7 North Dixie Highway
Lake Worth, FL 33460
**561.586.1600**

# AGENDA
# CITY OF LAKE WORTH BEACH
# CITY COMMISSION WORK SESSION - PENSION
# CITY HALL COMMISSION CHAMBER
# MONDAY, AUGUST 02, 2021 - 5:00 PM

## ROLL CALL:

## PLEDGE OF ALLEGIANCE: led by Commissioner Kimberly Stokes

## UPDATES / FUTURE ACTION / DIRECTION

A. Pension Presentation

## ADJOURNMENT:

The City Commission has adopted Rules of Decorum for Citizen Participation (See Resolution No. 25-2021). The Rules of Decorum are posted within the City Hall Chambers, City Hall Conference Room, posted online at: https://lakeworthbeachfl.gov/government/virtual-meetings/, and available through the City Clerk's office. Compliance with the Rules of Decorum is expected and appreciated.

If a person decides to appeal any decision made by the board, agency or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. (F.S. 286.0105)

DAVENPORT PUBLIC FINANCE 1863

BOOMERSHINE CONSULTING GROUP, LLC (BCG)

# City of Lake Worth Beach, Florida

## Pension Discussion

July 6, 2021

# Overview of Lake Worth Beach Pension Plans

- Lake Worth Beach operates three single-employer pension plans (the "Pension Plans"):
  1. Firefighters Retirement System
  2. Police Officers Retirement System
  3. General Employees Retirement System
- On a combined basis, the City's annual contribution to the pensions is nearly $12 million, or roughly 10% of the City's Total Budget.
- The Firefighters and Police Officers plans were closed in 2009 and 2008, respectively.
  - Each plan has an Unfunded Liability* of approximately $20 million as of 10/1/19 and a funding ratio of approximately 58% (note: a funded ratio of 80% to 100% is considered a "best practice").
  - Expected costs are rising due to shorter amortization and reductions in investment return assumption.
- The General Employee Plan remains open, with funded status as outlined below.
  - Funding ratio of 63.4% as of 10/1/19 with an Unfunded Liability* of roughly $39.1 million.
  - 7.2% Investment Return.
  - Expected costs will rise as the investment return assumption is reduced.
- **The total Unfunded Liability of the three plans is roughly $80 million.**

*This is an actuarially determined liability.

# Possible Pension Funding Strategies

- What strategies can be identified to increase the Funded Ratios in the Plans and thus solidify the long-term solvency of the Plans?

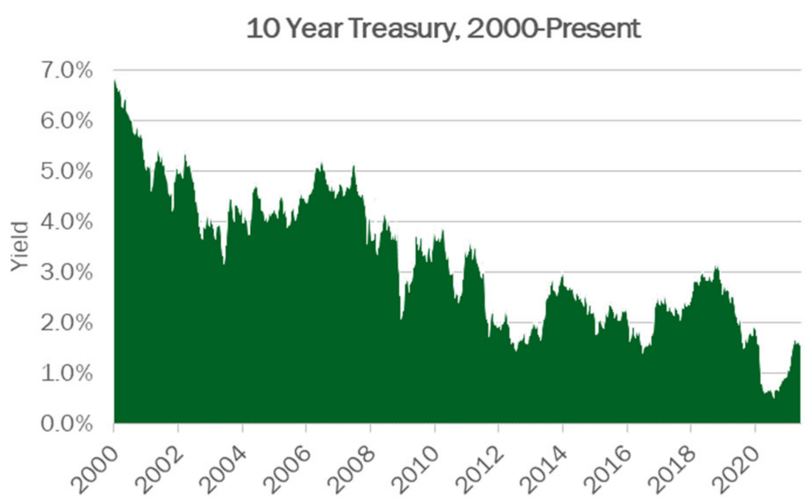
| Strategy | Potential Benefit |
|---|---|
| • **Strategy #1:** Baseline / “Do Nothing” | ✓ Continue with current pension funding strategy. Annual costs projected to continue to rise; funded ratio builds slowly. |
| • **Strategy #2:** Benefit Plan Changes | ✓ Typically draconian and limited in its results. |
| • **Strategy #3:** Shorten Amortization Period of the Unfunded Liability | ✓ Strategy already implemented for closed plans; results in higher annual payments. |
| • **Strategy #4:** Pension Funding Bonds | ✓ Immediately increase assets in the Plans with the potential for lower annual payments from the Budget. |

# Pension Funding Bonds

- Pension Funding Bonds ("PFBs") are a potentially favorable solution to increase the funding ratio of the Plans, particularly with respect to minimizing the impact to annual budgetary cash flow.

