Horizon
Actuarial Services, LLC

Industry & Local 338 Pension Plan

Actuarial Update

April 23, 2019

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Today's Discussion

- **Funding Projections**
- **2018 Survey of Capital Market Assumptions**
- **Appendix**

Funding Projections

Projection Assumptions and Methods

- **Unless otherwise stated, the projection assumptions, methods, data and plan provisions used are the same as those used for the July 1, 2018 actuarial valuation.**
  - Benefit changes made by the Rehabilitation Plan are first reflected in the July 1, 2018 valuation.
  - No assumption changes to account for possible changes to participant behavior due to benefit changes.
  - No future expected gains or losses other than those attributable to investment returns, as applicable.
  - Rehabilitation Period: July 1, 2020 – June 30, 2030
- **Investment Earnings**
  - 7.50% per year, net of investment-related expenses, beginning July 1, 2018
- **Operating Expenses**
  - $375,000 for the plan year beginning July 1, 2018 (PYB 2018), increasing 3.0% per year

Other assumptions may be reasonable and could produce different results.
Other risks can negatively impact the funded status of the plan such as participants living longer than assumed. Additional scenarios available upon request.

Projection Assumptions and Methods (cont.)

- **Work Levels**
  - No Employer Withdrawals: 11,700 total weeks for PYB 2018
  - Reflecting Anticipated Employer Withdrawals:
    - Culinart withdrawal May 10, 2019: 11,500 total weeks for PYB 2018
    - College of New Rochelle withdrawal July 8, 2019: 9,800 total weeks for each plan year beginning July 1, 2019 (PYB 2019)
- **Contribution Rates**
  - 30% of hours worked under contracts that are expected to renew in PYB 2018
    - Westchester Local 860 & Friesland
  - 14% of hours worked under contracts beginning that are expected to renew in PYB 2019
    - LP Transport
  - 56% of hours worked under contracts beginning that are expected to renew in PYB 2020
    - HP Hood / Crowley, Montefiore New Rochelle, Paraco
- **No withdrawal liability payments collected, unless specified.**

Other assumptions may be reasonable and could produce different results.
Other risks can negatively impact the funded status of the plan such as participants living longer than assumed. Additional scenarios available upon request.

Contract Summary

Employer	Contract Expiration Date	Active Count (Valn Data)	Total Wkly Contrib Rate	Expected Weeks Worked	Expected Date of Withdrawal	Estimated Withdrawal Liability	Estimated Annual Payment	Estimated Number of Payments
		As of 7/1/2018				For a withdrawal in PYB 2017		
College of New Rochelle	8/31/2019	17	$ 208.95	850	7/6/2019	$2,700,000	$160,000	20 years
Crowley LaFargeville	10/31/2020	92	286.43	4,500				
Culinart	12/31/2016	20	267.15	1,000	5/10/2019	$2,809,958	$201,598	20 years
Freisland Campina	12/31/2018	59	247.60	2,900				
LP Transport	8/15/2019	29	322.75	1,400				
Montefiore New Rochelle	11/5/2020	12	251.61	600				
Paraco Gas	1/31/2021	8	245.15	400				
Westchester L860	9/30/2013	1	243.28	50				
		238		11,700				

1) All contributions are benefit-bearing, effective beginning July 1, 2016.
2) Contribution rates shown above are as reported by Plan Administrator.
3) Contribution rates as of 7/1/2018 include surcharges for College of New Rochelle, Culinart, Friesland Campina, Westchester L 860.
4) Estimated withdrawal liability for the College is a rough estimate based on valuation contribution data.
5) Estimated withdrawal liability for Culinart was provided at the company's request 1/3/2019.

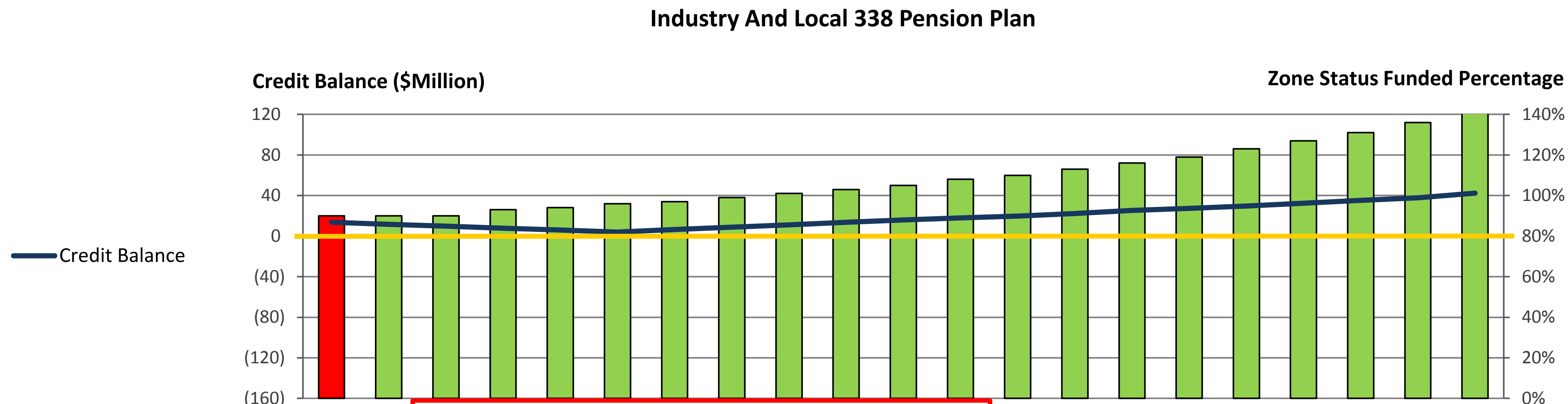
Projection Roadmap – No Additional Rate Increases

Scenario	Investment Return PYE 2019 / PYE 2020+	Weeks Worked Each year PYE 2019+	Zone Status 2019-2020 / 2020-2021	RP Requires Emergence 7/1/2030 Emerge	EOY FSA Balance	% Funded 7/1/2030	Weekly Contrib Rate 7/1/2030
1 Baseline; No withdrawals	7.50% / 7.50%	11,700	Green / Green	Yes	$18M	110%	$287
2 Baseline; College and Culinart Withdraw No Withdrawal Liability Payments	7.50% / 7.50%	9,800	Green / Green	Yes	$13M	106%	$299
3 College and Culinart Withdraw, Culinart pays Withdrawal Liability	7.50% / 7.50%	9,800	Green / Green	Yes	$17M	109%	$299
4 College and Culinart Withdraw, Culinart pays Withdrawal Liability Reflect YTD Investment Return	2.34% / 7.50%	9,800	Green / Green	Yes	$9M	99%	$299
5 Change Valuation Discount Rate College and Culinart Withdraw, Culinart pays Withdrawal Liability Reflect YTD Investment Return	2.34% / 7.25%	9,800	Red / Red	Yes	$5M	93%	$299

Other assumptions may be reasonable and could produce different results.
Other risks can negatively impact the funded status of the plan such as participants living longer than assumed.
Additional scenarios available upon request.

