptions.

Full Funding Limitation: The amount of contribution needed to bring the plan to a fully funded status. The full funding limitation is equal to the excess of the greater of:

- the Accrued Liability under the plan (including the Normal Cost) over the lesser of the market value of assets or the actuarial value of assets as of the end of the Plan Year, or
- 90% of the Current Liability under the plan, over the actuarial value of assets as of the end of the Plan Year.

Funded Ratio: The ratio, as of a given date, of the market value of plan assets to the present value of accumulated plan benefits. When the market value of plan assets is equal to the present value of accumulated plan benefits, the funded ratio is equal to 100%. When the funded ratio is less than 100%, there may be sufficient assets to cover the vested accumulated plan benefits but not sufficient assets to cover all of the additional nonvested accumulated plan benefits. At the time that a retirement plan is adopted, the funded ratio is usually substantially less than 100% but usually exceeds 100% after the plan has been funded on an ongoing basis for a period of years (such as ten). The funded ratio may decline from one year to the next, however, as a result of benefit improvements or a relative decline in the amount of assets when measured against the usual increase in the value of accumulated plan benefits from year to year.

Funding Standard Account: An account which must be maintained by pension plan sponsors to measure compliance with the minimum funding provisions of ERISA. The account is charged annually with the normal cost for the year and, if applicable, required amortizations of the unfunded accrued liability or the unfunded frozen actuarial liability. It is credited with the plan sponsor's contributions. A deficiency in the account may indicate a failure to meet the funding requirements while a credit balance indicates a funding surplus which can be used to reduce future contributions. (A zero balance indicates that the minimum requirements have been precisely met.)

Future Benefits: Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of actuarial assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. Also referred to as Projected Benefits.

Normal Cost: That portion of the present value of future pension plan benefits and expenses which is allocated to a valuation year by the actuarial cost method.

One-year Term Cost: The actuarial present value of all benefits expected to become payable in the future as a result of an event or events expected to occur during a given valuation year.

Present Value: The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of actuarial assumptions. Also referred to as Actuarial Present Value.

Quarterly Installments: That portion of the Minimum Required Contribution which must be contributed by the 15th day of the month following the end of each Plan Year quarter.

Unfunded Accrued Liability: The excess of the accrued liability over the actuarial value of assets.

Unfunded Frozen Actuarial Liability: The portion of the frozen actuarial liability remaining after the addition of interest and the deduction of the amortization payments.

Vested Accumulated Plan Benefit: The portion of an individual's accumulated plan benefit which is vested. Also referred to as Vested Accrued Benefit.

Vested Funded Ratio: The ratio, as of a given date, of the market value of the plan assets to the present value of vested accumulated plan benefits.

Appendix F

Funding Policy Documentation

Funding Policy Documentation

Statements of the Governmental Accounting Standards Boards (GASB) apply to the financial statements issued by the Plan. This Appendix F contains documentation of the Funding Policy determinations required by GASB with respect to the Port of Houston Authority Restated Retirement Plan (Plan). These determinations rely on information contained in this report for the year ending 7/31/2020, and/or comparable reports issued for prior years. Additional GASB determinations may be required with respect to other plans you maintain.

Appendix F determinations should be used only for the purpose of complying with the funding policy requirements of GASB. Additional determinations may be necessary for other purposes. The determinations contained in Appendix F were made in accordance with the provisions of GASB.

Funding Policy Annual Required Contribution for Plan Year ended 7/31/2020

a. Normal Cost	$4,173,713
b. Amortization	1,006,752
c. Interest	193,307
d. Contribution Excess/Deficiency	0
e. Total (a)+(b)+(c)+(d)	$5,373,772

Actuarial Valuation Date	8/1/2019
Actuarial Cost Method	Entry Age Normal
Unfunded Actuarial Accrued Liability	$14,001,387
Equivalent Single Amortization Period	30 years
Asset Valuation Method	Market Value
Investment Rate of Return	6.50%
Projected Salary Increases	2.5% to 10.0%
Inflation	2.50%
Cost of Living Adjustment	None

Schedule of Amortization Bases

Components of the unfunded actuarial liability are amortized as level dollar amounts using the closed basis. Components consisting of actuarial gains and losses are amortized over 5 years. Components consisting of amendments are amortized over 30 years, except the 8/95 amendment that is amortized over 5 years. Components consisting of revised assumptions are amortized over 10 years. Components consisting of revised actuarial methods are amortized over 30 years. The resulting equivalent single amortization base is amortized over a maximum period of 30 years.