- Because member pension benefits flow to private parties and because the proceeds are used as an investment vehicle to theoretically earn a return higher than the cost of capital, Pension Funding Bonds are issued on a taxable basis.

- Taxable 10-year Treasury yields (used as a benchmark for taxable borrowing costs) remain very low compared to the historic average.




| 10-Year Treasury Yields Since 2000 | |
|---|---|
| Average | 3.27% |
| Maximum | 6.90% |
| Minimum | 0.52% |
| Current(1) | 1.53% |

(1) As of June 8, 2021 at 9:00 a.m.

# Pension Funding Bonds (continued)

- From a cost of capital perspective (i.e. cost of borrowing money), it would appear to be a good market environment to issue Pension Funding Bonds.

- A potential risk is the currently strong equities/investment market.  Pension Funding Bond proceeds might be invested in markets that have reached peak value putting pressure on the investment return assumptions used by the Pension Plans. Strategies to potentially mitigate this risk may include:

  - Consider “dollar cost averaging” into new investment positions.

  - Review appropriate timing and strategy for investments with investment manager.

  {Note: Davenport & Company LLC – on our capacity as the City’s Municipal Advisor – is not providing advice with respect to investment of existing pension funds nor is Davenport seeking to provide advice with respect to the management of proceeds of a pension bond sale – if any}.

# Pension Funding Bond Benefits

- Potential <u>Benefits</u> of Pension Funding Bonds Include:

1. Provides an immediate cash infusion into Pension Plans, thereby protecting plan member benefits.

2. Potentially significant budgetary cash flow savings compared to other strategies.

3. Address rating agency concerns over low funded ratio and increasing retirement costs.

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# Pension Funding Bond Risks

- Potential Risks of Pension Funding Bonds Include:

1. Issuing Pension Funding Bonds reduces financial flexibility by shifting the annual payment to the pension - which could be reduced by management's choice - to debt service which is a payment that is fixed and effectively unchangeable.

2. The City may not meet its pension plan investment assumptions, thereby exposing it to increased unfunded liabilities.

3. If the City uses a Pension Funding Bond strategy that is viewed as aggressive, this could negatively pressure the City's bond ratings.

4. Pension Funding Bonds use the City's bonding capacity that could be used for other purposes.

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# Pension Funding Scenarios

- In the following pages, we will examine the budgetary cash flow implications of three primary scenarios.

  - Scenario 1: Baseline/"Do Nothing."
  - Scenario 2: Pension Funding Bonds issued to bring all Plans to 80%.
  - Scenario 3: Pension Funding Bonds issued to bring closed Plans to 100% and General Employees Plan to 80%.

- Each scenario contains multiple cases that assess the effect of:

  (A) All three pension plans meet the 7% return assumption in each year;

  (B) returns are reduced to 5% annually reflecting the potential for investment returns that are currently assumed by the Pension Plans; and,

  (C) a substantial market loss entailing a 30% investment decline (i.e. a "Black Swan" event), followed by a 15% return, and then the 7% annual return assumption.