Scenario 1: All Employers Continue

Eliminates All Adjustable Benefits | 7.50% Return PYB 2018+ | 11.7 Thousand Weeks Worked beginning PYB 2018 | Current CBA Contribution Increases only



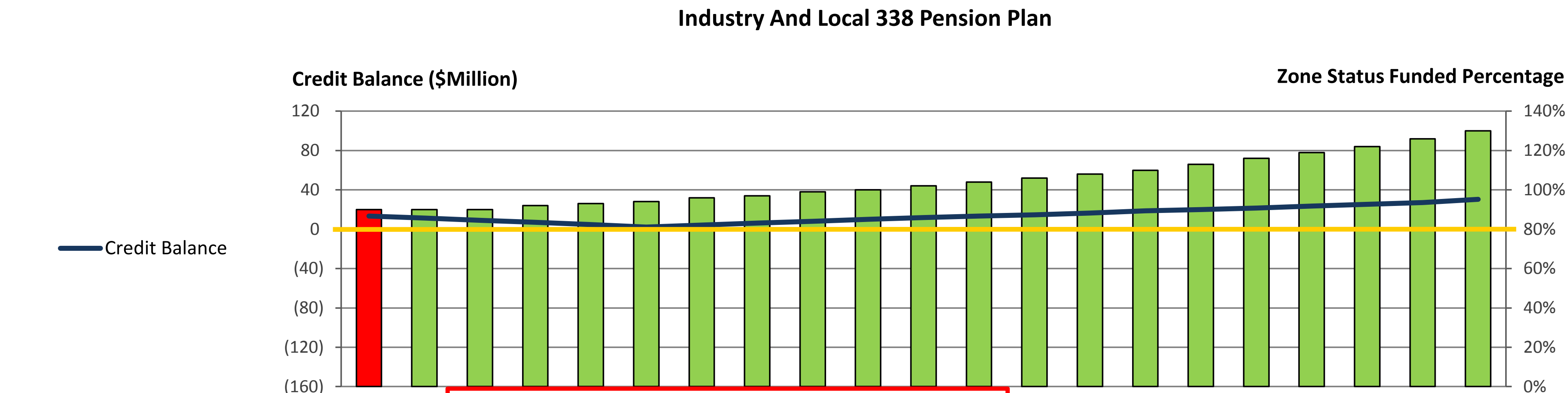
Plan Year Beginning 7/1	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
(1) Investment Return (%)	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
(2) Weeks Worked(Thousands)	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
(3) Weekly Contribution Rate ($)	274	284	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287	287
(4) Contributions+EWL Payments($M)	3.2	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
(5) Actuarial Value of Assets ($M)	93	92	93	95	96	98	99	101	102	104	105	107	109	111	113	115	118	120	123	126	129
(6) Zone Status Liability ($M)	102	102	102	102	102	102	101	101	100	100	99	99	98	98	97	96	95	94	93	92	91
(7) Credit Balance ($M)	14	12	10	8	6	4	6	9	11	14	16	18	20	22	25	27	30	32	35	38	42
(8) Zone Status Funded Percentage	90%	90%	90%	93%	94%	96%	97%	99%	101%	103%	105%	108%	110%	113%	116%	119%	123%	127%	131%	136%	141%

Notes

1) Effective July 1, 2016, all contributions (and future rate increases, if any) are benefit-bearing. See graph for detail regarding assumed rate increases.
2) Benefit changes made by the RP are reflected beginning in the July 1, 2018 plan year.

Scenario 2: Two Employers Withdraw

7.50% Return PYB 2018+ | 9.8 Thousand Weeks Worked beginning PYB 2019 | Current CBA Contribution Increases only | No Withdrawal Liability Payments Collected



Plan Year Beginning 7/1	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
(1) Investment Return (%)	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
(2) Weeks Worked(Thousands)	11.5	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
(3) Weekly Contribution Rate ($)	274	296	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299
(4) Contributions+EWL Payments($M)	3.2	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
(5) Actuarial Value of Assets ($M)	93	92	92	94	95	96	97	97	98	99	100	101	103	104	105	107	108	110	112	114	116
(6) Zone Status Liability ($M)	102	102	102	102	101	101	100	100	99	99	98	97	97	96	95	94	93	92	91	90	89
(7) Credit Balance ($M)	13	11	9	7	5	2	4	6	8	10	12	13	15	16	19	20	22	23	25	27	30
(8) Zone Status Funded Percentage	90%	90%	90%	92%	93%	94%	96%	97%	99%	100%	102%	104%	106%	108%	110%	113%	116%	119%	122%	126%	130%

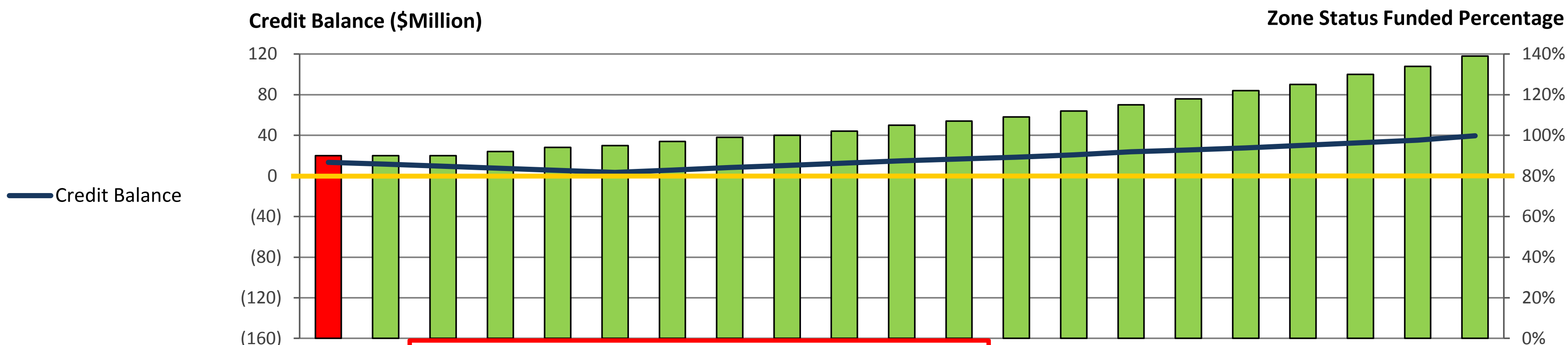
Notes

1) Effective July 1, 2016, all contributions (and future rate increases, if any) are benefit-bearing. See graph for detail regarding assumed rate increases.
2) Benefit changes made by the RP are reflected beginning in the July 1, 2018 plan year.

Scenario 3: Two Employers Withdraw; Withdrawal Liability Paid

7.50% Return PYB 2018+ | 9.8 Thousand Weeks Worked beginning PYB 2019 | Current CBA Contribution Increases only | Culinart Withdrawal Liability Payments Collected

Industry And Local 338 Pension Plan



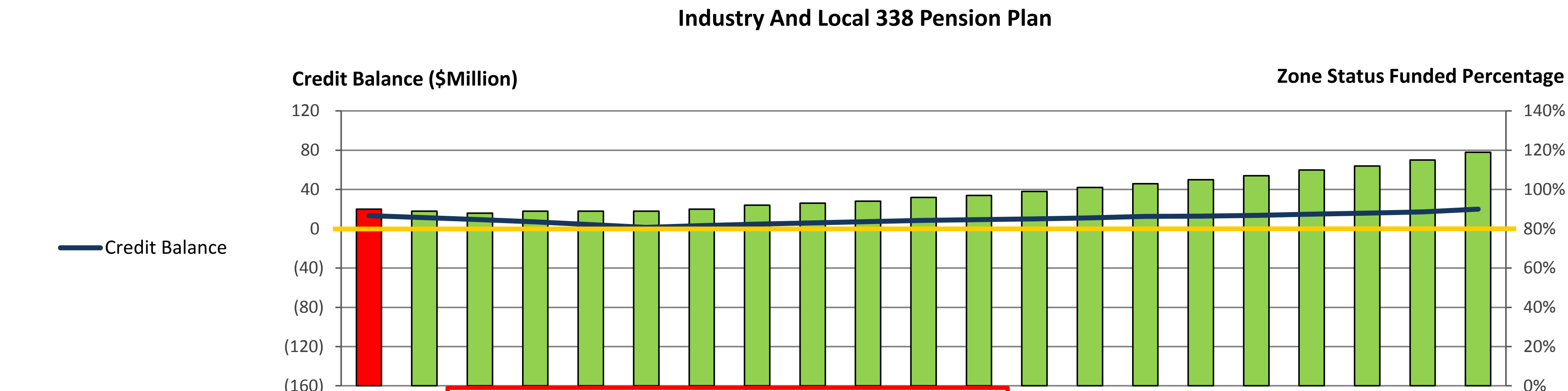
Plan Year Beginning 7/1	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
(1) Investment Return (%)	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
(2) Weeks Worked(Thousands)	11.5	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
(3) Weekly Contribution Rate ($)	274	296	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299
(4) Contributions+EWL Payments($M)	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
(5) Actuarial Value of Assets ($M)	93	92	93	95	96	97	98	99	100	101	103	104	106	108	110	112	114	116	119	122	125
(6) Zone Status Liability ($M)	102	102	102	102	101	101	100	100	99	99	98	97	97	96	95	94	93	92	91	90	89
(7) Credit Balance ($M)	13	12	10	8	6	3	6	8	10	13	15	17	19	21	24	26	28	30	33	35	40
(8) Zone Status Funded Percentage	90%	90%	90%	92%	94%	95%	97%	99%	100%	102%	105%	107%	109%	112%	115%	118%	122%	125%	130%	134%	139%

