

City of Allentown Officers and Employees Pension Plan

Actuarial Valuation Report as of January 1, 2021

Produced by Cheiron

September 2021

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September 29, 2021

City of Allentown Pension Board
Department of Finance, Room 227
435 Hamilton Street
Allentown, Pennsylvania 18101-1699

Dear Members of the Board:

At your request, we have conducted our annual actuarial valuation of the City of Allentown Officers and Employees Pension Plan as of January 1, 2021. The purpose of this report is to present the annual actuarial valuation of the City of Allentown Officers and Employees Pension Plan. This report is for the use of the City of Allentown's Pension Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements. The report does not include calculations under GASB Statements No. 67 and No. 68 which are provided in a separate report.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. The results of this report are only applicable to the funded status of the Plan as of January 1, 2021 and will be used to determine the Plan's 2022 and 2023 Minimum Municipal Obligation (MMO). The final MMOs are dependent upon the payroll of the active population as provided by the City.

Future actuarial valuation results may differ significantly from the current actuarial valuation results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law. The results and projections provided in this report rely on future plan experience conforming to the underlying assumptions and methods outlined in this report. To the extent that the actual plan experience deviates from the underlying assumptions and methods, or there are any changes in plan provisions or applicable laws, the results would vary accordingly and projections may change materially.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This report was prepared exclusively for the City of Allentown's Pension Board for the purpose described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

Sincerely,
Cheiron

A handwritten signature in blue ink that reads 'Karen Zangara'.

Karen Zangara, FSA, EA, MAAA
Principal Consulting Actuary

A handwritten signature in blue ink that reads 'Brett Warren'.

Brett Warren, FSA, EA, MAAA
Consulting Actuary

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

FOREWORD

Cheiron has performed the actuarial valuation of the City of Allentown Officers and Employees Pension Plan as of January 1, 2021. The purpose of this report is to:

- 1) **Measure and disclose**, as of the valuation date, the financial condition of the Plan, in compliance with Act 205;
- 2) **Indicate trends** in the financial progress of the Plan; and
- 3) **Determine an estimated Minimum Municipal Obligation** (MMO) for calendar year 2023 and to provide the actual MMOs for 2021 and 2022 in accordance with Act 44 and Act 205.

An actuarial valuation establishes and analyzes Plan assets and liabilities on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the Plan's investment performance, as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and disclosing important trends experienced by the Plan in recent years as well as a risk assessment, which includes a review of potential risk and projected financial outlook associated with the Plan.

Section II contains details on Plan assets, together with pertinent performance measurements.

Section III provides details on the Plan's liabilities.

Section IV provides the amortization requirements, the actual MMOs for 2021 and 2022, and the estimated MMO for 2023. The actual 2023 MMO amount will be finalized once the payroll for the 2023 year is provided by the City of Allentown. The 2022 and 2023 MMOs are based on the January 1, 2021 actuarial valuation results.

The appendices to this report contain supplemental information based upon assets excluding proceeds from pension obligation bonds, a summary of the Plan's membership at the valuation date, a summary of the major provisions of the Plan, and the actuarial methods and assumptions used in the valuation.

In preparing our report, we relied on information (some oral and some written) supplied by the City of Allentown ("City") and its auditors, Zelenkofske Axelrod LLC. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for the reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23.

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SECTION I – BOARD SUMMARY

This Plan was closed to new members as of June 3, 1976, and predominately provides for the benefits of those members who have retired. As such, it is expected that the contributions are mostly to bring the Plan to full funding to pay benefits and that the liabilities will decline over time.

The following table sets out the principal results of this year's valuation and compares them to last year's results.

Table I-1 Summary of Principal Plan Results				
Valuation as of:	1/1/2020		1/1/2021	% Change
<u>Participant Counts</u>				
Actives	1		1	0.0%
Terminated Vested and Inactive Members	0		0	N/A
In Pay Status	108		97	-10.2%
Total	109		98	-10.1%
Annual Salaries of Active Members (from prior year)	\$	78,833	\$ 81,552	3.4%
Average Annual Salary		78,833	81,552	3.4%
W-2 Wages for Active Members (from prior year)		78,833	81,552	3.4%
Annual Retirement Allowances for Retired Members and Beneficiaries	\$	1,746,159	\$ 1,618,824	-7.3%
Average Monthly Retirement Benefit		1,347	1,391	3.2%
Financial Information				
Market Value of Assets (MVA)	\$	10,771,039	\$ 10,015,122	-7.0%
Actuarial Value of Assets (AVA)		10,554,983	9,716,940	-7.9%
Actuarial Liability	\$	12,078,320	\$ 10,926,347	-9.5%
Unfunded Actuarial Liability		1,523,337	1,209,407	-20.6%
Funding Ratio (MVA)		89.2%	91.7%	
Funding Ratio (AVA)		87.4%	88.9%	
Contributions and Cash Flows				
Contribution (actual/ <i>expected</i>)	\$	234,831	\$ 235,415	0.2%
Prior Year Benefit Payments		1,794,179	1,696,249	-5.5%
Prior Year Administrative Expenses		65,602	65,202	-0.6%
Prior Year Total Investment Income		1,535,514	770,703	

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SECTION I – BOARD SUMMARY

General Comments

- For plans that are either not distressed or minimally distressed, the future gains and losses of the Plan are required to be amortized over the lesser of the maximum amortization periods, as outlined in the Appendix, or the average future service for the active participants in the Plan which is 1.97 years as of January 1, 2021 and, per Act 205, rounded up to 2 years. The City of Allentown was determined to be minimally distressed (86% funded on an aggregate basis for all plans) by the Pennsylvania Auditor General in 2020 and in accordance with Act 205 Section 502. Plan distress categories as outlined by Act 44 are provided below:

Funding Ratio	Distress Level
90% and above	None
70% to 89%	Minimal
50% to 69%	Moderate
Less than 50%	Severe

- To reduce the MMO volatility resulting from the short amortization period discussed above, the City adopted Ordinance 57 on September 16, 2015, as allowed under Section 202(b)(4) of Act 205, to change the plan's amortization method. The amortization payments of the unfunded actuarial liability (UAL) will be the lesser of (1) the traditional amortization of individual bases or (2) the level dollar rolling amortization of the total UAL over 10 years, if the funding level of the plan exceeds 70%. In this valuation, the lesser amount is the 10-year amortization of the UAL which is shown in Section IV of this report.
- The Board adopted a reduction in the discount rate from 6.50% to 6.40% which increased the liabilities by \$57,913.
- There is only one remaining active participant in the plan who is assumed to retire within two years. As long as this active participant remains in the plan, the Board had approved a change in retirement assumptions for this one active participant for the expected future retirement date which decreased the liabilities by \$82,197. This assumption is updated biennially to align assumptions with future expectations.
- The Market Value of Assets returned 7.70% in 2020.
- The Actuarial Value of Asset (AVA) method smooths gains and losses over 5 years was applied. For the AVA, the Plan experienced a gain in 2020 of \$51,337, which yielded a return of 7.03% versus the prior assumed return of 6.50%. However, over the two-year period covering 2019 and 2020, there was a net AVA loss of \$194,585.
- During calendar year 2020, the Officers and Employees Pension Plan received \$234,831 in contributions and paid out \$1,761,451 in benefits and expenses. Comparing these two amounts results in a negative cash flow of \$1,526,620, which means the Plan's benefits and expenses are not covered by contributions. In fact, because this is such a mature plan, the expected investment returns are not expected to cover this negative cashflow.
- On the liability side, the Plan experienced a two-year loss totaling \$2,434 due to mortality rates being less than expected. The assumption changes decreased the liability by \$24,284.

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- Overall, the Plan experienced a net loss (investment loss and liability loss) of \$197,019 during the two-year period covering 2019 and 2020. In addition, since the January 1, 2019 valuation there is a loss of \$760,754 over the two-year period from the timing of contributions, and the 10-year amortization of the UAL that was used to determine the MMO instead of the traditional amortization.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
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SECTION I – BOARD SUMMARY

Risk Assessment

Significant risks that may result in actual future measurements deviating from those expected by this valuation include investment risk, as well as longevity and other demographic risk. Investment risk is the potential that future investment returns will deviate from those that are expected. Longevity and other demographic risk is the potential that mortality or other demographic experience will deviate from that which is expected by the valuation assumptions.

The volatility of the measurements due to differences in the actual investment returns is examined later in this section with projections that assume rates of return other than the valuation assumption. We anticipate that for this plan the mortality assumption presents the most risk to future actual measurements if this deviates from expected mortality rates, as the majority of participants are in pay status and their primary experience is mortality. If mortality rates are generally higher than anticipated, the plan's future financial status will be improved while if mortality rates are generally lower than anticipated, then it will decline from that expected by this valuation.

The City has alleviated the Plan's risk exposure to potential contribution volatility by adopting Ordinance 57, which changed the plan's amortization method. The Unfunded Actuarial Liability Amortization is outlined in Appendix D and is the lesser of: the traditional amortization of individual bases, or the 10-year level dollar rolling amortization of the total Unfunded Actuarial Liability. If the 10-year level dollar amortization is the lesser amortization amount being paid in the MMO, then the plan will defer recognition of the Unfunded Actuarial Liability to future years.