Schedule of Funding Progress for Plan Years Ending 7/31/2020 and earlier

See Appendix F-1

Schedule of Employer Contributions for Plan Years Ending 7/31/2020 and earlier

See Appendix F-2

Schedule of Employer Contributions for the Plan Year Ended 7/31/2020

11/15/2019	$1,343,443
1/15/2020	$1,343,443
4/15/2020	$1,343,443
6/15/2020	$1,343,443
Total	$5,373,772

Appendix F-1

Port of Houston Authority Retirement Plan

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability - Entry Age (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
8/1/1997	67,829,173	67,387,724	(441,449)	100.7%	16,174,442	(2.7%)
8/1/1998	70,763,045	68,844,893	(1,918,152)	102.8%	16,825,447	(11.4%)
8/1/1999	70,935,582	70,939,814	4,232	100.0%	16,388,149	0.0%
8/1/2000	70,309,053	73,452,556	3,143,503	95.7%	17,550,162	17.9%
8/1/2001	64,677,712	77,033,505	12,355,793	84.0%	18,778,969	65.8%
8/1/2002	59,637,491	80,187,561	20,550,070	74.4%	20,257,220	101.4%
8/1/2003	66,992,188	83,562,068	16,569,880	80.2%	21,968,773	75.4%
8/1/2004	74,867,530	87,331,953	12,464,423	85.7%	23,170,058	53.8%
8/1/2005	84,810,133	89,911,993	5,101,860	94.3%	24,113,184	21.2%
08/01/2006[b]	89,737,077	104,321,646	14,584,569	86.0%	26,285,989	55.5%
8/1/2007	101,148,401	109,918,975	8,770,574	92.0%	28,620,863	30.6%
8/1/2008	96,724,229	117,731,407	21,007,178	82.2%	32,270,226	65.1%
8/1/2009	93,179,637	122,093,307	28,913,670	76.3%	32,695,393	88.4%
8/1/2010	105,870,699	128,583,531	22,712,832	82.3%	34,938,502	65.0%
8/1/2011	123,763,457	132,494,966	8,731,509	93.4%	35,570,719	24.5%
8/1/2012	129,522,543	139,259,442	9,736,899	93.0%	35,081,902	27.8%
08/01/2013[c]	151,454,771	154,450,530	2,995,759	98.1%	33,689,999	8.9%
8/1/2014	164,816,227	157,813,860	(7,002,367)	104.4%	31,376,937	(22.3%)
08/01/2015[d]	166,856,925	171,223,667	4,366,742	97.4%	30,412,207	14.4%
8/1/2016	163,311,014	176,666,637	13,355,623	92.4%	30,210,365	44.2%
8/1/2017	176,993,428	186,062,856	9,069,428	95.1%	29,960,300	30.3%
8/1/2018[e]	184,287,781	187,261,680	2,973,899	98.4%	30,327,556	9.8%
8/1/2019[f]	184,407,686	198,409,073	14,001,387	92.9%	30,401,742	46.1%

b Includes effect of April 2006 COLA and August 2006 assumptions changes
c Includes effect of December 2013 Early Retirement Window and 2013 assumption change
d Includes effect of August 2015 assumptions changes
e Includes effect of August 2018 mortality improvement assumption change
f Includes effect of August 2019 mortality improvement and interest rate assumption change

Appendix F-2

Port of Houston Authority Retirement Plan

Schedule of Employer Contributions

Year Ended July 31	Funding Policy Contribution	Percentage Contributed
1997	3,129,838	100.0%
1998	1,667,584	100.0%
1999	1,011,261	100.0%
2000	1,126,800	100.0%
2001	2,136,112	100.0%
2002	3,228,692	100.0%
2003	6,915,752	100.0%
2004	6,983,092	100.0%
2005	7,131,380	100.0%
2006	5,813,248	100.0%
2007	6,509,928	100.0%
2008	3,929,348	100.0%
2009	7,357,368	100.0%
2010	9,857,308	100.0%
2011	10,808,796	100.0%
2012	8,132,756	100.0%
2013	9,870,470	100.0%
2014	5,278,440	156.9%
2015	4,093,996	100.0%
2016	4,480,580	100.4%
2017	5,152,984	186.3%
2018	5,006,628	105.0%
2019	4,436,764	105.0%

This work product was prepared solely for the Port of Houston Authority for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

Appendix G

Risk Disclosures

The purpose of this appendix is to identify, assess, and provide illustrations of risks that are significant to the Plan, and in some cases to the Plan's participants. Historical data is included.