Notes

1) Effective July 1, 2016, all contributions (and future rate increases, if any) are benefit-bearing. See graph for detail regarding assumed rate increases.
2) Benefit changes made by the RP are reflected beginning in the July 1, 2018 plan year.

Scenario 4: Reflect '18-'19 Plan Year-to-Date Investment Return

2.34% Return PYB 2018; 7.50% Return PYB 2019+ | 9.8 Thousand Weeks Worked beginning PYB 2019 | Current CBA Contribution Increases only | Culinart Withdrawal Liability Payments Collected



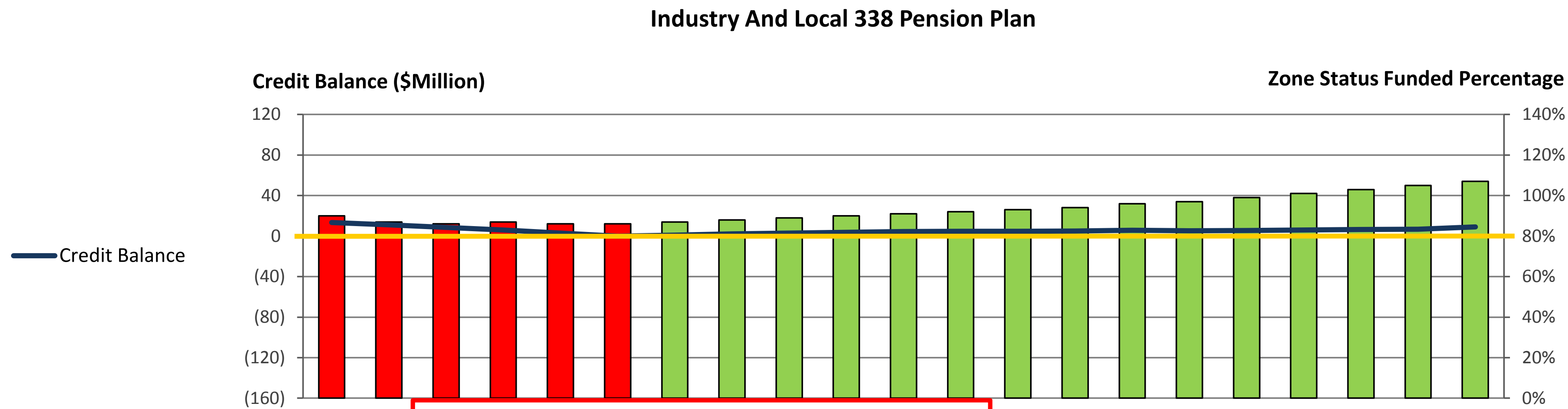
Plan Year Beginning 7/1	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
(1) Investment Return (%)	2.34	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
(2) Weeks Worked(Thousands)	11.5	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
(3) Weekly Contribution Rate ($)	274	296	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299
(4) Contributions+EWL Payments($M)	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
(5) Actuarial Value of Assets ($M)	93	91	90	91	91	91	91	92	93	93	94	95	96	97	98	99	100	102	103	105	107
(6) Zone Status Liability ($M)	102	102	102	102	101	101	100	100	99	99	98	97	97	96	95	94	93	92	91	90	89
(7) Credit Balance ($M)	13	11	9	7	4	1	3	5	6	7	9	9	10	11	13	13	14	15	16	17	20
(8) Zone Status Funded Percentage	90%	89%	88%	89%	89%	89%	90%	92%	93%	94%	96%	97%	99%	101%	103%	105%	107%	110%	112%	115%	119%

Notes

1) Effective July 1, 2016, all contributions (and future rate increases, if any) are benefit-bearing. See graph for detail regarding assumed rate increases.
2) Benefit changes made by the RP are reflected beginning in the July 1, 2018 plan year.

Scenario 5: Lower Interest Assumption to 7.25%

2.34% Return PYB 2018; 7.25% Return PYB 2019+ | 9.8 Thousand Weeks Worked beginning PYB 2019 | Current CBA Contribution Increases only | Culinart Withdrawal Liability Payments Collected



Plan Year Beginning 7/1	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
(1) Investment Return (%)	2.34	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
(2) Weeks Worked(Thousands)	11.5	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
(3) Weekly Contribution Rate ($)	274	296	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299	299
(4) Contributions+EWL Payments($M)	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
(5) Actuarial Value of Assets ($M)	93	91	90	91	90	90	90	90	91	91	91	92	92	93	93	94	95	95	96	97	98
(6) Zone Status Liability ($M)	102	105	105	104	104	103	103	102	102	101	100	99	99	98	97	96	95	94	93	92	91
(7) Credit Balance ($M)	13	11	9	6	3	(0)	1	2	3	4	4	5	5	5	6	5	6	6	6	7	9
(8) Zone Status Funded Percentage	90%	87%	86%	87%	86%	86%	87%	88%	89%	90%	91%	92%	93%	94%	96%	97%	99%	101%	103%	105%	107%

Notes

1) Effective July 1, 2016, all contributions (and future rate increases, if any) are benefit-bearing. See graph for detail regarding assumed rate increases.
2) Benefit changes made by the RP are reflected beginning in the July 1, 2018 plan year.

Observations

- **Favorable experience and conservative design of the Rehabilitation Plan have resulted in an improved projected funded status for the Plan**
  - Assuming valuation assumptions are met and active work levels for continuing actives remains level, the Plan is projected to emerge from critical status before the end of the Rehabilitation Period in most scenarios modeled

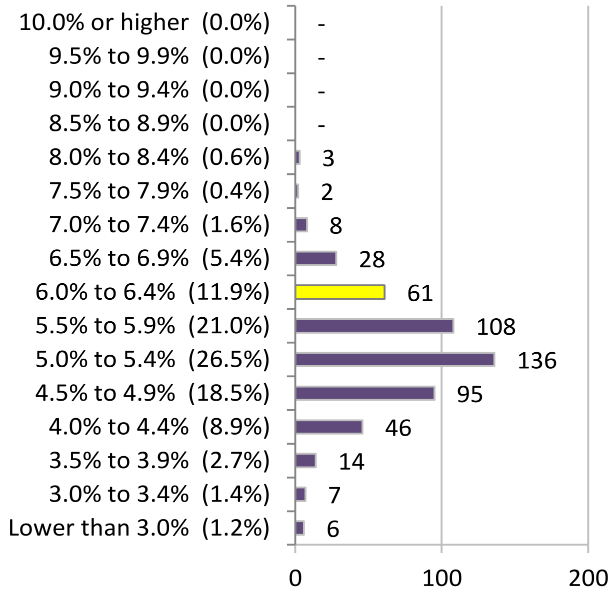
- **The Plan remains sensitive to both investment return and contribution levels**
  - Long term funding improvement is compromised if investment returns are less than assumed or contribution levels fall
  - Contribution rate increases like those anticipated by the Rehabilitation Plan may be required to keep the Plan well funded in the long term.