In the "Trends" part of this section, there are a number of historical measures shown that demonstrate the potential volatility of the Plan's actuarial measurements as a result of deviation of actual experience from assumptions has grown in recent years. For example, the proportion of the Plan's members that are in payment status has grown, which makes the volatility of mortality risk greater, which is expected for a mature plan.

The remainder of this section analyzes past trends in the Plan's funding and presents projections under various economic outlooks.

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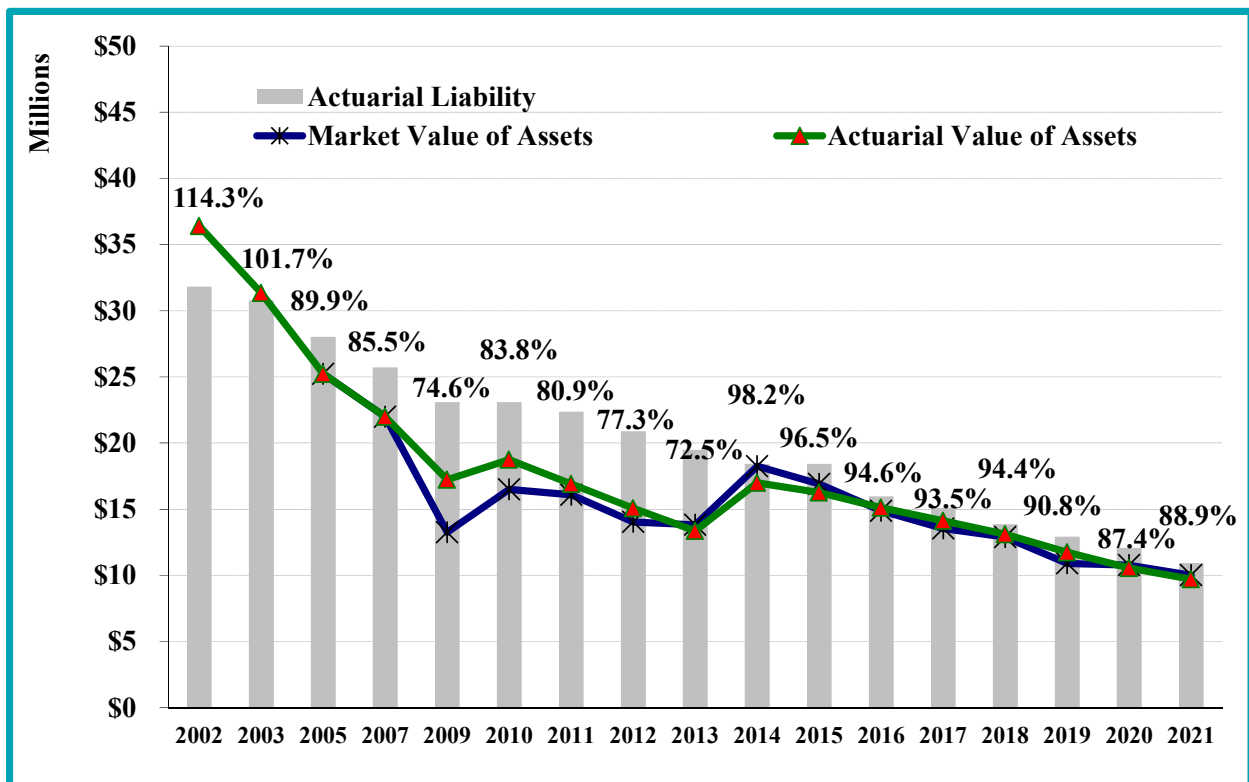
SECTION I – BOARD SUMMARY

Trends

It is important to take a step back from the latest results and view them in the context of the Plan's recent history. Below we present a series of charts which display key factors in the valuations over the last several years.

Assets and Liabilities

The gray bars represent the Actuarial Liability mentioned in this report. The green and blue lines represent the assets values. Both Assets and Actuarial Liabilities will continue the general downward trend as retirees die. Prior to 2007, the Actuarial Value of Assets equaled the Market Value of Assets. The funding ratios shown in the graph above each gray bar are equal to the Actuarial Value of Assets divided by the Actuarial Liability. The January 1, 2014 assets reflect the \$4.3 million Note contribution in 2013 and increased the funding ratio to 98.2%.



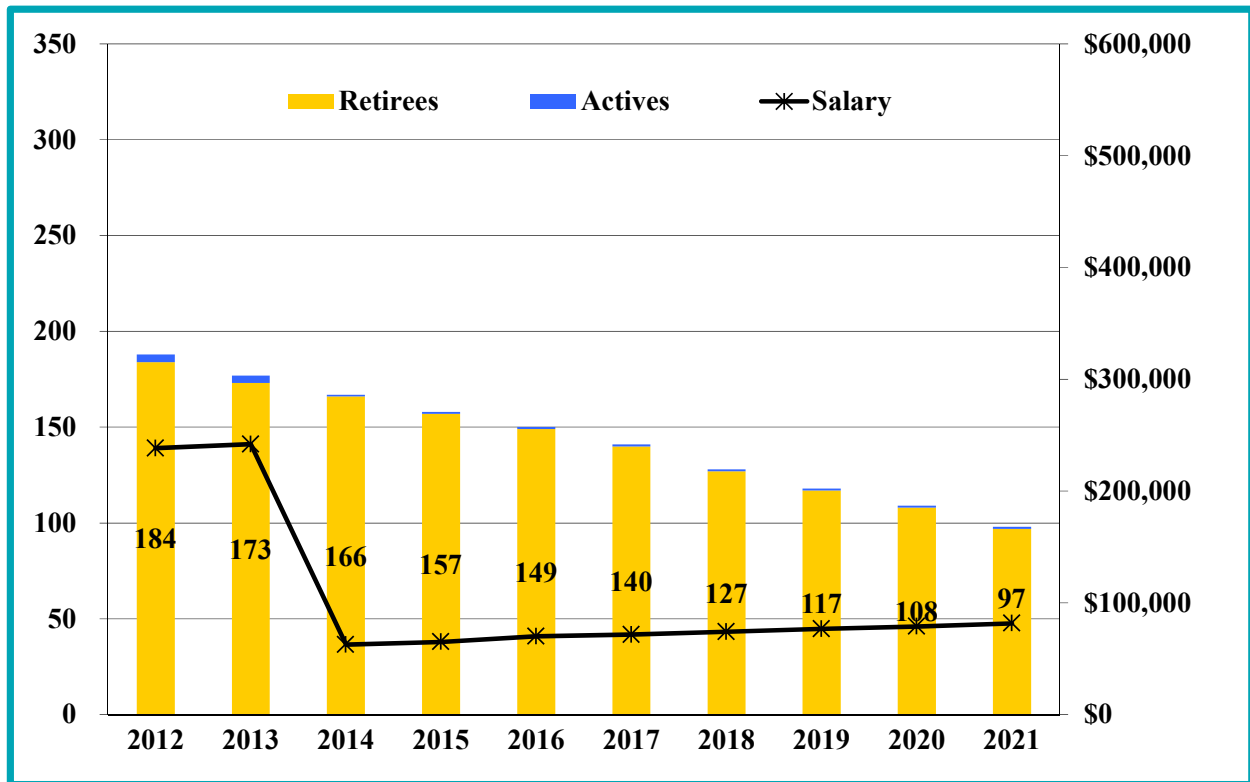
Results before 2010 are from the prior actuary. Valuations performed biennially from 2003 - 2009. The Actuarial Liability results for 2014 reflect the 2013 assumptions, in order that the 2015 Act 205 results reflect all assumption changes since the prior Act 205 filing. This is required under Act 205.

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SECTION I – BOARD SUMMARY

Participant Trends

Here we compare the membership counts (left-hand scale) and the total salary (right-hand scale). The counts between 2012 and 2021 have decreased due to deaths in the inactive population. The aggregate salary decreased sharply in 2014 because 3 active participants retired during 2013 and currently only one participant remains active. The black numbers within each bar show the decreasing number of retirees over the ten-year period. Because there is only one active participant, there is an increased risk as most of the liabilities are attributable to inactive participants, and subsequently, require assets to pay their benefits. Asset gains or losses can have a significant impact resulting in volatile costs from year to year even with the application of asset smoothing methods. As a closed plan made up mostly of retirees, costs as a percentage of active members is not an appropriate benchmark for this Plan.