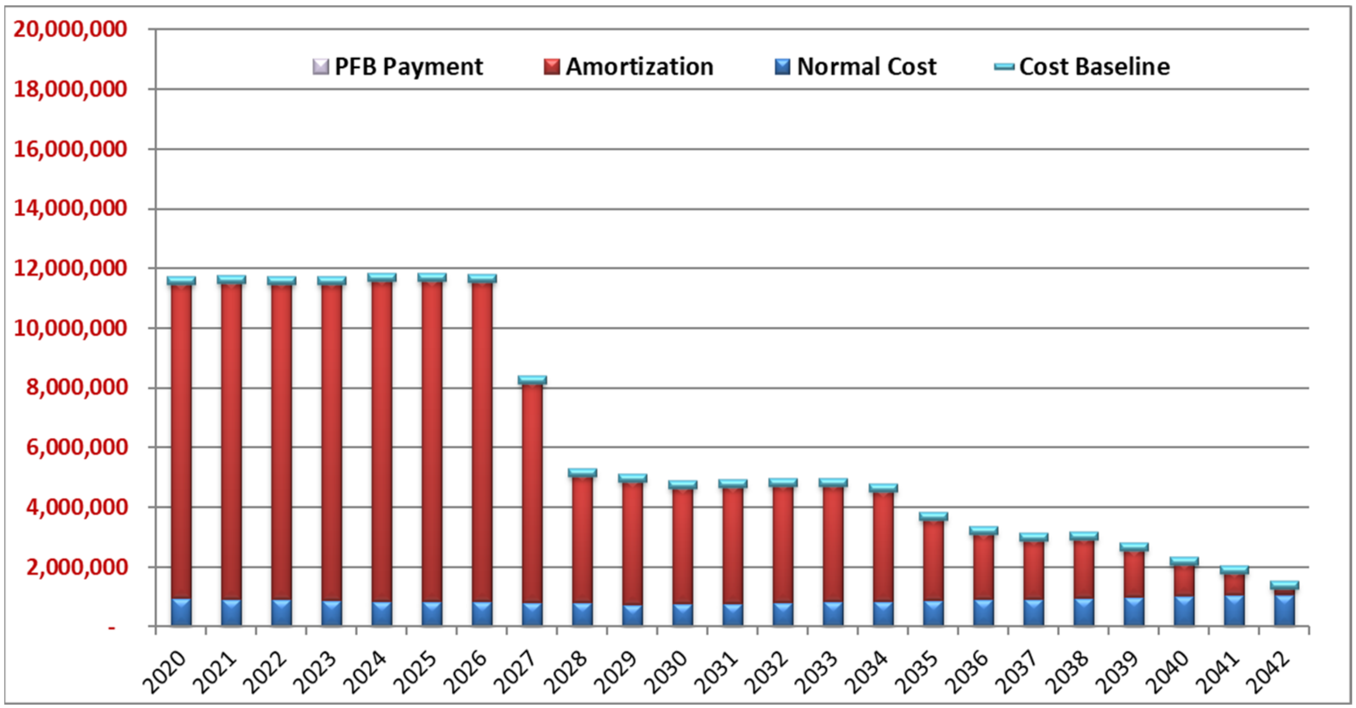
- For scenarios 2 and 3 wherein Pension Funding Bond issuance is contemplated, the Bonds are assumed to have a final maturity of 20 years and an interest rate of 4.0%.

  - Scenario 3 adds two additional cases that evaluate a 15 or 25 year final maturity instead of a 20 year final maturity.

# Scenario 1 – Case 1A: "Do Nothing" Baseline Case

- Assumes 7% annual returns.
- Expected annual cost remains high, growing slightly.
- 80% funding for the combined plans is achieved by 2026.

20 Year Projection of Employer Contributions




Life Cycle Cash Flows**

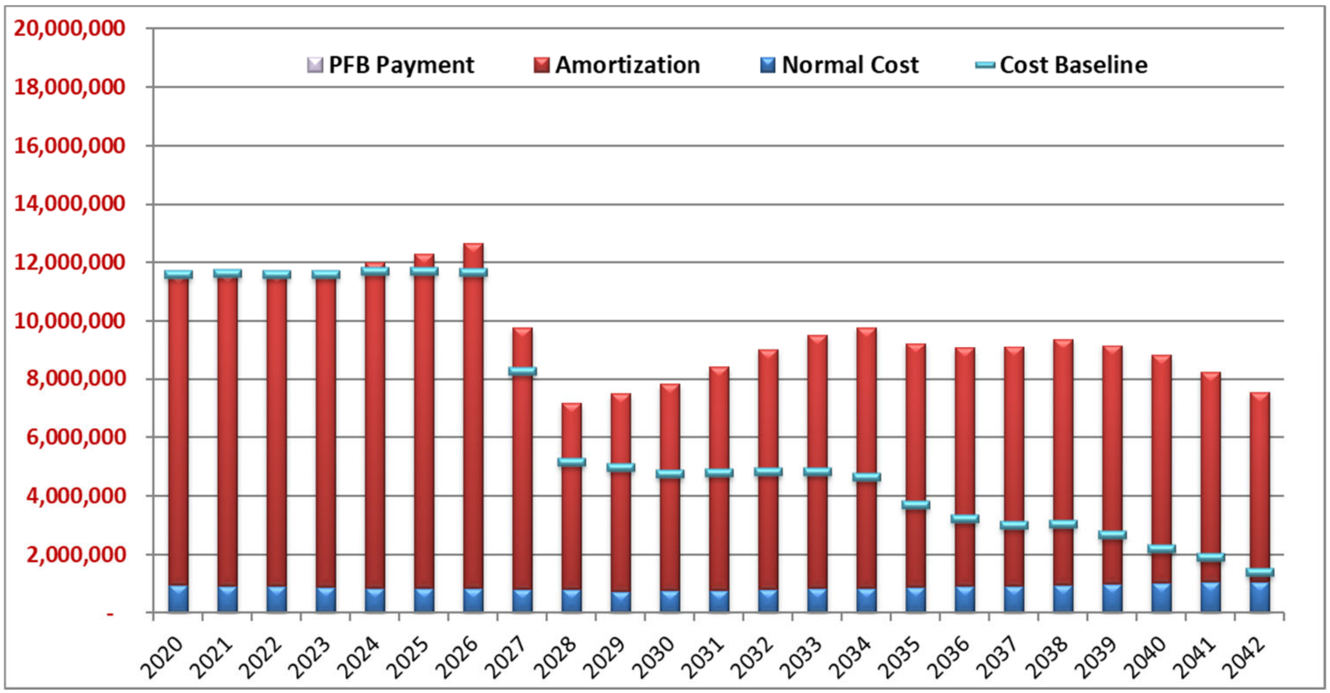
| | | | vs Baseline |
|---|---|---|---|
| 5 Year Total | $ | 58.3 | $ - |
| 10 Year Total | $ | 86.4 | $ - |
| 20 Year Total | $ | 120.6 | $ - |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 1 – Case 1B: Baseline with Lower Annual Return