2018 Survey of Capital Market Assumptions

Annualized Investment Return: Actual vs. Expected

Annualized Returns: 2002 - 2016

Multiemployer Defined Benefit Pension Plans:
All Industries

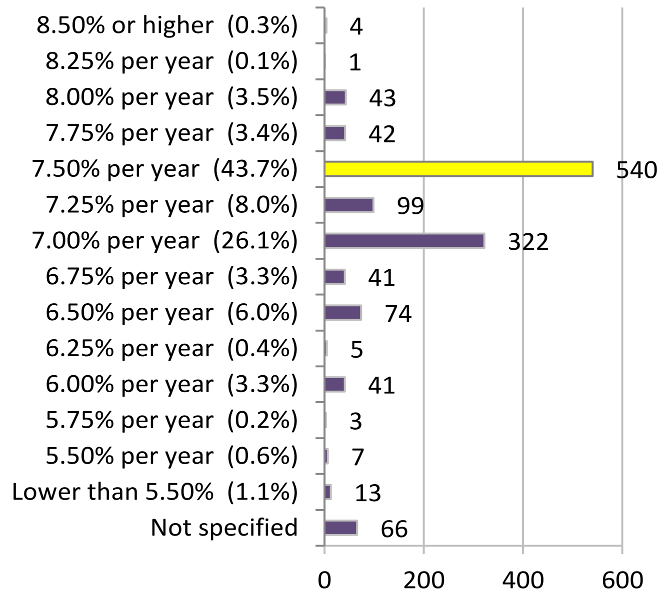


Median Annualized Return: 5.33% per Year
Subset of 514 Calendar Year Plans
Source: Form 5500 Data

I&L 338: 6.05%

Investment Return Assumptions

Multiemployer Defined Benefit Pension Plans:
All Industries



Median Investment Return Assumption: 7.50%
Total Plans: 1,301 Source: 2015-2016 Form 5500 data.

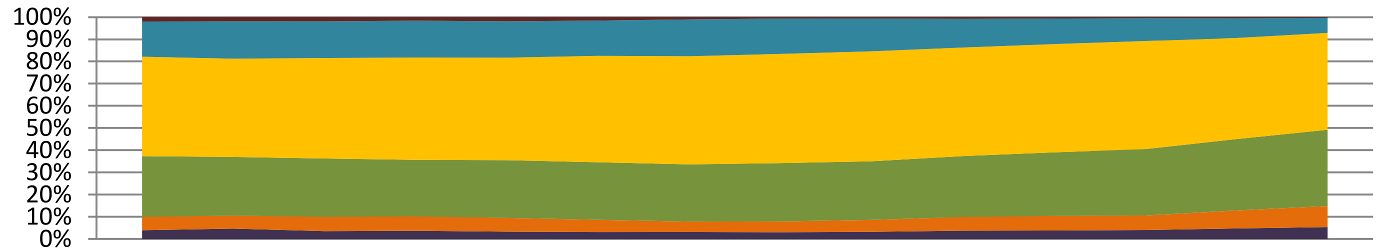
I&L 338: 7.50%

- Results may not be comparable for non-calendar plan years.
- Actual return results include only those calendar year plans with complete Form 5500 data for the 15-year period from 1/1/2002 to 12/31/2016.
- Note: 15 years is too short of a time horizon to draw conclusions about long-term investment policies.

Changes in Expected Return

Distribution of Investment Return Assumptions

Multiemployer Defined Benefit Pension Plans: All Industries



Plan Year Beginning	2002	2003	2004	2005	2006	2007	2009	2010	2011	2012	2013	2014	2015	2016
Number of Plans	1,205	1,211	1,204	1,230	1,258	1,266	1,156	1,169	1,193	1,217	1,216	1,224	1,232	1,109
> 8.00%	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	0%	1%	0%
7.51% to 8.00%	16%	17%	17%	17%	16%	16%	17%	16%	15%	13%	12%	10%	9%	7%
Exactly 7.50%	45%	44%	45%	46%	46%	48%	49%	49%	50%	49%	49%	49%	46%	44%
7.00% to 7.49%	27%	26%	26%	25%	26%	26%	26%	26%	26%	27%	29%	30%	32%	34%
6.50% to 6.99%	6%	6%	6%	7%	6%	6%	5%	5%	5%	6%	7%	7%	8%	9%
< 6.50%	4%	5%	4%	4%	3%	3%	3%	3%	3%	4%	4%	4%	5%	5%
I&L 338	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%

Source: Form 5500 Data

- Exhibit shows distribution of investment return assumptions, plan year by plan year.
- In general, investment return assumptions have decreased only slightly from 2002 to 2016
- Note: Data not shown for 2008. Data was not gathered electronically for 2008 plan year.

2018 Survey: Overview

- **Capital market assumptions:**
  - Expected returns by asset class
  - Standard deviations by asset class
  - Correlation coefficient matrix
- **34 survey participants**
  - 27 advisors to multiemployer pension plans
  - 4 published white papers
  - 3 advisors outside the multiemployer community
- **Short-term vs. long-term:**
  - "Short-term" considered to be 10 years or less
  - "Long-term" considered to be 20 years or more
  - All 34 respondents provided short-term assumptions
  - 13 respondents also provided long-term assumptions

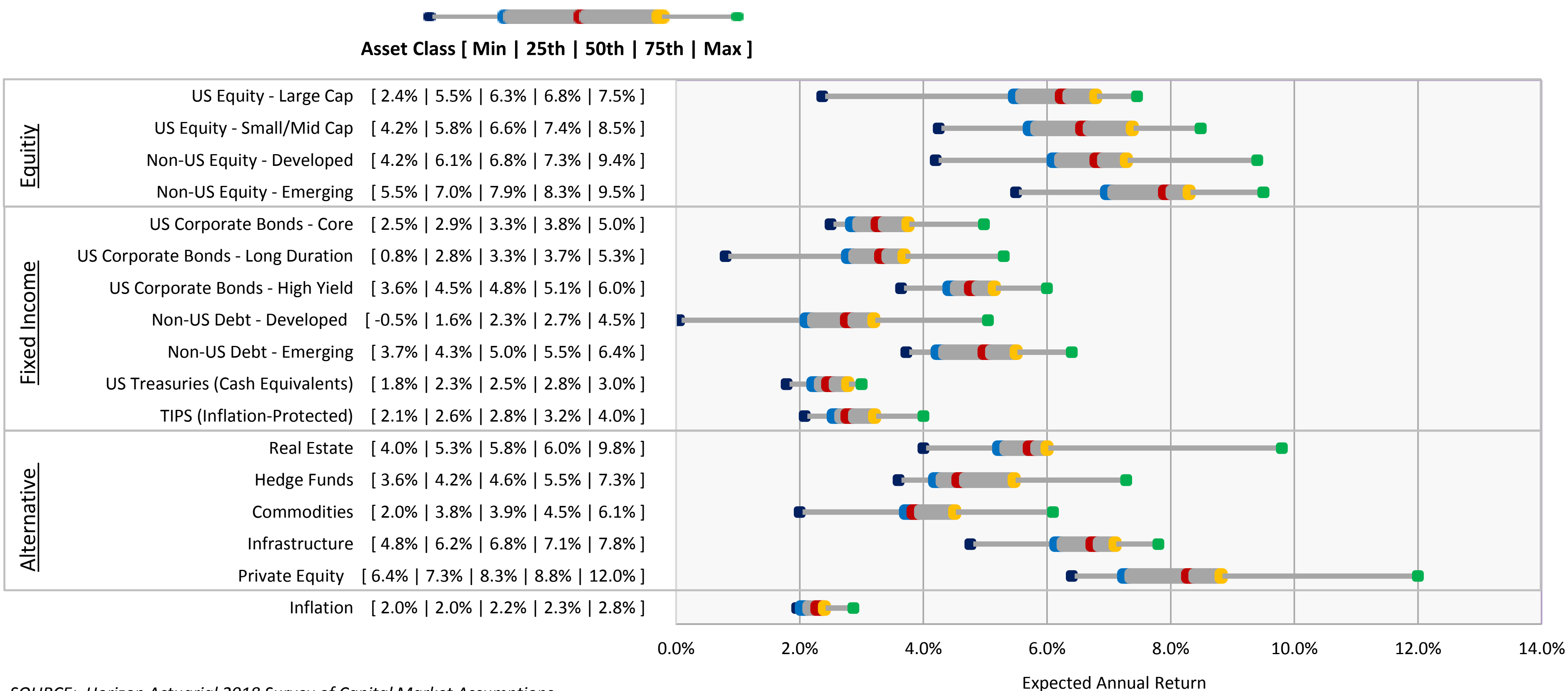
2018 Survey Participants	
AJ Gallagher	*Marquette Associates*
Alan Biller	*Meketa Investment Group*
AndCo Consulting	*Merrill Lynch Global Institutional Consulting*
Aon Hewitt	*Morgan Stanley Wealth Management*
The Atlanta Consulting Group	*New England Pension Consultants (NEPC)*
*Bank of New York Mellon**	*Pavilion Advisory Group*
*BlackRock**	*Pension Consulting Alliance*
Callan Associates	*The PFM Group*
*Cambridge Associates***	*RVK*
CapTrust	*Segal Marco Advisors*
Ellwood Associates	*SEI*
*Envestnet***	*Sellwood Consulting*
Goldman Sachs Asset Management	*Summit Strategies Group*
Graystone Consulting	*UBS*
Investment Performance Services, LLC (IPS)	*Verus*
Janney Montgomery Scott LLC	*Voya Investment Management**
*J.P. Morgan Asset Management**	*Willis Towers Watson***