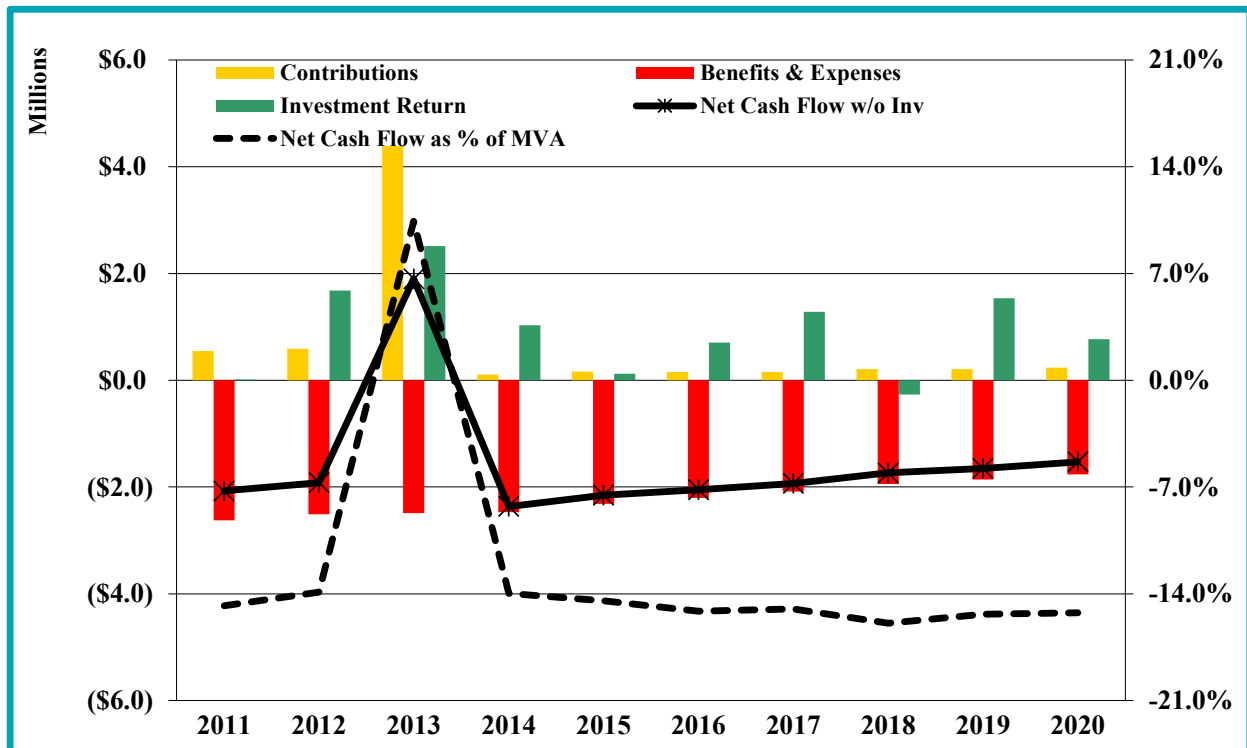
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SECTION I – BOARD SUMMARY

Cash Flows

Plan cash flow is a critical measure, as it reflects the ability to make benefit payments without necessitating difficult investment decisions, especially during volatile markets. The laddered bond approach the Board has adopted for this plan helps to mitigate this risk. Cash flow is defined as contributions received less benefit payments and expenses.

The Plan's net cash flow (NCF) has been negative except for 2013. Due to a \$4.4 million contribution, which includes a \$4.3 million Note payment (under section 404(h) of Act 205) from the City's water and sewer lease proceeds, the plan had a substantial positive net cash flow in 2013. As anticipated, the plan experienced negative net cash flows from 2014-2020. The implication of a plan in a negative cash flow position is that return on investments must first cover the negative cash flow before the assets can increase. As a closed plan with only one active participant, it is anticipated that the assets will decline each year. The negative cash flow is expected to continue as the plan is comprised almost entirely of retirees. The NCF as a percentage of the Market Value of Assets (right vertical axis) has been relatively flat over this ten-year period and was about -15.2% in 2020.



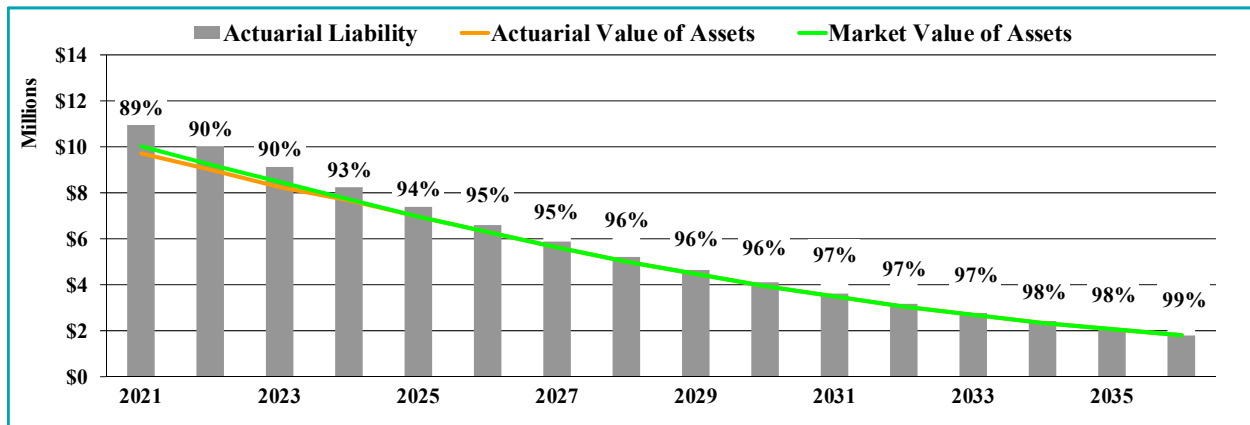
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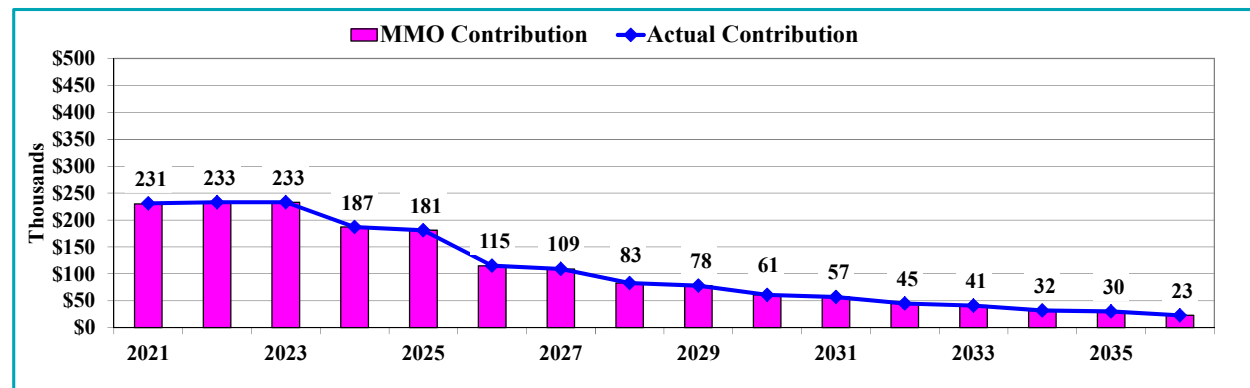
Baseline Projections - Asset Returns of 6.40% per year

We have included two charts projecting the funded ratio and Minimal Municipal Obligations for the next 15 years, assuming that the Plan's assets earn 6.40%.

The gray bars represent the liabilities with the orange and green lines representing the asset values. The Actuarial Value of Assets and the Market Value of Assets are projected to converge over the next five years. This projection assumes all assumptions outlined in Appendix D are fully realized and that the MMO is paid in full each year. The funded ratio (Actuarial Value of Assets divided by liabilities) listed on top of each of the bars increases to 99% at the end of the 15-year period. The UAL is projected to decrease on an absolute dollar basis, from \$1,209,407 in 2021 to about \$25,457 in 2036, as the assets and the liabilities are expected to decrease in tandem.



This next chart projects the MMO over the same period. On top of each bar is the projected MMO amount in millions of dollars. The 10-year rolling period is included in the calculation of the UAL amortization amount for the MMO.