- Assumes 5% annual returns.
- Expected annual cost increases versus Case 1A.
- 80% funding delayed significantly.

20 Year Projection of Employer Contributions
(Case 1B vs. Case 1A)




Life Cycle Cash Flows**

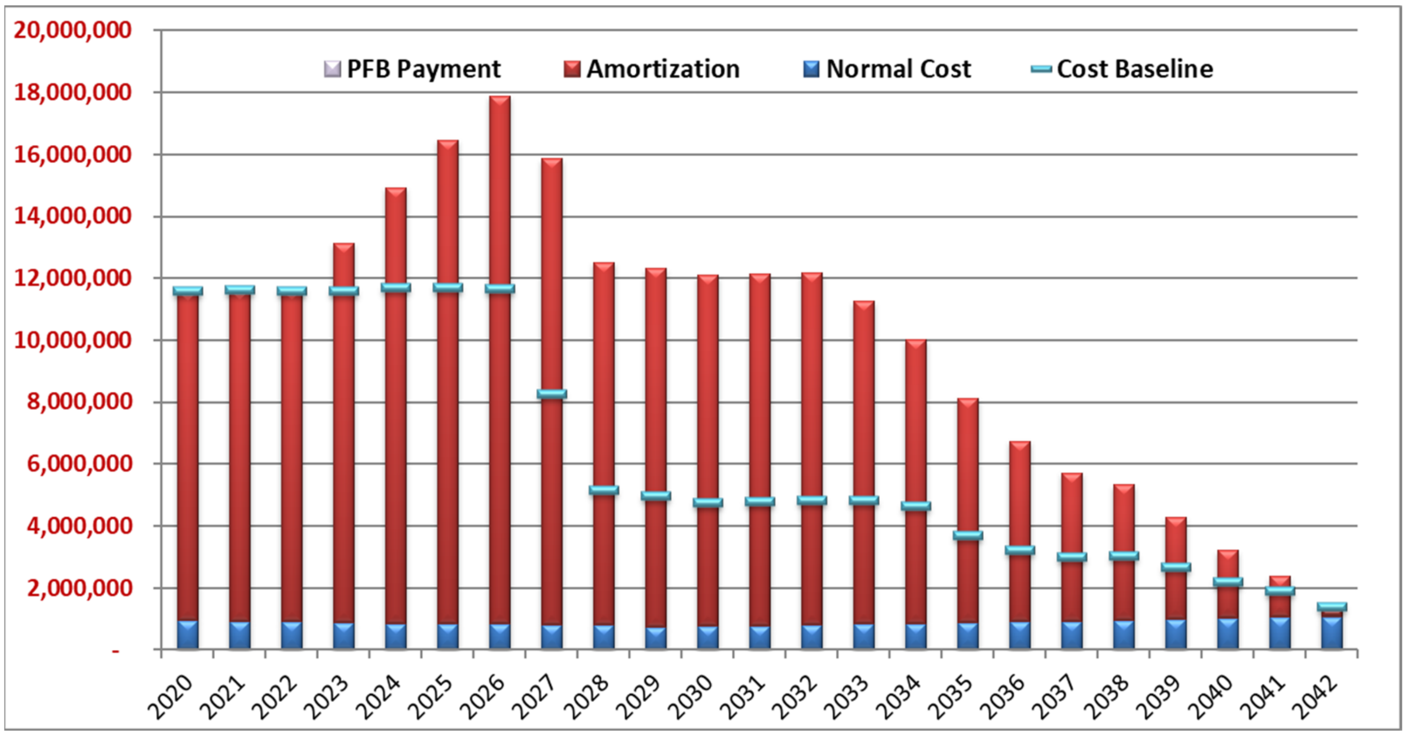
| | | | vs Baseline | |
|---|---|---|---|---|
| 5 Year Total | $ | 61.5 | $ | 3.2 |
| 10 Year Total | $ | 104.1 | $ | 17.7 |
| 20 Year Total | $ | 196.5 | $ | 75.9 |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 1 – Case 1C: Baseline with "Black Swan" Market Loss Followed by Recovery