* Assumptions obtained from published white paper
** Respondent outside multiemployer community

The full report can be found at www.horizonactuarial.com.

2018 Survey: Distribution of Expected Returns (10-yr)

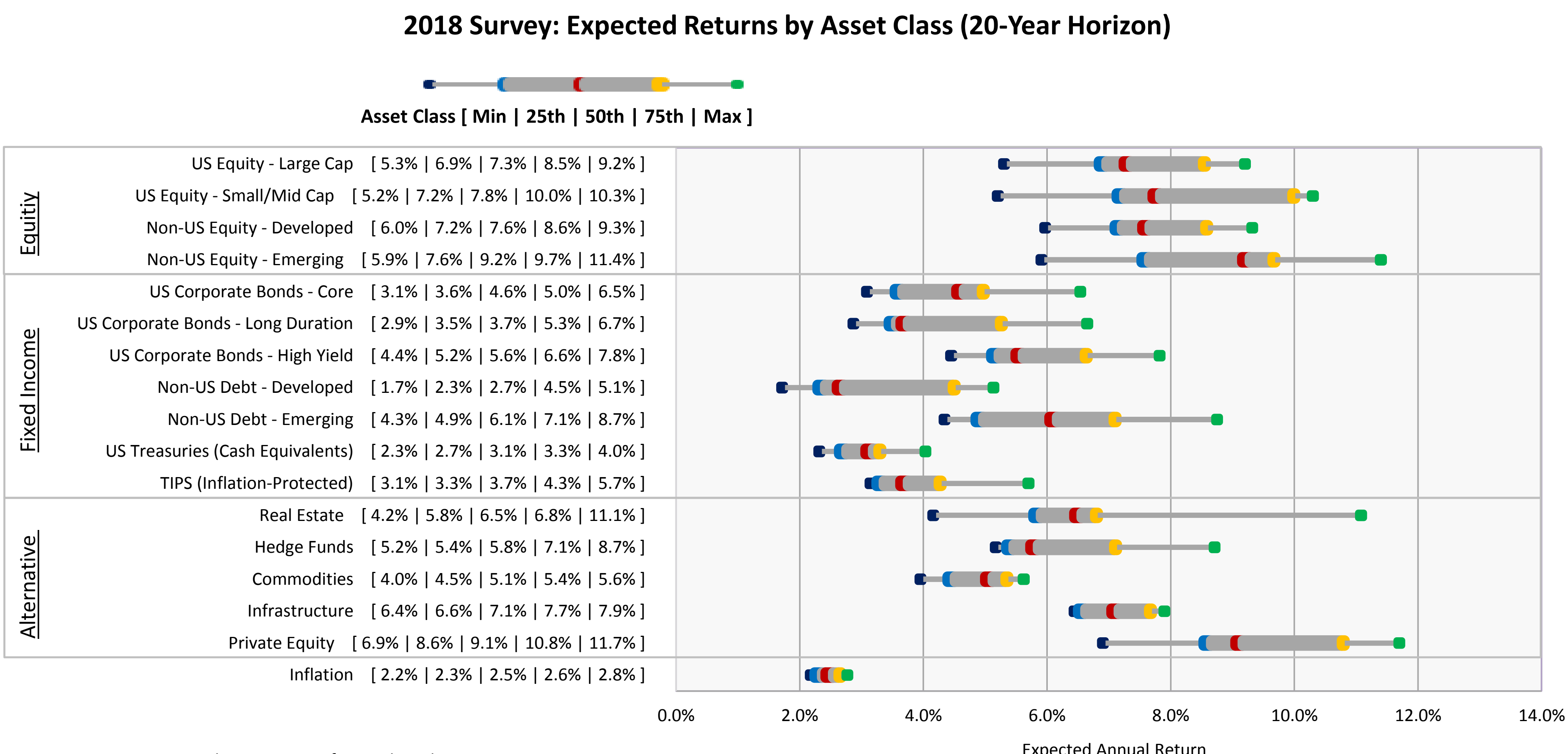
2018 Survey: Expected Returns by Asset Class (10-Year Horizon)



SOURCE: Horizon Actuarial 2018 Survey of Capital Market Assumptions
Expected returns are annualized over 10 years (geometric).

For consistency and completeness, assumptions are based on a 10-year horizon. See the full report for a distribution based on a 20-year horizon.

2018 Survey: Distribution of Expected Returns (20-yr)



SOURCE: Horizon Actuarial 2018 Survey of Capital Market Assumptions

Expected returns are annualized over 20 years (geometric), based on a subset of 13 advisors who provided longer term assumptions.

The exhibit above shows a distribution based on a 20-year horizon for the subset of 13 advisors who provided longer-term assumptions. See the full report for a distribution based on a 10-year horizon which includes assumptions from all 34 participating advisors.