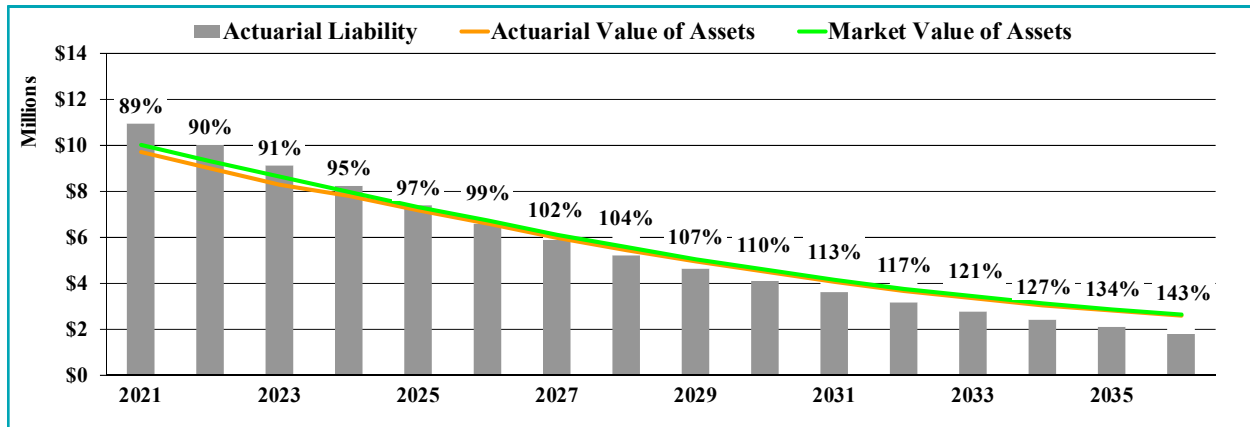
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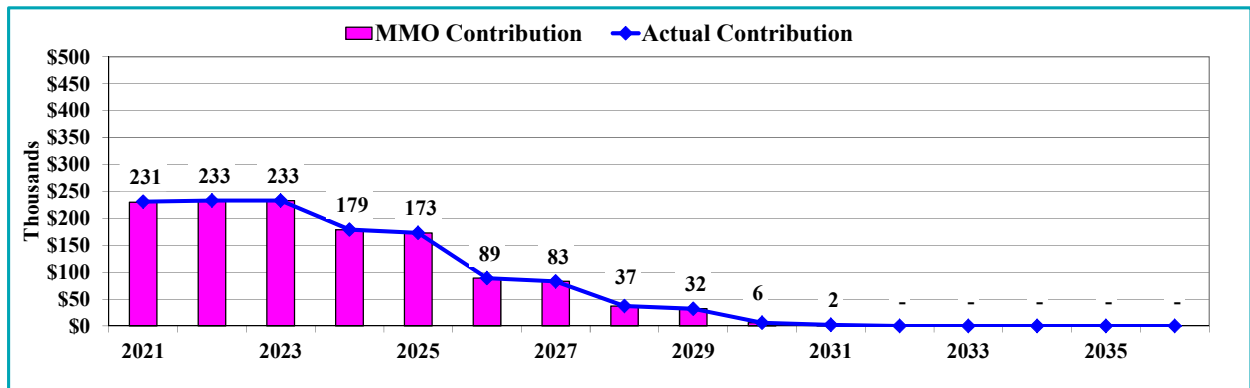
Optimistic Projections - Asset Returns of 7.40% per year

The charts below show the expected progress of the Plan over 15 years, assuming that the Plan's assets earn 7.40%, 1.0% higher than the valuation assumption. All other assumptions are consistent with the Baseline projections.

The funded ratio (Actuarial Value of Assets divided by liabilities) listed on top of each of the bars increases to 143% at the end of the 15-year period.



This next chart projects the MMO over the same period. On top of each bar is the projected MMO amount in millions of dollars. The 10-year rolling period is included in the calculation of the UAL amortization amount for the MMO. The MMO will decrease and eventually reach \$0 in 2032, and all future years, as the investment gains would cover all of the administrative expenses.



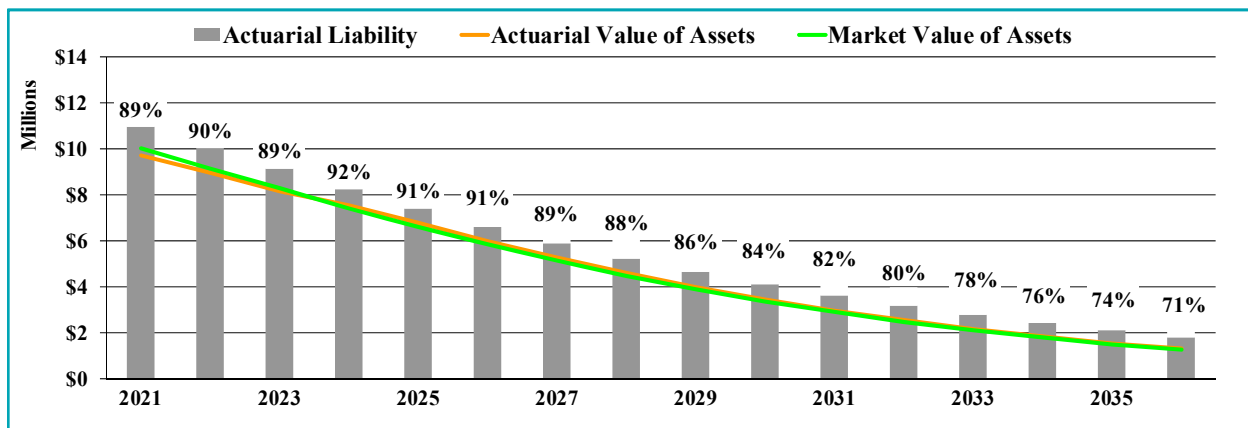
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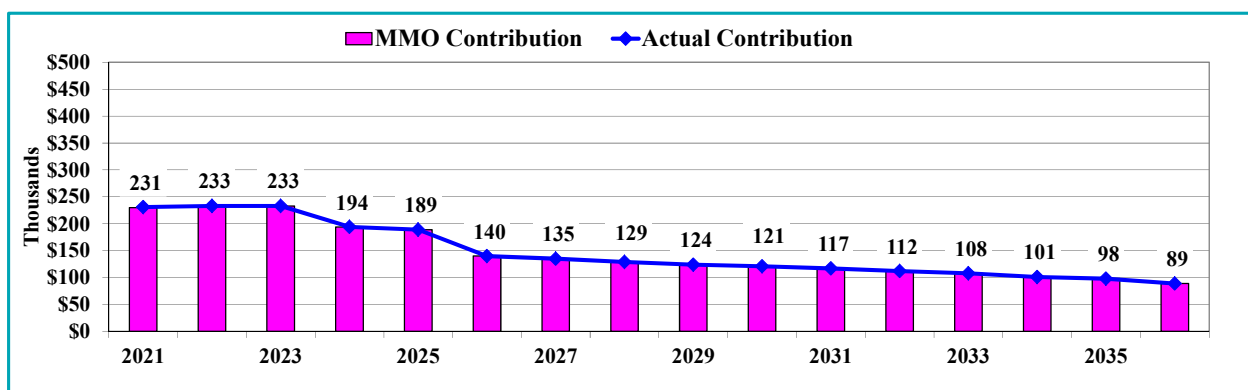
Pessimistic Projections - Asset Returns of 5.40% per year

The charts below show the expected progress of the Plan over 15 years, assuming that the Plan's assets earn 5.40%, 1.0% lower than the valuation assumption. All other assumptions are consistent with the Baseline projections.

The funded ratio (Actuarial Value of Assets divided by liabilities) listed on top of each of the bars steadily decreases to 71%. This gradual decrease in the funding ratio is due to the 10-year rolling amortization being applied every year along with the annual underperformance of the asset returns. If in fact this scenario occurred, discussion with the pension board over the reduction in the discount rate assumption would likely occur.



This next chart projects the MMO over the same period. On top of each bar is the projected MMO amount in millions of dollars. The 10-year rolling period is included in the calculation of the UAL amortization amount for the MMO. If the funding ratio is less than 70% (projected 71% in 2036 above), then the amortization payments will need to be based on the layered amortization.



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The projections provided above are based upon the January 1, 2021 valuation and the methods, assumptions, plan provisions and data as outlined in this report. To the extent that the actual plan experience deviates from the underlying assumptions and methods, (for example, if the asset returns are less than expected, or there are any changes in plan provisions or applicable laws) *the results would vary accordingly and possibly materially*, resulting in potentially larger MMOs than currently expected. Please note that these projections should be replaced once new data and valuations are completed in the future.

The MMO Pay used in the MMO calculation in the table below is provided by the City of Allentown and may differ from the valuation pay provided throughout this report which is based on actual participant data included in the actuarial valuation as of January 1 of each year.

Table I-2 Minimum Municipal Obligation (Actual and <i>Estimated</i>)			
Based Upon Valuation Report Calendar Year	1/1/2019 2021	1/1/2021 2022	1/1/2021 2023
(1) MMO Pay (<i>Estimated</i>)	\$ 84,696	\$ 82,924	\$ 87,000
(2) Normal Cost %	12.50%	11.73%	11.73%
(3) Total Normal Cost	10,587	9,727	10,205
(4) Amortization of UAL	154,828	157,376	157,376
(5) Total Administration Expense	70,000	70,000	70,000
(6) Total Financial Requirement	\$ 235,415	\$ 237,103	\$ 237,581
(7) Estimated Employee Contributions	4,658	4,561	4,785
(8) Minimum Municipal Obligation	\$ 230,757	\$ 232,542	\$ 232,796
[(6)-(7)]			

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
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SECTION II – ASSETS

Pension Plan assets play a key role in the financial operation of the Plan and in the decisions the Board may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely have an impact on benefit levels, contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on Plan assets including:

- **Disclosure** of Plan assets at January 1, 2020 and January 1, 2021;
- Statement of the **changes** in market values during the year;
- An assessment of **investment performance**; and
- Development of the **actuarial value of assets**.

Disclosure

The market value of assets represents the “snap-shot” or “cash-out” values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace.