- 30% investment decline, followed by a 15% investment return, following by 7% per year.
- Expected annual cost increases significantly.
- 80% funding delayed by six years versus Baseline.

20 Year Projection of Employer Contributions
(Case 1C vs. Case 1A)




Life Cycle Cash Flows**

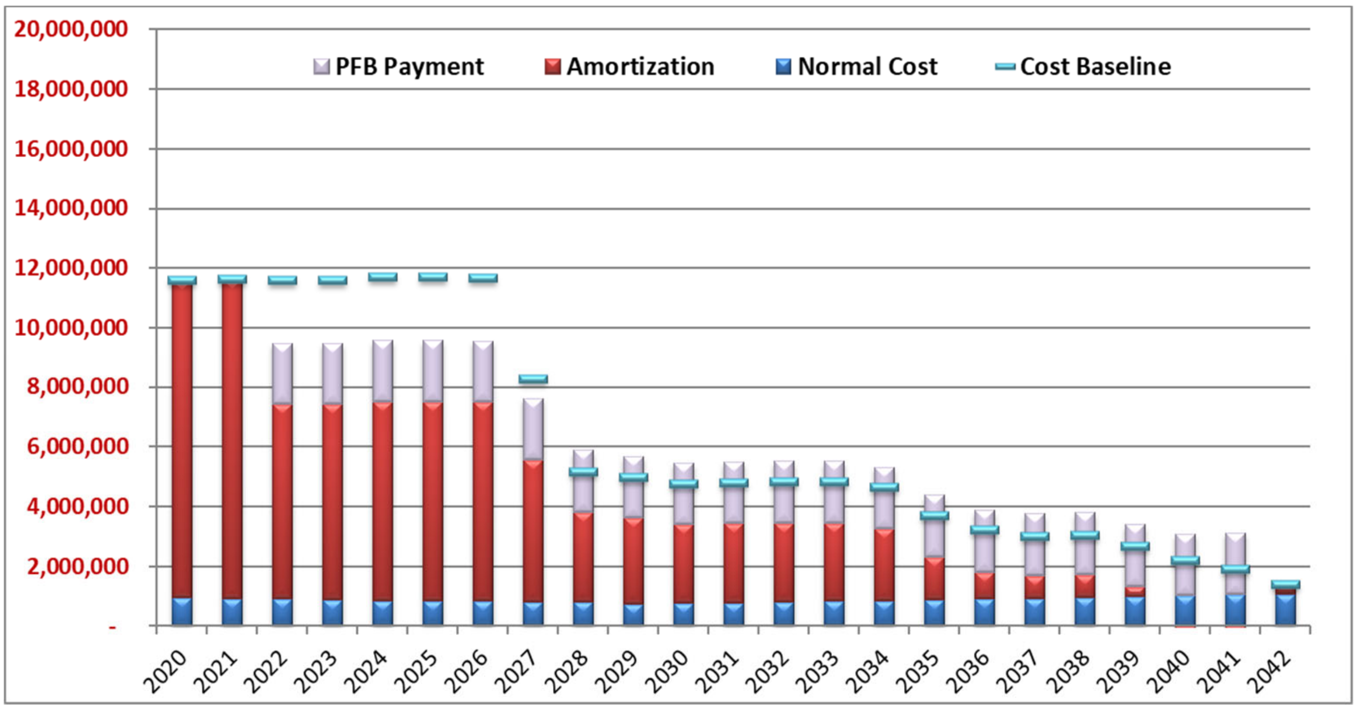
| | | | vs Baseline | |
|---|---|---|---|---|
| **5 Year Total** | **$** | **74.0** | *$* | *15.7* |
| **10 Year Total** | **$** | **138.9** | *$* | *52.5* |
| **20 Year Total** | **$** | **208.1** | *$* | *87.5* |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 2 – Case 2A: Pension Funding Bond Issuance to 80% Across All Plans