2018 Survey: Average Assumptions

Horizon Actuarial 2018 Survey of Capital Market Assumptions

Average Survey Assumptions

		Expected Returns				
		10-Year Horizon		20-Year Horizon		Standard
	Asset Class	Arith.	Geom.	Arith.	Geom.	Deviation
1	US Equity - Large Cap	7.34%	6.07%	8.73%	7.42%	16.39%
2	US Equity - Small/Mid Cap	8.49%	6.57%	10.13%	8.18%	20.20%
3	Non-US Equity - Developed	8.36%	6.71%	9.46%	7.71%	18.67%
4	Non-US Equity - Emerging	10.52%	7.64%	11.94%	8.82%	24.89%
5	US Corporate Bonds - Core	3.54%	3.37%	4.63%	4.46%	5.71%
6	US Corporate Bonds - Long Duration	3.90%	3.32%	5.14%	4.44%	10.83%
7	US Corporate Bonds - High Yield	5.29%	4.78%	6.44%	5.82%	10.24%
8	Non-US Debt - Developed	2.37%	2.18%	3.56%	3.22%	6.86%
9	Non-US Debt - Emerging	5.63%	5.00%	6.85%	6.13%	11.43%
10	US Treasuries (Cash Equivalents)	2.55%	2.48%	3.10%	3.05%	2.74%
11	TIPS (Inflation-Protected)	3.08%	2.88%	4.26%	4.04%	6.25%
12	Real Estate	6.89%	5.90%	7.67%	6.66%	13.86%
13	Hedge Funds	5.29%	4.96%	6.61%	6.19%	7.87%
14	Commodities	5.46%	3.97%	6.47%	4.92%	17.60%
15	Infrastructure	7.61%	6.56%	8.24%	7.14%	14.74%
16	Private Equity	10.72%	8.33%	12.17%	9.52%	22.16%
	Inflation	2.24%	2.24%	2.48%	2.47%	1.76%

Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.00															
2	0.89	1.00														
3	0.84	0.76	1.00													
4	0.72	0.67	0.79	1.00												
5	0.12	0.07	0.14	0.14	1.00											
6	0.11	0.05	0.13	0.10	0.83	1.00										
7	0.61	0.60	0.60	0.62	0.36	0.26	1.00									
8	0.17	0.11	0.30	0.24	0.55	0.55	0.24	1.00								
9	0.54	0.49	0.58	0.66	0.44	0.37	0.59	0.41	1.00							
10	(0.10)	(0.12)	(0.09)	(0.07)	0.33	0.28	(0.03)	0.26	0.06	1.00						
11	0.05	0.01	0.10	0.16	0.68	0.57	0.31	0.52	0.40	0.33	1.00					
12	0.44	0.41	0.40	0.33	0.10	0.11	0.30	0.09	0.24	0.03	0.10	1.00				
13	0.66	0.64	0.68	0.67	0.14	0.06	0.58	0.15	0.48	(0.07)	0.13	0.35	1.00			
14	0.31	0.29	0.39	0.43	0.10	0.03	0.35	0.22	0.34	0.02	0.26	0.24	0.42	1.00		
15	0.54	0.49	0.53	0.47	0.20	0.21	0.41	0.33	0.43	(0.08)	0.18	0.31	0.41	0.29	1.00	
16	0.73	0.69	0.70	0.61	0.03	0.03	0.48	0.10	0.40	(0.08)	0.04	0.39	0.60	0.30	0.39	1.00

SOURCE: Horizon Actuarial 2018 Survey of Capital Market Assumptions

Expected returns over a 10-year horizon include all 34 survey participants.

Expected returns over a 20-year horizon are based a subset of 13 survey participants who provided long-term assumptions.

- *Each of the 34 advisors was given equal weight in determining the average assumptions.*
- *For reference, expected returns are shown over 10-year and 20-year horizons.*
- *Expected returns are also provided on both an arithmetic basis (one-year average) and geometric basis (multi-year annualized).*
- *The standard deviations (volatilities) and correlations apply to both arithmetic and geometric expected returns.*

2018 Survey: Evaluating the Return Assumption

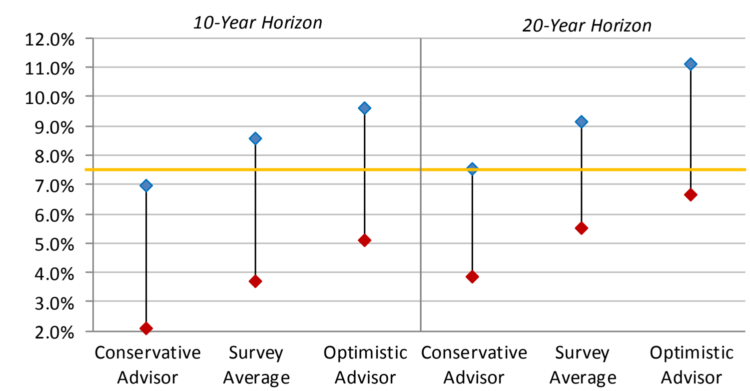
Industry & Local 338 Pension Plan

Target Allocation as of July 31, 2018

Asset Class	Portfolio Weight	*Average Survey Assumptions* 10-Year Horizon	20-Year Horizon	Standard Deviation
US Equity - Large Cap	25.0%	6.07%	7.42%	16.39%
US Equity - Small/Mid Cap	7.5%	6.57%	8.18%	20.20%
Non-US Equity - Developed	17.5%	6.71%	7.71%	18.67%
Non-US Equity - Emerging	-	7.64%	8.82%	24.89%
US Corporate Bonds - Core	5.0%	3.37%	4.46%	5.71%
US Corporate Bonds - Long Duration	10.0%	3.32%	4.44%	10.83%
US Corporate Bonds - High Yield	10.5%	4.78%	5.82%	10.24%
Non-US Debt - Developed	-	2.18%	3.22%	6.86%
Non-US Debt - Emerging	3.0%	5.00%	6.13%	11.43%
US Treasuries (Cash Equivalents)	-	2.48%	3.05%	2.74%
TIPS (Inflation-Protected)	-	2.88%	4.04%	6.25%
Real Estate	10.0%	5.90%	6.66%	13.86%
Hedge Funds	7.0%	4.96%	6.19%	7.87%
Commodities	-	3.97%	4.92%	17.60%
Infrastructure	-	6.56%	7.14%	14.74%
Private Equity	4.5%	8.33%	9.52%	22.16%
Inflation	N/A	2.24%	2.47%	1.76%
TOTAL PORTFOLIO	**100.0%**	*Expected returns are geometric.*		

	10-Year Horizon Conservative Advisor	Survey Average	Optimistic Advisor	*20-Year Horizon* Conservative Advisor	Survey Average	Optimistic Advisor
Expected Returns						
Average Annual Return (Arithmetic)	5.13%	6.77%	7.87%	6.41%	8.00%	9.89%
Annualized Return (Geometric)	4.52%	$\boxed{6.15\%}$	7.36%	5.71%	$\boxed{7.33\%}$	8.89%
Annual Volatility (Standard Deviation)	11.35%	11.48%	10.53%	12.18%	12.03%	14.78%
Range of Expected Annualized Returns						
◆ 75th Percentile	6.94%	8.60%	9.60%	7.55%	9.14%	11.12%
◆ 25th Percentile	2.10%	3.70%	5.11%	3.87%	5.51%	6.66%
Probabilities of Exceeding Certain Returns						
8.00% per Year, Annualized	16.6%	30.5%	42.4%	20.0%	40.1%	60.6%
7.50% per Year, Annualized	20.3%	$\boxed{35.5\%}$	48.3%	25.5%	$\boxed{47.5\%}$	66.3%
7.00% per Year, Annualized	24.5%	40.7%	54.3%	31.8%	54.9%	71.7%

Ranges of Expected Annualized Returns



Considerations and Limitations

- Allocations may be approximated if certain asset classes are not included in the survey.
- Many investment advisors provided only shorter-term assumptions (10 years or less).
- Assumptions are based on indexed returns and do not reflect anticipated alpha.
- Assumptions do not reflect investment opportunities or fee considerations available to larger funds.

SOURCE: Horizon Actuarial 2018 Survey of Capital Market Assumptions

Expected returns over a 10-year horizon include all 34 survey participants.

Expected returns over a 20-year horizon are based a subset of 13 survey participants who provided long-term assumptions.

The exhibit above evaluates the investment return assumption for the portfolio shown above (highlighted in yellow). Note that the most conservative and optimistic advisors for the 10-year horizon are not necessarily the same as the most conservative and optimistic advisors for the 20-year horizon.