Table II-1 Disclosure of Plan Assets*		
	1/1/2020	1/1/2021
<u>Assets</u>		
Investments	\$ 10,830,190	\$ 10,011,578
Receivables	16,106	19,882
Due from City's General Fund	<u>0</u>	<u>0</u>
Total Assets	\$ 10,846,296	\$ 10,031,460
<u>Liabilities</u>		
Accounts Payable	\$ 4,930	\$ 16,338
Due to City's General Fund	<u>70,327</u>	<u>0</u>
Total Liabilities	\$ 75,257	\$ 16,338
Net Assets Available for Benefits	\$ 10,771,039	\$ 10,015,122

* Assets are based on the Annual Comprehensive Financial Report (ACFR) for each year end.

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SECTION II – ASSETS

Changes in Market Value

The components of asset change are:

- Contributions
- Benefit payments
- Expenses (administrative and investment consulting)
- Investment income (realized and unrealized)

The specific changes during the 2019 and 2020 plan years are presented below:

Table II-2 Changes in Market Value		
	2019	2020
Beginning of Year Assets	\$ 10,887,569	\$ 10,771,039
<u>Additions</u>		
Employer Contributions	\$ 203,401	\$ 230,346
Member Contributions	4,336	4,485
Interest and Dividends	213,465	165,367
Net Appreciation / (Depreciation)	1,322,049	605,336
Total Additions	\$ 1,743,251	\$ 1,005,534
<u>Deductions</u>		
Benefit Payments	\$ 1,794,179	\$ 1,696,249
Administrative expense	65,602	65,202
Total Deductions	\$ 1,859,781	\$ 1,761,451
Net Change in Market Value of Assets	\$ (116,530)	\$ (755,917)
End of Year Assets	\$ 10,771,039	\$ 10,015,122

The two-year average of the administrative expenses paid from the plan assets, rounded to the nearest \$10,000, is \$70,000 which includes the investment consultant fees as reported as a separate line item on the asset statements. This is the projected expense estimate for the 2022 and 2023 MMO determinations.

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SECTION II – ASSETS

Investment Performance

The following table calculates the investment related gain/loss for the most recent two calendar years on a market value basis. The market value gain/loss is an appropriate measure for comparing the actual asset performance to the long-term 6.50% assumption. Effective January 1, 2021, the long-term investment return assumption changed to 6.40%. Future investment gains and losses will be calculated relative to the new assumption.

Table II-3 Market Value of Assets Gain/(Loss)			
Item	2019	2020	Total Period
Beginning of Year Market Value	\$ 10,887,569	\$ 10,771,039	\$ 10,887,569
Contributions	207,737	234,831	442,568
Benefit Payments	(1,794,179)	(1,696,249)	(3,490,428)
Administrative Expenses	(65,602)	(65,202)	(130,804)
Expected Investment Earnings (6.50%)	654,846	651,283	1,248,886
Expected Market Value on December 31	\$ 9,890,371	\$ 9,895,702	\$ 8,957,791
Investment Gain / (Loss)	880,668	119,420	1,057,331
End of Year Market Value	\$ 10,771,039	\$ 10,015,122	\$ 10,015,122
Return	15.26%	7.70%	11.67%

The Total Period reconciliation reflects total benefit payments, contributions and expenses during this two-year period. Investment earnings do not follow the additive property and instead are calculated based on the beginning and end of Total Period values.

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SECTION II – ASSETS

Assets at Actuarial Value

The Actuarial Value of Asset (AVA) method smooths gains and losses over five years. The resulting value is then limited to be no greater than 120% and no less than 80% of the Market Value of Assets on the valuation date. Additional details regarding this actuarial methodology are included in Appendix D of the report.

The table below shows the development of the actuarial asset value applied to this valuation.

Table II-4 Development of Actuarial Value of Assets 5-Year Smoothing Method				
Market Value of Assets as of January 1, 2021				\$ 10,015,122
<u>Plan Year</u>	<u>Investment Gains / (Losses)</u>	<u>Percent Recognized</u>	<u>Percent Deferred</u>	<u>Amount Deferred</u>
2016	\$ (230,953)	100%	0%	\$ 0
2017	463,451	80%	20%	92,690
2018	(1,046,112)	60%	40%	(418,445)
2019	880,668	40%	60%	528,401
2020	119,420	20%	80%	95,536
				\$ 298,182
Preliminary Actuarial Value as of January 1, 2021				\$ 9,716,940
Corridor for Actuarial Value				
- Lower Limit			80%	\$ 8,012,098
- Upper Limit			120%	\$ 12,018,146
Actuarial Value of Assets as of January 1, 2021				\$ 9,716,940
- as a percent of Market Value of Assets				97.0%

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SECTION II – ASSETS

The following table calculates the investment related gain/loss for the most recent two calendar years on an actuarial value basis.

Table II-5 Actuarial Value of Assets Gain/(Loss)				
Item	2019	2020	Total Period	
Beginning of Year Actuarial Value	\$ 11,728,438	\$ 10,554,983	\$ 11,728,438	
Contributions	207,737	234,831	442,568	
Benefit Payments	(1,794,179)	(1,696,249)	(3,490,428)	
Administrative Expenses	(65,602)	(65,202)	(130,804)	
Expected Investment Earnings (6.50%)	709,502	637,240	1,361,751	
Expected Actuarial Value on December 31	\$ 10,785,896	\$ 9,665,603	\$ 9,911,525	
Investment Gain / (Loss)	(230,913)	51,337	(194,585)	
End of Year Actuarial Value	\$ 10,554,983	\$ 9,716,940	\$ 9,716,940	
Return	4.39%	7.03%	5.60%	

The Total Period reconciliation reflects total benefit payments, contributions and expenses during this two-year period. Investment earnings do not follow the additive property and instead are calculated based on the beginning and end of Total Period values.

CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021

SECTION III – LIABILITIES

In this section, we present detailed information on Plan liabilities including:

- **Disclosure** of Plan liabilities at January 1, 2020 and January 1, 2021;
- Statement of **changes** in these liabilities during the year; and
- Development of the actuarial gain / loss for the year ending December 31, 2020.

Disclosure

Two types of liabilities are calculated and presented in this report.

- **Present Value of Benefits:** Used for analyzing the financial outlook of the Plan, this represents the amount of money needed today to fully fund all future benefits and expenses of the Plan, assuming participants continue to accrue benefits.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated by taking the Present Value of Benefits above and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. Employer Normal Costs are developed under the **Entry Age Normal** funding method, with normal cost as a percent of pay determined to be level at each active participant's entry age.

The following table discloses both of these liabilities for the current and prior valuations. The liability is also compared to the Plan's assets to determine the **net surplus** or **unfunded liability**. The net surplus or unfunded liability shown in this report is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the Plan's benefit obligation in the event of a plan termination or other similar action.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION III – LIABILITIES

Table III-1		
Liabilities/Net (Surplus)/Unfunded		
	January 1, 2020	January 1, 2021
Present Value of Future Benefits		
(1) Active Participant Benefits		
Retirement Benefits	\$ 723,929	\$ 713,543
Disability Benefits	7,085	0
Survivor Benefits	3,699	9,055
Refund of Members Contribution with Interest	0	0
Other: Vested Benefits	0	0
Total Active Participant Benefits*	\$ 734,713	\$ 722,598
(2) Inactive Participant Benefits		
Retirement Benefits	\$ 9,045,213	\$ 8,161,529
Disability Benefits	0	0
Survivor Benefits	2,308,270	2,061,069
Terminated Vested and Inactive Members	0	0
Total Inactive Participant Benefits	\$ 11,353,483	\$ 10,222,598
(3) Present Value of Benefits (PVFB) [(1)+(2)]	\$ 12,088,196	\$ 10,945,196
Actuarial Value of Assets (AVA)	\$ 10,554,983	\$ 9,716,940
Present Value of Future Contributions	1,533,213	1,228,256
Total Resources	\$ 12,088,196	\$ 10,945,196
Actuarial Liability		
Present Value of Benefits (PVFB)	\$ 12,088,196	\$ 10,945,196
Present Value of Future Normal Costs (PVFNC)	9,876	18,849
Actuarial Liability (AL = PVFB – PVFNC)	\$ 12,078,320	\$ 10,926,347
Actuarial Value of Assets (AVA)	10,554,983	9,716,940
Net (Surplus)/Unfunded (AL – AVA)	\$ 1,523,337	\$ 1,209,407

* The amount of the accumulated member contributions without accrued interest is \$97,512 for all active members as of January 1, 2021.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION III – LIABILITIES

Changes in Liabilities

The Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- Benefits accrued since the last valuation
- Plan amendments changing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in Plan assets resulting from:

- Contributions different than expected
- Investment earnings different than expected

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the Plan. In the following table we present key changes in liabilities since the valuation as of January 1, 2019. The accrual of benefits is the normal cost under the Entry Age Normal cost method.