- Assumes 7% Investment Return Annually.
- Expected annual cost reduced by roughly $2.3+ million per year initially.
- UAAL Reduced; 80% Funding projected as of 10/1/2021 (assuming issuance of PFB prior to 10/1/21).
- PFB Amount - $28.2 Million

20 Year Projection of Employer Contributions
(Case 2A vs. Case 1A)




Life Cycle Cash Flows**

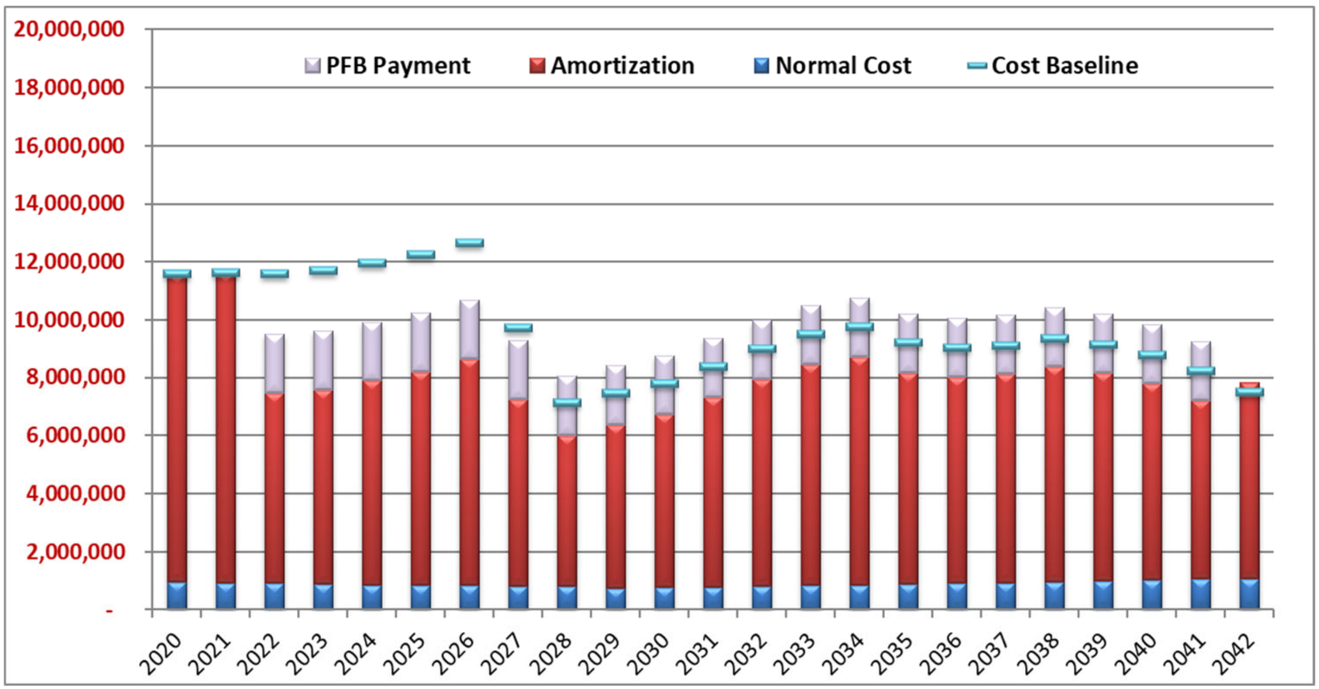
| | | | vs Baseline |
|---|---|---|---|
| 5 Year Total | $ | 46.6 | $ (11.8) |
| 10 Year Total | $ | 77.2 | $ (9.2) |
| 20 Year Total | $ | 119.8 | $ (0.8) |
| Baseline | | | PV Basis |
| 5 Year Total | $ | 58.3 | $ (10.5) |
| 10 Year Total | $ | 86.4 | $ (8.7) |
| 20 Year Total | $ | 120.6 | $ (4.1) |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 2 – Case 2B: Pension Funding Bond Issuance to 80% Lower Annual Returns