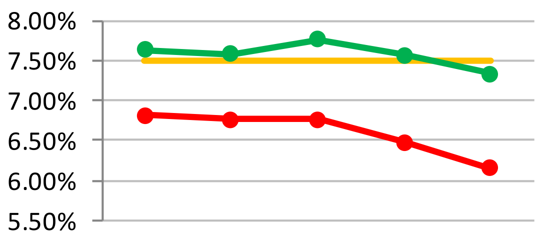
Changes in Expected Returns

- **Average assumptions change each year**
  - Mostly driven by changing return expectations
  - Changes in survey participants is also a factor

- **Focus on sustained trends**
  - It is generally not be appropriate to change investment return assumption each year
  - Consider sustained trends when evaluating and updating assumption?

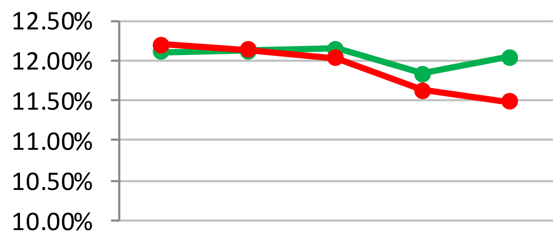
- **The following graphs show the survey average results for the past five years**
  - Changes in individual plan results shown below may also be driven by changes in asset allocation

Annualized Expected Returns



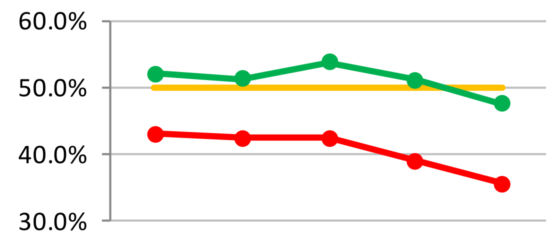
Survey Year	2014	2015	2016	2017	2018
20-Yr	7.63%	7.58%	7.76%	7.56%	7.33%
10-Yr	6.82%	6.76%	6.76%	6.47%	6.15%

Expected Annual Volatility



Survey Year	2014	2015	2016	2017	2018
20-Yr	12.1%	12.1%	12.1%	11.8%	12.0%
10-Yr	12.2%	12.1%	12.0%	11.6%	11.5%

Probability of Meeting 7.50% Benchmark



Survey Year	2014	2015	2016	2017	2018
20-Yr	52.0%	51.2%	53.8%	51.0%	47.5%
10-Yr	43.0%	42.3%	42.3%	39.0%	35.5%

Appendix

Contribution Rate Summary

Employer	Contract Expiration Date	As of 7/1/2016 Active Count (Valn Data)	As of 7/1/2016 Total Wkly Contrib Rate	As of 7/1/2017 Active Count (Valn Data)	As of 7/1/2017 Total Wkly Contrib Rate	As of 7/1/2018 Active Count (Valn Data)	As of 7/1/2018 Total Wkly Contrib Rate
College of New Rochelle	8/31/2013	13	$ 174.00	20	$ 174.00	17	$ 208.95
Crowley LaFargeville	10/31/2020	100	272.79	96	286.43	92	286.43
Culinart	12/31/2016	19	226.91	21	226.91	20	267.15
Freisland Campina	12/31/2018	63	205.09	56	215.09	59	247.60
LP Transport	8/15/2019	27	276.80	25	290.80	29	322.75
Montefiore New Rochelle	11/5/2020	12	234.06	12	234.06	12	251.61
Paraco Gas	1/31/2021	8	227.60	7	227.60	8	245.15
Westchester L860	9/30/2013	1	205.21	1	205.21	1	243.28
Total		243		238		238	

Notes

1) All contributions are benefit-bearing, effective beginning July 1, 2016.
2) Contribution rates shown above are as reported by Plan Administrator.
3) Contribution rates as of 7/1/2018 include surcharges for College of New Rochelle, Culinart, Friesland Campina, Westchester L 860

Historical Contribution Rates by Contract

Employer	Base Rate	As of Plan Year Ending 2010	2011	2012	2013	2014	2015	2016	2017	2018
College of New Rochelle	$ 110.44	$ 130.40	$ 143.60	$ 158.00	$ 174.00	$ 174.00	$ 174.00	$ 174.00	$ 174.00	$ 208.95
Crowley LaFargeville	130.00	154.00	169.00	186.34	204.97	225.47	248.00	272.79	286.43	286.43
Culinart	108.44	128.08	141.08	154.98	170.48	187.53	206.28	226.91	226.91	267.15
Freisland Campina	100.12	121.13	133.25	146.57	161.23	177.35	195.09	205.09	215.09	247.60
LP Transport	160.00	160.00	176.00	192.00	208.00	228.80	251.60	276.80	290.80	322.75
Montefiore New Rochelle	120.12	145.33	159.86	175.85	193.44	212.78	234.06	234.06	234.06	251.61
Paraco Gas	124.00	140.00	148.00	156.00	172.00	188.00	206.80	227.60	227.60	245.15
Westchester L860	130.15	154.17	169.59	186.55	205.21	205.21	205.21	205.21	205.21	243.28

Notes

1) Effective July 1, 2016, all contributions (and future rate increases, if any) are benefit-bearing.
2) Contribution rates for 2018 include surcharges for College of New Rochelle, Culinart, Friesland Campina, Westchester L 860

Summary of Assumptions and Methods

Assumption or Method	Description of Assumption or Method
Interest Rate	7.50% per annum.
Plan Year	The twelve-month period beginning July 1 and ending June 30.
Mortality	Non-Disabled: Non-annuitant: 125% of the sex-distinct RP-2014 Blue Collar Employee Mortality Table Annuitant: 125% of the sex-distinct RP-2014 Blue Collar Annuitant Mortality Table Disabled: 125% of the sex-distinct RP-2014 Disabled Mortality Tables All mortality tables are adjusted to future years using generational projection under Scale MP-2014 to anticipate future mortality improvement.
Active Participant	Active participants are defined as those with at least two months of employment in the most recent plan year and who have accumulated at least one pension credit, excluding those who have retired as of the valuation date and those who work for an employer that has withdrawn from the Plan on or before the valuation date.
Exclusion of Inactive Vested Participants	Inactive participants over age 70 are excluded from the valuation.
Operating Expenses	Operating expenses were assumed to be $375,000 for the plan year beginning July 1, 2018 (equivalent to $360,672 payable at the beginning of the year).

Summary of Assumptions and Methods

Assumption or Method	Description of Assumption or Method		
Retirement Rates	**Age** (if eligible for retirement)	**Retirement Rate**	
	55-59	10%	
	60-61	20%	
	62	75%	
	63-65	50%	
	66-69	25%	
	70	100%	
Inactive Vested Commencement	Retirement is assumed to occur at age 65 for participants with fewer than 15 pension credits, and at the later of current age or age 55 for participants with at least 15 pension credits.		
Sample Rates (before Retirement)	**Age**	**Disability Rate (%)**	**Withdrawal Rate (%)** (until earliest eligibility for a pension)
	20	0.05	6.58
	25	0.05	5.27
	30	0.05	4.83
	35	0.06	4.47
	40	0.09	3.84
	45	0.18	3.21
	50	0.40	1.52
	55	0.85	0.33
	60	1.74	0.00

Summary of Assumptions and Methods

Assumption or Method	Description of Assumption or Method
Weeks (Hours) Worked	Average of weeks worked in the preceding plan year. For the plan year beginning July 1, 2018, each active participant is assumed to work 49 weeks (1,960 hours) per year. For the plan year beginning July 1, 2017 the assumption was 49 weeks (1,960 hours) per active participant per year.
Future Benefit Accruals	One pension credit per plan year.
Contribution Income	For the purpose of projecting future contribution income, it is assumed contributions are earned based on the total number of hours worked for participants during the plan year preceding the valuation date. Participants are assumed to continue to work for the employer reported in the data and at the rate required by that employer's contract.
Asset Method	The market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the projected market return, and is recognized over a five-year period (10-year period for the plan year investment loss in the year ended June 30, 2009). The actuarial value is further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method	Unit Credit Cost Method.