Table III-2	
Change in Actuarial Liability	
Liabilities on 01/01/2019	\$ 12,913,821
Liabilities on 01/01/2021	<u>10,926,347</u>
Liability Increase (Decrease)	\$ (1,987,474)
Change Due to:	
Plan Amendment	\$ 0
Assumption Change	(24,284)
Method Change	0
Accrual of Benefits	19,454
Benefit Payments	(3,490,428)
Passage of Time	1,505,350
Liability (Gain)/Loss	<u>2,434</u>
Total	\$ (1,987,474)

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION III – LIABILITIES

The following table provides the Normal Cost, which is the cost for the additional benefit accrued during the year. The Normal Cost as a percent of payroll as of January 1, 2019 is used to calculate the 2021 MMO. The Normal Cost as a percent of payroll as of January 1, 2021 is used to calculate the 2022 and 2023 MMO.

Table III-3			
Normal Cost and Normal Cost as Percentage of W-2 Payroll			
		2019	2021
Normal Cost	\$	9,577	\$ 9,562
W-2 Wages for active members from prior year	\$	76,590	\$ 81,552
Normal Cost as a Percent of the Estimated Payroll		12.50%	11.73%

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
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SECTION IV – MINIMUM MUNICIPAL OBLIGATION

The actuarial funding method used to determine the normal cost and the unfunded actuarial liability is the **Entry Age Normal** (EAN) cost method. The normal cost is based on the normal cost rate determined by taking the value, as of entry age into the plan, of each member's projected future benefits. This value is then divided by the value, also at entry age, of each member's expected future salary producing a normal cost rate as a percent of salary that should remain relatively constant over a participant's career. The normal cost rate is multiplied by current salary to determine each member's normal cost. The total normal cost of the plan is the summation of each member's normal cost. Finally, the normal cost is reduced by the total member contributions to produce the employer normal cost.

The actuarial liability for active participants is the present value of all future benefits expected to be earned under the plan minus the present value of future normal costs. The actuarial liability for inactive participants is the present value of all future pension benefits to be paid from the plan to the retirees and vested terminated participants. The unfunded actuarial liability is the difference between the EAN actuarial liability and the actuarial value of assets.

The amortization requirement is the annual contribution to reduce the unfunded actuarial liability recognized over a certain time period, as outlined in Act 205 and revised by Act 44. The amortization time periods are provided in Appendix D of this report.

In the following charts, we show the actual MMOs for 2021 and 2022. The payroll amounts shown reflect the information provided by the City for those years.

The MMO for 2023 has been estimated based on the results of this valuation and the 2022 estimated payroll. The actual amount will vary based on actual payroll as provided by the City of Allentown.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION IV – MINIMUM MUNICIPAL OBLIGATION

The MMO pay used in the MMO calculation in the table below is provided by the City of Allentown and may differ from the valuation pay provided throughout this report which is based on actual participant data included in the actuarial valuation as of January 1 of each year.

Table IV-1				
Minimum Municipal Obligation (Actual and <i>Estimated</i>)				
Based on Valuation Report:	1/1/2019	1/1/2021	1/1/2021	
Calendar Year:	2021	2022	2023	
1. MMO pay (actual/ <i>estimated</i>) (prior year W2 pay reported by the City)	\$ 84,696	\$ 82,924	\$ 87,000	
2. Total Normal Cost Percentage	12.50%	11.73%	11.73%	
3. Total Normal Cost [(1) x (2)]	\$ 10,587	\$ 9,727	\$ 10,205	
4. Total Amortization Requirement	154,828	157,376	157,376	
5. Total Administrative Expenses	<u>70,000</u>	<u>70,000</u>	<u>70,000</u>	
6. Total Financial Requirement [(3) + (4) + (5)]	\$ 235,415	\$ 237,103	\$ 237,581	
7. Estimated Member Contribution Rate	5.50%	5.50%	5.50%	
8. Estimated Member Contributions [(1) x Member Contribution Rate]	<u>4,658</u>	<u>4,561</u>	<u>4,785</u>	
9. Estimated Employer Portion of MMO [(6) - (8)]	\$ 230,757	\$ 232,542	\$ 232,796	

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION IV – MINIMUM MUNICIPAL OBLIGATION

The following table summarizes the development of the gains and losses from 2019 to 2021.

Table IV-2		
Development of Actuarial Gain / (Loss)		
Unfunded Liability as of 01/01/2019	\$	1,185,383
Normal Cost	\$	19,454
Contributions made		
a. Employee Contributions	\$	(8,821)
b. Local Portion		(433,747)
Actual Expenses	\$	130,804
Interest on above		143,599
Plan Changes	\$	0
Assumption Changes		(24,284)
Method Changes		0
Expected Unfunded Liability as of 01/01/2021	\$	1,012,388
Actual Unfunded Liability as of 01/01/2021		<u>1,209,407</u>
Actuarial Gain / (Loss)	\$	(197,019)
- Investment Gain / (Loss)		(194,585)
- Liability Gain / (Loss)		(2,434)

This table provides the gains/(losses) for the new amortization base. The timing loss below is primarily due to the delay in the recognition of the amortization of the UAL and the 10-year rolling amortization being paid through the MMO contributions for each of these years.

Table IV-3		
Total Gain/(Loss)		
Investment Gain / (Loss)	\$	(194,585)
Liability Gain / (Loss)		(2,434)
Timing and interest Gain / (Loss)		<u>(760,754)</u>
Total Gain/(Loss)	\$	(957,773)

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION IV – MINIMUM MUNICIPAL OBLIGATION

The following table provides the schedule of amortization bases as of January 1, 2021. The total \$957,773 actuarial loss reflects the explicit loss for the two-year period as provided above along with the timing and interest loss due to the delayed contribution method as followed under Act 205.

The assumption change base of \$24,284 accounts for the change in the assumptions for the interest rate and retirement timing used to value liabilities which are detailed in Appendix D and in the Board Summary. The amortized payments prior to 2021 were re-determined based on the updated interest rate assumption.

Table IV-4a							
Schedule of Amortization Bases Including Bond Proceeds for Minimum Contributions as of January 1, 2021							
Original Date	Type	Original Amount	Original Period	Remaining Period	Payment	Balance	Date Fully Amortized
1/1/2007	Actuarial Loss	1,127,419	15	1	17,778	17,778	12/31/2021
1/1/2009	Actuarial Loss	6,444,394	20	8	85,087	553,396	12/31/2028
1/1/2009	Assumption Change	(3,978,139)	20	8	(52,525)	(341,615)	12/31/2028
1/1/2011	Actuarial Gain	(1,356,897)	20	10	(17,734)	(136,283)	12/31/2030
1/1/2013	Assumption Change	(73,714)	15	7	(1,123)	(6,574)	12/31/2027
1/1/2013	Actuarial Loss	1,674,508	20	12	21,679	189,216	12/31/2032
1/1/2021	Assumption Change	(24,284)	2	2	(12,518)	(24,284)	12/31/2022
1/1/2021	Actuarial Loss	957,773	2	2	493,736	957,773	12/31/2022
					<u>\$ 534,380</u>	<u>\$ 1,209,407</u>	

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

SECTION IV – MINIMUM MUNICIPAL OBLIGATION

In 2015, the City adopted Ordinance 57 changing the plan’s amortization method. The Unfunded Actuarial Liability Amortization is outlined in Appendix D and is the lesser of: the traditional amortization of individual bases, or the 10-year level dollar rolling amortization of the total Unfunded Actuarial Liability. The chart below shows the determination of the UAL payment for 2021.

Table IV-4b		
UAL Amortization Payment		
1. Traditional Amortization	\$	534,380
2. 10-year Rolling Amortization	\$	157,376
3. Minimum of (1) or (2)	\$	157,376

By paying the 10-year rolling amortization amount when this amount is less than the traditional amortization amount, the plan will incur losses equal to the difference between these two amortization amounts. These losses will be recognized in future valuations. The City may choose to contribute more to the Plan in any given year.

For the 2021 actuarial valuation, the traditional amortization amount is greater than the 10-year rolling amortization amount.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX A – SUPPLEMENTAL INFORMATION EXCLUDING BOND PROCEEDS

Allentown received the proceeds of a Pension Obligation Bond in 1996 and Note payment in 2013 which improved the financial status of the Plan. This section provides the development of the unfunded liability based upon assets without the bond proceeds and the Note payment and the amortization amount of this unfunded liability.

Under Act 205 section 404, municipalities that issue bonds (or notes) to fund the unfunded actuarial liabilities must complete Exhibit I of the Act 205 form reflecting the funded status and MMO determination of the plan as if the bond issuance (or notes) had not occurred. The contributions used for determining the assets excluding the bonds and the Note payment as of the valuation date are based upon “hypothetical amortization contributions that would have been made had bond issue proceeds not been deposited”, as described on the Act 205 form. In addition, investment earnings exclude earnings on bond issue proceeds (as instructed) by applying the rate of market returns for the year on the assets excluding the bonds.