- Assumes 5% Investment Return Annually.
- Lower expected annual payments through 2027 with Pension Funding Bonds compared to "Do Nothing" (Case 1B).
- Total payments over 20 years roughly breakeven with Case 1B on a present value basis.
- Pension Liability Reduced; Funding "Treads Water" (i.e. remains constant) at 80%.

20 Year Projection of Employer Contributions (Case 2B vs. Case 1B)




Life Cycle Cash Flows**

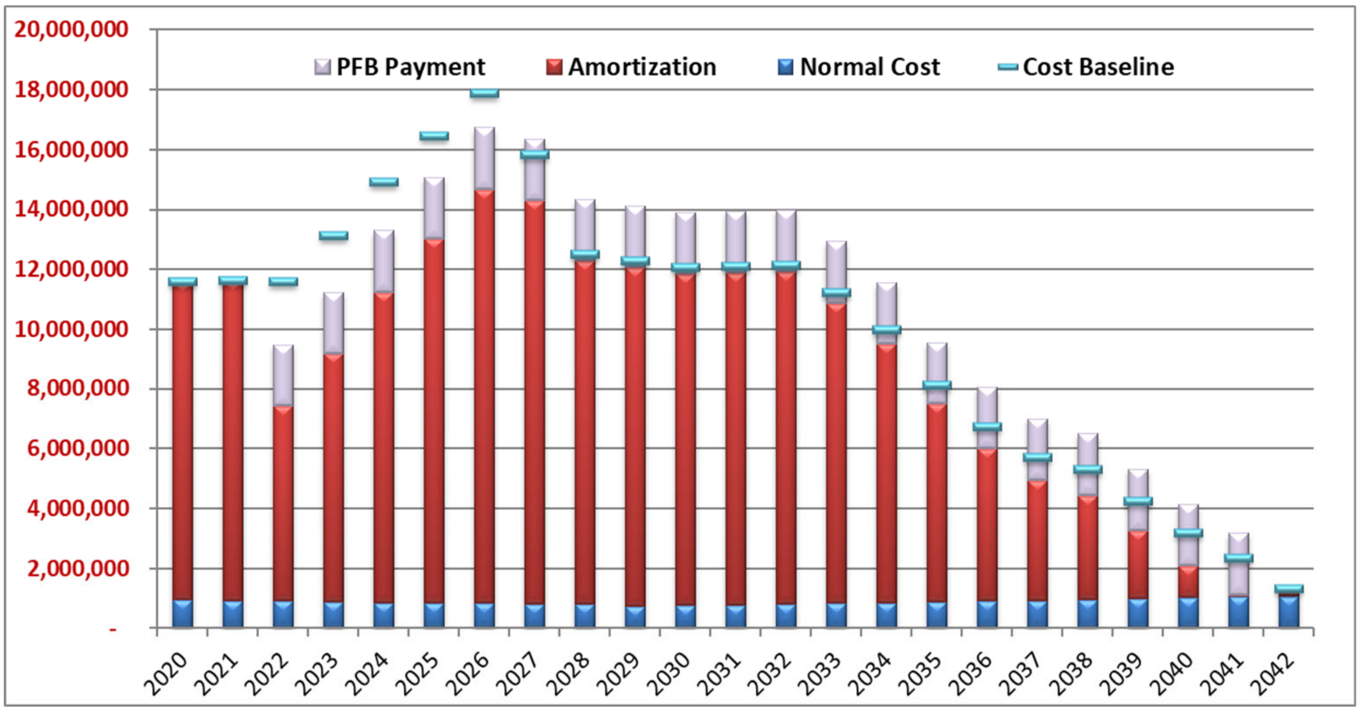
| | | | vs Baseline | |
|---|---|---|---|---|
| 5 Year Total | $ | 50.1 | $ | (11.4) |
| 10 Year Total | $ | 96.4 | $ | (7.7) |
| 20 Year Total | $ | 200.5 | $ | 3.9 |
| **Baseline** | | | PV Basis | |
| 5 Year Total | $ | 61.5 | $ | (10.2) |
| 10 Year Total | $ | 104.1 | $ | (7.6) |
| 20 Year Total | $ | 196.5 | $ | (1.2) |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 2 – Case 2C: Pension Funding Bond Issuance to 80%
## "Black Swan" Loss with Recovery