Summary of Assumptions and Methods

Assumption or Method	Description of Assumption or Method
Form of payment	Unmarried participants are assumed to elect a Life Annuity. Married participants are assumed to elect a reduced 75% Joint and Survivor Annuity.
Marriage	75% of participants are assumed married.
Spouse Age	Wives are assumed to be three years younger than their husbands, if actual age is unknown.
Missing or Incomplete Participant Data	Assumed to be the same as those exhibited by participants with similar known characteristics. For those with unknown gender, gender was assumed to be male.
Unfunded Vested Benefits for Employer Withdrawals	Interest: • For liabilities up to the market value of assets, liabilities are valued using interest rates used by PBGC for plan terminations. For the July 1, 2018 valuation these are 2.27% and 2.59% (for 20 years and thereafter, respectively). Operating expenses as prescribed by PBGC formula (29CFR Part 4044, Appendix C) are included for liabilities determined using PBGC termination interest rates. • For liabilities in excess of the market value of assets, valued using 7.50% for all years. All other assumptions are the same as those used for the funding valuation.

Summary of Plan Provisions

Plan Provision	Description of Plan Provision
Plan Year	The twelve-month period beginning July 1 and ending June 30.
Participants	An Employee becomes a participant in the Plan on January 1 or July 1 after completing four months of covered employment in any consecutive 12-month period.
Normal Form of Payment	For unmarried participants, a Life Annuity. For married participants, actuarially reduced 75% Joint and Survivor Annuity.
Cost of Living Increases	None.
Benefit Service	¼ Pension Credit for each two months of covered employment, with a maximum of one pension credit after eight months. The maximum total pension credits for benefit purposes is 35.
Vesting Service	One year of vesting service for four months of covered employment.
Break-in-Service	A break in service occurs in any plan year in which the participant fails to complete at least two months of work. In determining whether a break in service has been incurred, work in non-covered employment that is credited as vesting service will be considered covered employment.

Summary of Plan Provisions

Plan Provision	Description of Plan Provision
Regular Pension	<u>Eligibility:</u> An Employee is eligible for a Regular Pension if the Employee has attained age 65 and has earned 15 pension credits. <u>Amount of Benefit:</u> Upon retirement on his Regular Retirement Date, a Participant will be entitled to receive a monthly benefit equal to: • For work after on or after July 1, 2016, monthly benefit accruals are equal to 0.9% of total contributions made for the participant's work. • For pension credit earned on or after July 1, 2010 and before July 1, 2016, $37.00 for each $1.00 of hourly (benefit-bearing) employer contribution rate. • For pension credits earned on or after July 1, 1997 and before July 1, 2010, the accrual rate is $49.00 for each $1.00 of hourly employer contribution rate. • For pension credits prior to July 1, 1997, the accrued benefit based on prior plan formula increased by 20.75%.
Vested Benefit	<u>Eligibility:</u> Five or more years of service. <u>Amount of Benefit:</u> Regular Pension Payable at Normal Retirement Age.

Summary of Plan Provisions

Plan Provision	Description of Plan Provision
Contribution Rates	For the period beginning September 28, 2006 and ending June 30, 2016, in the event a contributing employer is obligated to make a special Supplemental Contribution to the Fund solely for the purpose of improving the funding status of the Plan, such Supplemental Contributions shall not be included in the calculation of a Participant's pension benefit. Effective July 1, 2016, all contributions are benefit-bearing under the newly adopted benefit formula (0.9% x Total Contributions). For the plan year ended June 30, 2018, total contribution rates range from $191.55 to $305.20 per week.
Service Pension	<u>Eligibility:</u> 20, 25, 30 or 35 pension credits <u>Amount of Benefit:</u> At the Service Pension Commencement Date, a Participant will be entitled to receive a monthly benefit equal to his Normal Retirement Benefit actuarially reduced for early commencement. If the participant retired before January 1, 2018, the Service Pension is determined under the Plan rules in effect at that time.

Summary of Plan Provisions

Plan Provision	Description of Plan Provision
Early Pension	<u>Eligibility:</u> An Employee is eligible for an Early Pension if the Employee has attained age 55 and has earned 15 pension credits. <u>Amount of Benefit:</u> Upon the Early Retirement Date, At the Service Pension Commencement Date, a Participant will be entitled to receive a monthly benefit equal to his Normal Retirement Benefit actuarially reduced for early commencement. If the participant retired before January 1, 2018, the Early Pension is determined under the Plan rules in effect at that time.
Disability Pension	<u>Eligibility:</u> Effective July 1, 2018 there is no disability benefit available to participants who were not already receiving benefits under disability. <u>Amount of Benefit:</u> If the participant retires on a Disability Pension on or after July 1, 1997, the Disability Pension is the greater of (a) $400, or (b) the actuarial equivalent of the accrued benefit earned as of the last date worked. If the participant retired on a Disability Pension before July 1, 1997, the Disability Pension is determined under the Plan rules in effect at that time.

Summary of Plan Provisions

Plan Provision	Description of Plan Provision
Death Benefits	<u>Married:</u> If a participant is married and dies after earning the right to a Statutory Pension (5 years of service), the spouse will be entitled to a survivor benefit, as long as they were married for at least one year at the time of death. The spouse's monthly benefit is 75% of the benefit earned as of the day before death, subject to any reduction that would have applied for form of payment and payments before age 65. If the participant had not yet reached age 55, the benefit will be calculated as if they had reached age 55 and applied for an Early Retirement Pension immediately before death, with adjustment for form of payment and payments before age 65. <u>Unmarried:</u> For participant deaths after December 31, 2017, no death benefit is payable. If the participant died before January 1, 2018, death benefits are determined under the Plan rules in effect at that time
Special Death Benefit	For participant deaths after December 31, 2017, no death benefit is payable. If the participant died before January 1, 2018, death benefits are determined under the Plan rules in effect at that time

Actuarial Certification

We have prepared this actuarial report for use by the **Industry & Local 338 Pension Plan** (the "Plan"). This report has been prepared solely for the benefit of the Plan, and it is not complete without the accompanying discussion with a representative of Horizon Actuarial Services, LLC. This report should not be distributed to others not affiliated with the Plan or relied upon by any other person without prior written consent from Horizon Actuarial Services, LLC.

In preparing this report, we have relied on all the information and data provided by the Plan, including plan provisions and asset information, as being complete and accurate. We have not independently verified the accuracy or completeness of the data or information provided, but we have reviewed the data for reasonableness to the extent that we believe appropriate based on the purpose for which it has been used.

The analysis contained in this report may involve actuarial calculations. Actuarial calculations require that we make assumptions about future events. We have used assumptions that we believe are reasonable and appropriate for the purpose for which they have been used. Other assumptions may also be reasonable and could result in substantially different results. Because it is not possible or practical to model all aspects of a situation, we may use summary information, estimates, or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are immaterial in our judgment.

Future events and actual experience will vary from any assumptions we have used, and calculations prepared with actual data will vary from estimates or summaries used for modeling purposes. Actual future results will differ from our projections. As these differences arise, contributions and/or benefits may need to be adjusted to take these changes into account.

In our opinion, any methods, assumptions, and calculations are in accordance with the applicable provisions of the Internal Revenue Code and ERISA, and the procedures followed and presentation of results conform with generally accepted actuarial principles and practices. The undersigned consultants of Horizon Actuarial Services, LLC with actuarial credentials meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. There is no relationship between the Plan and Horizon Actuarial Services, LLC that affects our objectivity.

Mary Ann Dunleavy

Mary Ann Dunleavy, ASA, EA, MAAA
Consulting Actuary

Stanley I. Goldfarb, FSA, EA, MAAA
Actuary and Managing Consultant