The tables in this section consist of:

- Market Value of Assets without Bond Proceeds
- Actuarial Value of Assets without Bond Proceeds
- Unfunded Liability without Bond Proceeds
- Actuarial (Gain)/Loss without Bond Proceeds
- Schedule of Amortization bases without Bond Proceeds

Table A-1			
Market Value of Assets with Gain/(Loss) without Bond			
	2019	2020	Total Period
Beginning of Year Market Value	\$ 11,533,934	\$ 11,521,430	\$ 11,533,934
Contributions	208,583	150,218	358,801
Benefit Payments	(1,794,179)	(1,696,249)	(3,490,428)
Administrative Expenses	(65,602)	(65,202)	(130,804)
Investment Earnings*	1,638,694	826,384	2,465,078
Estimated Market Value on December 31	\$ 11,521,430	\$ 10,736,581	\$ 10,736,581
Expected Investment Earnings (6.50%)	696,887	697,352	1,333,021
Expected Market Value on December 31	\$ 10,579,623	\$ 10,607,549	\$ 9,604,524
Investment Gain / (Loss)	941,807	129,032	1,132,057
End of Year Market Value	\$ 11,521,430	\$ 10,736,581	\$ 10,736,581

* Based upon market value with bond returns in Table II - 3

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX A – SUPPLEMENTAL INFORMATION EXCLUDING BOND PROCEEDS

Table A-2 Development of Actuarial Value of Assets Without Bond 5-Year Smoothing Method				
Market Value of Assets as of January 1, 2021				\$ 10,736,581
<u>Plan Year</u>	<u>Investment Gains / (Losses)</u>	<u>Percent Recognized</u>	<u>Percent Deferred</u>	<u>Amount Deferred</u>
2016	\$ (219,599)	100%	0%	\$ 0
2017	478,692	80%	20%	95,738
2018	(1,103,427)	60%	40%	(441,371)
2019	941,807	40%	60%	565,084
2020	129,032	20%	80%	103,226
				<u>\$ 322,677</u>
Preliminary Actuarial Value as of January 1, 2021				\$ 10,413,904
Corridor for Actuarial Value				
- Lower Limit				80% \$ 8,589,265
- Upper Limit				120% \$ 12,883,897
Actuarial Value of Assets as of January 1, 2021				\$ 10,413,904
- as a percent of Market Value of Assets				97.0%

Table A-3 Liabilities/Net (Surplus)/Unfunded Based upon Assets without Bond	
	January 1, 2021
Actuarial Liability	\$ 10,926,347
Actuarial Value of Assets without Bond	<u>10,413,904</u>
Net (Surplus)/Unfunded without Bond (AL – AVA)	\$ 512,443

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
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APPENDIX A – SUPPLEMENTAL INFORMATION EXCLUDING BOND PROCEEDS

The following table provides the explicit gains/(losses) of the unfunded liability based upon the assets without the bond.

Table A-4		
Development of Actuarial Gain/(Loss) without the Bond		
Unfunded Liability without Bond as of 01/01/2019	\$	538,713
Normal Cost	\$	19,454
Contributions made		
a. Employee Contributions	\$	(8,821)
b. Local Portion		(349,980)
Actual Expense	\$	130,804
Interest on above		57,352
Plan Changes	\$	0
Assumption Changes	\$	(24,284)
Method Changes		0
Expected Unfunded Liability as of 01/01/2021	\$	363,238
Actual Unfunded Liability as of 01/01/2021		<u>512,443</u>
Actuarial Gain / (Loss)	\$	(149,205)
- Investment Gain / (Loss)		(146,771)
- Liability Gain / (Loss)		(2,434)

Table A-5		
Total Gain/(Loss) without Bond		
Investment Gain / (Loss)	\$	(146,771)
Liability Gain / (Loss)		(2,434)
Timing and interest Gain / (Loss)		<u>57,309</u>
Total Gain/(Loss)	\$	(91,896)

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX A – SUPPLEMENTAL INFORMATION EXCLUDING BOND PROCEEDS

The following tables provide the schedule of amortization bases as of January 1, 2021 without bond proceeds. Plan amendments and assumption changes prior to January 1, 2015 have not been adjusted by the 2013 Cancellation Ratio based on the 2013 Note contribution paid by the City, which triggered the application of Act 205 Section 404(h) to the Amortization Bases Including Bond Proceeds.

Table A-6 Schedule of Amortization Bases Excluding Bond for Minimum Contributions as of January 1, 2021							
Original Date	Type	Original Amount	Original Period	Remaining Period	Annual Payment	Remaining Balance	Date Fully Amortized
1/1/2007	Actuarial Loss	1,293,730	15	1	135,000	135,000	12/31/2021
1/1/2009	Assumption Change	(1,937,734)	20	8	(169,279)	(1,100,969)	12/31/2028
1/1/2009	Actuarial Loss	2,820,124	20	8	246,364	1,602,319	12/31/2028
1/1/2011	Actuarial Gain	(1,839,129)	20	10	(159,047)	(1,222,248)	12/31/2030
1/1/2013	Assumption Change	(73,714)	15	7	(7,426)	(43,485)	12/31/2027
1/1/2013	Actuarial Loss	1,436,798	20	12	123,077	1,074,213	12/31/2032
1/1/2021	Assumption Change	(24,284)	2	2	(12,518)	(24,284)	12/31/2022
1/1/2021	Actuarial Loss	91,896	2	2	47,373	91,896	12/31/2022
					<u>\$ 203,544</u>	<u>\$ 512,442</u>	

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX A – SUPPLEMENTAL INFORMATION EXCLUDING BOND PROCEEDS

The City adopted Ordinance 57 changing the plan’s amortization method. The Unfunded Actuarial Liability Amortization is outlined in Appendix D and is the lesser of: the traditional amortization of individual bases, or the 10-year level dollar rolling amortization of the total Unfunded Actuarial Liability. The chart below shows the determination of the UAL payment for 2021.

Table A-7		
UAL Amortization Payment Excluding Bond		
1. Traditional Amortization	\$	203,544
2. 10-year Rolling Amortization	\$	66,682
3. Minimum of (1) or (2)	\$	66,682

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX B – MEMBERSHIP INFORMATION

The data for this valuation was provided by the City as of January 1, 2021. Cheiron did not audit any of the data; however, we performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice Number 23.

The following is a list of data charts contained in this section:

- Summary of Participant Data
- Counts and Total Benefit Amount by Age for Retirees, Beneficiaries, and Disabled Participants
- Reconciliation of Active, Terminated Vested, and In-Pay Participants

SUMMARY OF PARTICIPANT DATA				
	1/1/2020		1/1/2021	
Active Participants				
Count		1		1
New Entrants		0		0
Average Age		N/A		N/A
Average Benefit Service		N/A		N/A
Annual Payroll	\$	78,833	\$	81,552
Retirees and Beneficiaries Receiving Payments				
Count		108		97
Average Age		84.3		85.0
Annual Benefits	\$	1,746,159	\$	1,618,824
Average Monthly Benefit	\$	1,347	\$	1,391
Terminated Vested Participants and Inactive Members				
Count		0		0
Accumulated Member				
Contributions w/o Interest	\$	0	\$	0
Annual Benefits	\$	0	\$	0
Average Monthly Benefit	\$	0	\$	0

The estimated benefit payments for the current plan year are \$1,571,386.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX B – MEMBERSHIP INFORMATION

Summary of Inactive Data as of January 1, 2021

AGE DISTRIBUTION OF INACTIVE PARTICIPANTS PENSIONERS AND BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2021									
Age	Disability Retirements		Normal, Early Deferred Vested Retirements		Surviving Spouses and Beneficiaries Receiving Benefits		Total		
	Number	Monthly Benefit	Number	Monthly Benefit	Number	Monthly Benefit	Number	Monthly Benefit	
Under 55	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0	
55-59	0	0	0	0	0	0	0	0	
60-64	0	0	0	0	0	0	0	0	
65-69	0	0	2	6,103	0	0	2	6,103	
70-74	0	0	3	6,920	4	2,499	7	9,419	
75-79	0	0	10	22,893	2	2,885	12	25,778	
80 & Over	0	0	36	66,704	40	26,898	76	93,602	
Total	0	\$ 0	51	\$ 102,620	46	\$ 32,282	97	\$ 134,902	

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX B – MEMBERSHIP INFORMATION

Participant Reconciliation from January 1, 2020 to January 1, 2021

	Term.					
	Actives	Vested	Disabled	Retired	Beneficiary	Total
January 1, 2020 valuation	1	0	0	56	52	109
Additions						
Reductions						
a. Terminated - not vested						
b. Deaths without beneficiary				(4)	(7)	(11)
Total				(4)	(7)	(11)
Changes in status						
a. Terminated - vested						
b. Retired						
c. Disabled						
d. Died with beneficiary				(1)	1	
e. Data corrections						
Total				(1)	1	
January 1, 2021 valuation	1	0	0	51	46	98

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX B – MEMBERSHIP INFORMATION

Active Members	Count	Annual Pay
As of last valuation date	1	\$ 78,833
Separations from active service		
Refund of contributions	0	\$ 0
Separation with deferred benefit	0	0
Separation due refund	0	0
Disability	0	0
Death	0	0
Retirement with service retirement benefit	0	0
Total separations	0	\$ 0
As of current valuation date using prior pay	1	\$ 78,833
As of current valuation date using current pay	1	\$ 81,552
New entrants	0	0
As of current valuation date	1	\$ 81,552

Service retirement benefit recipients	Count	Annual Benefit
As of last valuation date	56	\$ 1,326,062
New Benefit recipients	0	0
Total	56	\$ 1,326,062
Terminations	0	\$ 0
Deaths	5	94,621
Others	0	0
Total terminations	5	\$ 94,621
COLA increase		0
Benefit Decrease		0
As of current valuation date	51	\$ 1,231,441

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX B – MEMBERSHIP INFORMATION

Surviving Spouses	Count	Annual Benefit
As of last valuation date	52	\$ 420,097
New Benefit recipients	1	20,783
Total	53	\$ 440,880
Terminations	0	\$ 0
Deaths	7	53,497
Others	0	0
Total terminations	7	\$ 53,497
As of current valuation date	46	\$ 387,383

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

1. Last date plan was open to new employees

June 2, 1976.