The results of the actuarial valuation are based on one set of reasonable assumptions. However, it is almost certain that future experience will not exactly match the assumptions. As an example, investments may perform better or worse than assumed in any single year and over any longer time horizon. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the Plan, or of the Plan's participants.

In addition, as plans mature they accumulate larger pools of assets and liabilities. This increases the potential risk to plan funding and the finances of those who are responsible for plan funding. As an example, it is more difficult for a plan sponsor to deal with the effects of a 10% investment loss on a plan with $1 billion in assets and liabilities than if the same plan sponsor is responsible for a 10% investment loss on a plan with $1 million in assets and liabilities. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the Plan is today, and how mature it may become in the future.

Actuarial Standard of Practice No. 51 (ASOP 51) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

- Identify risks that may be significant to the Plan.
- Assess the risks identified as significant to the Plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the Plan's risks.

ASOP 51 states that if in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the Plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed.

This appendix uses the framework of ASOP 51 to communicate important information about: significant risks to the Plan, the Plan's maturity, and relevant historical plan data.

DEFINITION AND IDENTIFICATION LANGUAGE FOR EACH POTENTIAL RISK

Liquidity Risk

Definition: This is the potential that assets must be liquidated at a loss earlier than planned in order to pay for the Plan's benefits and operating costs. This risk is heightened for plans with negative cash flow, in which contributions do not exceed annual benefit payments plus expenses.

Identification: This Plan has high cash flow requirements because the sum of benefit payments plus expenses is significantly larger than contributions. The Plan also has a high allocation to illiquid assets such as fixed income and equity. As a result, there is a significant risk that assets may need to be liquidated at a loss before planned in order to pay benefits and expenses.

Inflation Risk

Definition: This is the potential of a pension to lose purchasing power over time due to inflation.

Identification: The participants of pension plans without fully inflation-indexed benefits are subject to the risk that their purchasing power will be reduced over time due to inflation.

Assessment: Participants in this Plan bear all of the inflation risk occurring after retirement since the benefits are calculated to replace a percent of pay at retirement and include no postretirement cost-of-living adjustments.

Maturity Risk

Definition: This is the potential for total plan liabilities to become more heavily weighted toward inactive liabilities over time.

Identification: The Plan is subject to maturity risk because as plan assets and liabilities continue to grow, the impact of any gains or losses on the assets or liabilities also becomes larger.

Assessment: Currently assets are equal to 39.6 times last year's contributions indicating a one-year asset loss of 10% would be equal to 3.96 times last year's contributions.

Retirement Risk

Definition: This is the potential for participants to retire and receive subsidized benefits more valuable than expected.

Identification: This Plan has valuable early retirement benefits. If participants retire at earlier ages than anticipated by the actuarial assumptions, it is expected that additional funding will be required.

Contribution Risk

Definition: This is the possibility that actual future contributions deviate from expected future contributions.

Identification: The Plan is subject to the contribution risk that the actuarially determined contributions will not be made. If contributions are deferred to the future, investment income is lost in the intervening period and the Plan becomes more expensive.

Investment Risk

Definition: The potential that investment returns will be different than expected.

Identification: To the extent that actual investment returns differ from the assumed investment return, the Plan's future assets, funding contributions, and funded status may differ significantly from those presented in this valuation.

Interest Rate Risk

Definition: The potential that interest rates will be different than expected.

Identification: The pension liabilities reported herein have been calculated by computing the present value of expected future benefit payments using the interest rate described in Appendix A. If interest rates in future valuations differ from this valuation, future pension liabilities, funding contributions, and funded status may differ significantly from those presented in this valuation. As a general rule, using a higher interest rate to compute the present value of future benefit payments will result in a lower pension liability, and vice versa. One aspect that can be used to estimate the impact of different interest rates is a plan's duration.

Assessment: If the interest rate changes by 1%, the estimated percentage change in pension liability is a plan's duration in years. The approximate duration of this Plan is 11.8 years. As such, if the interest rate changes by 1%, the estimated change in pension liability is 11.8%.

Demographic Risks

Definition: The potential that mortality or other demographic experience will be different than expected.

Identification: The pension liabilities reported herein have been calculated by assuming that participants will follow patterns of demographic experience (e.g., mortality, withdrawal, disability, retirement, form of payment election, etc.) as described in Appendix A. If actual demographic experience or future demographic assumptions are different from what is assumed to occur in this valuation, future pension liabilities, funding contributions, and funded status may differ significantly from those presented in this valuation.