2. Normal Retirement

Eligibility: Age 55 and 20 years of service or age 60 with 12 years of service

Basic Benefit: 50% of the larger of the final annual salary or the highest average compensation of any 5 years of service, not less than \$10,400 per year. If the member has less than twenty (20) years of service, then the basic benefit is prorated based upon credited service at retirement to twenty years. Payments are made bi-weekly.

Service Increment: One-fortieth ($1/40^{\text{th}}$) of the basic benefit for each full year of service in excess of twenty (20). Service after age sixty-five shall not be counted. In order to be eligible for the service increment benefit, the employee must make additional contributions of one half of one-percent ($1/2\%$) of the salary.

3. Early Retirement

None permitted.

4. Termination Benefits

Vesting: 100% after 12 years of service.

Vested Benefit: For involuntary terminations before age sixty (60) with more than twelve (12) years of service but less than twenty (20) years of service, the member will be eligible to retire at age 60 with the Basic Benefit prorated based upon credited service at the time of termination to twenty years.

Non-Vested Benefit: Refund of contributions (including any military buy-back contributions, if applicable) without interest.

5. Pre-Retirement and Post Retirement Survivor Benefits

Non-Vested Benefit: Refund of contributions (including any military buy-back contributions, if applicable) without interest.

Vested Benefit: 50% of the amount that the participant was receiving or was eligible to receive for life, not less than \$5,200 per year.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

6. Disability Benefits

Eligibility if not Retirement Eligible: Fifteen (15) years of service and less than age 60.

Benefit if not Retirement Eligible: 50% of the salary at date of disablement, prorated based upon the service at date of termination to twenty (20) years.

Benefit if Retirement Eligible: The normal retirement benefit.

7. Credit for Military Service

Any member with military service prior to becoming a member in the Plan may purchase credited military service, not to exceed five (5) years of such service.

8. Purchased Service

Not applicable.

9. Employee Contributions

- Three percent (3%) of compensation for members not covered by Social Security, else three and one-half percent (3 ½ %) plus five percent (5%) in excess of that on which Social Security is payable (mandatory).
- One percent (1%) of compensation for survivor benefits (mandatory).
- One - half of one percent (1/2%) optional service contribution (not payable after age 65) (optional).
- Social Security Buy-Back Provision – one and one-half percent (1 ½%) of compensation up to the amount which Social Security is payable (optional).

10. Changes Since Last Valuation (i.e., since January 1, 2019 under Act 205)

None.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX D – ACTUARIAL ASSUMPTIONS AND METHODS

A. Demographic and Economic Assumptions

The demographic and economic assumptions are selected by the City of Allentown Pension Board. Some of these assumptions have been updated since Cheiron became the actuary to the Plan. For the updated assumptions, experience studies have been completed as requested by the Board and based on Cheiron's review of assumptions for reasonability.

1. Mortality Rates

Healthy Mortality: RP-2000 Combined Healthy Mortality Table projected generationally from base year 2000 using 50% of Scale AA.

Disabled Mortality: RP-2000 Disabled Mortality Table.

The mortality assumption was set by the City of Allentown Pension Board, which has control over the selection of the pension valuation assumptions, rather than the actuary. Based upon limited data, this mortality assumption was reviewed and appears to be reasonable in terms of reflecting projected mortality improvement in the future.

2. Disability Rates

50% of the 1955 United Auto Workers Table.

Age	Male	Female
30	0.020%	0.030%
35	0.025%	0.040%
40	0.035%	0.050%
45	0.050%	0.075%
50	0.090%	0.130%
55	0.180%	0.245%
60	0.450%	0.605%
>=65	0.000%	0.000%

3. Termination Rates

None assumed.

4. Retirement Rates

The one remaining active participant is assumed to retire 100% in 2023.

5. Percent Married

All active members who are contributing for spouse's benefit are assumed to be married.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX D – ACTUARIAL ASSUMPTIONS AND METHODS

6. Age of Spouse

Female spouse is assumed to be three years younger than male spouse.

7. Investment Return

6.40% per annum, net of investment management expenses.

8. Salary Increase

4.5% compounded annually.

9. Expenses

Expenses are assumed to equal the two-year average of paid administrative expenses from the most recent even actuarial valuation, rounded to the nearest \$10,000. Expenses are not assumed to increase in the future.

10. Form of Annuity

50% Joint & Survivor for members contributing for spouse's benefit. Straight life basis for other members.

11. Rationale for Assumptions

In accordance with Actuarial Standard of Practice No. 27, the rationale for the 6.40% discount rate is based on the Board's investment risk preference, the Plan's current asset allocation, and the investment manager's capital market outlook.

For the demographic assumptions, the rate of retirement is based the Board's expectation. The rates of mortality were selected based on plan experience as reviewed by Cheiron with the Board. These rates are monitored for reasonability. Finally, we assume the one remaining active will not terminate due to his retirement eligibility.

12. Changes since last biennial valuation (i.e., since January 1, 2019 under Act 205)

The retirement rate assumption was changed for the last active participant to assume 100% retirement in 2023, which is consistent with past practice to assume the one active participant's assumed retirement date will occur in the next two years from the actuarial valuation date.

The investment return assumption was decreased from 6.50% to 6.40%.

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX D – ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

Under the entry age normal actuarial cost method, the individual entry age normal cost is determined for each participant by calculating the annual contribution rate as a level percent of pay required to fund that individual's expected benefits, based on the current plan provisions over the participant's expected active working lifetime with the Plan at entry.

At the valuation date, the present value of future normal cost is calculated for each individual participant by multiplying the entry age normal cost by the present value of the participant's expected future salary with the Plan. The cost for each participant is then summed to yield the present value of future normal costs.

The excess of the present value of future benefits for all individuals at the valuation date over the present value of future normal costs is called the actuarial liability, or past service liability.

2. Amortization Method

Under Act 44 of 2009, the unfunded actuarial liability is amortized as a level dollar amount over the lesser of:

- (a) (i) 30 years, with respect to the initial liability as of 1/1/85 (or first valuation);
- (ii) 20 years, with respect to actuarial gains and losses;
- (iii) 15 years, with respect to changes due to actuarial assumptions;
- (iv) 10 years, with respect to changes in benefits not mandated by the state for active members;
- (v) 1 year, with respect to changes in benefits not mandated by the state for currently retired members;
- (vi) 20 years, with respect to state mandated benefit changes;

or

- (b) The average assumed working lifetime of active employees as of the date the liability was established, rounded to the next highest whole year.

If the Plan for the prior biennial valuation was determined to be moderately or severely distressed, then the amortization period is only determined by (a).

**CITY OF ALLENTOWN OFFICERS AND EMPLOYEES PENSION PLAN
ACTUARIAL VALUATION AS OF JANUARY 1, 2021**

APPENDIX D – ACTUARIAL ASSUMPTIONS AND METHODS

Due to the Ordinance 57 passed by City Council on September 16, 2015 if the Plan is greater than 70% funded, the amortization amount is the lesser of the traditional amortization of individual bases using the amortization periods described above or the 10-year level-dollar rolling amortization of the total unfunded actuarial liability. This comparison between the two amortization amounts occurs biennially for the odd-year actuarial valuation, and the amortization method employed by the subsequent MMO amounts based upon the biennial valuation cannot change. For example, amortization method for the two MMO determinations associated with the unfunded actuarial liability as of the odd-year valuation date must, over the two year period, both be based on either the 10-year rolling amortization method or the traditional layered amortization method.

This 10-year rolling amortization method is asymptotic in nature, where 100% full funding of the UAL is not projected to occur if all assumptions are met and the 10-year-rolling method applies, although the funding ratio is projected to improve.

3. Actuarial Value of Assets

The actuarial value of assets is determined in accordance with Section 3.16 of Revenue Procedure 2000-40, using a five-year smoothing period. The resulting actuarial value of assets is then limited to be no greater than 120% and no less than 80% of the market value of assets on the valuation date.

4. Disclosure regarding Models Used

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

Projections in this report were developed using P-scan, our proprietary tool for the intended purpose of developing projections. The model is also used to stress test the impact of volatile asset returns over the projection period. While the assumptions individually are reasonable for the underlying report that supports the projections, specifically for projection purposes, they are also considered reasonable in the aggregate.

5. Changes in Method Since Last Valuation

None.