- 30% investment decline, followed by a 15% investment return, following by 7% per year.
- Expected annual payments are lower for first 10 years; higher over 20 years. Expected cost differential is lower with PFB scenario (2C) versus a no PFB scenario (1C) on a present value basis.
- Still get to 80% funding by 2032.

20 Year Projection of Employer Contributions
(Case 2C vs. Case 1C)




Life Cycle Cash Flows**

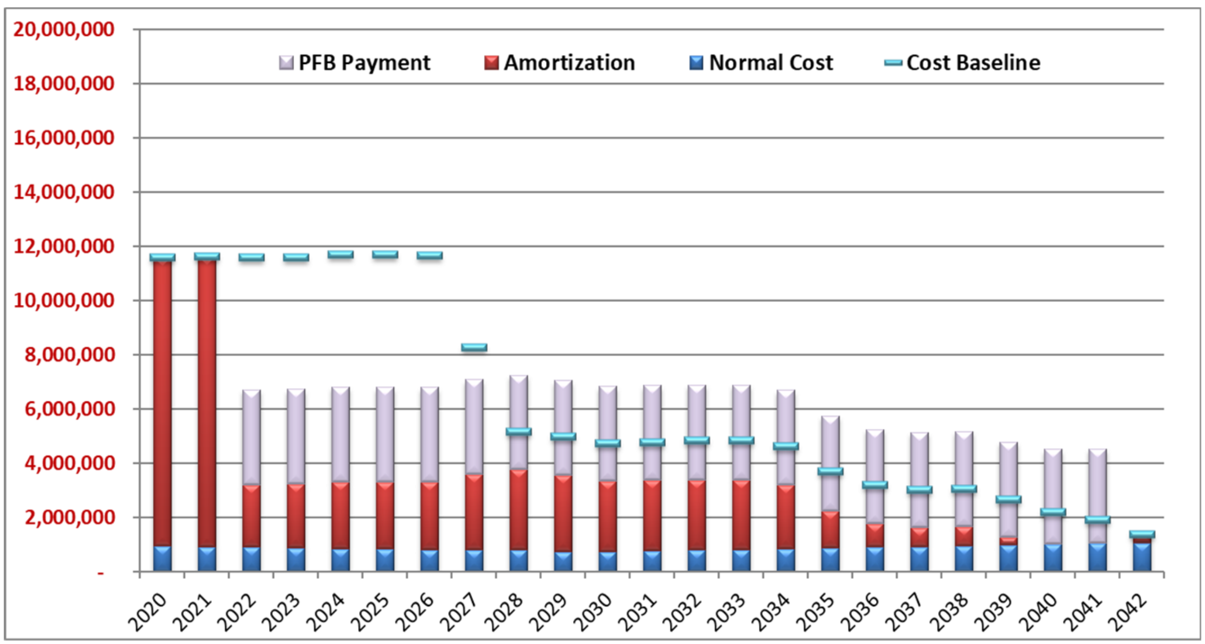
| | | | vs Baseline | |
|---|---|---|---|---|
| 5 Year Total | $ | 64.7 | $ | (9.3) |
| 10 Year Total | $ | 138.1 | $ | (0.8) |
| 20 Year Total | $ | 221.6 | $ | 13.5 |
| **Baseline** | | | PV Basis | |
| 5 Year Total | $ | 74.0 | $ | (8.4) |
| 10 Year Total | $ | 138.9 | $ | (2.2) |
| 20 Year Total | $ | 208.1 | $ | 5.8 |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 3 – Case 3A: Pension Funding Bond Issuance to 100% for Closed Plans/80% for General Plan

- Assumes 7% investment returns.
- Annual expected cost lowered by nearly $5 million in early years.
- PFB Amount - $47.5 Million
- Approximately $20 million more in bonds issued than 2A, but solid capacity remains under NAV Bond program.
- Appears to be most favorable of the cases analyzed.

20 Year Projection of Employer Contributions
(Case 3A vs. Case 1A)




Life Cycle Cash Flows**

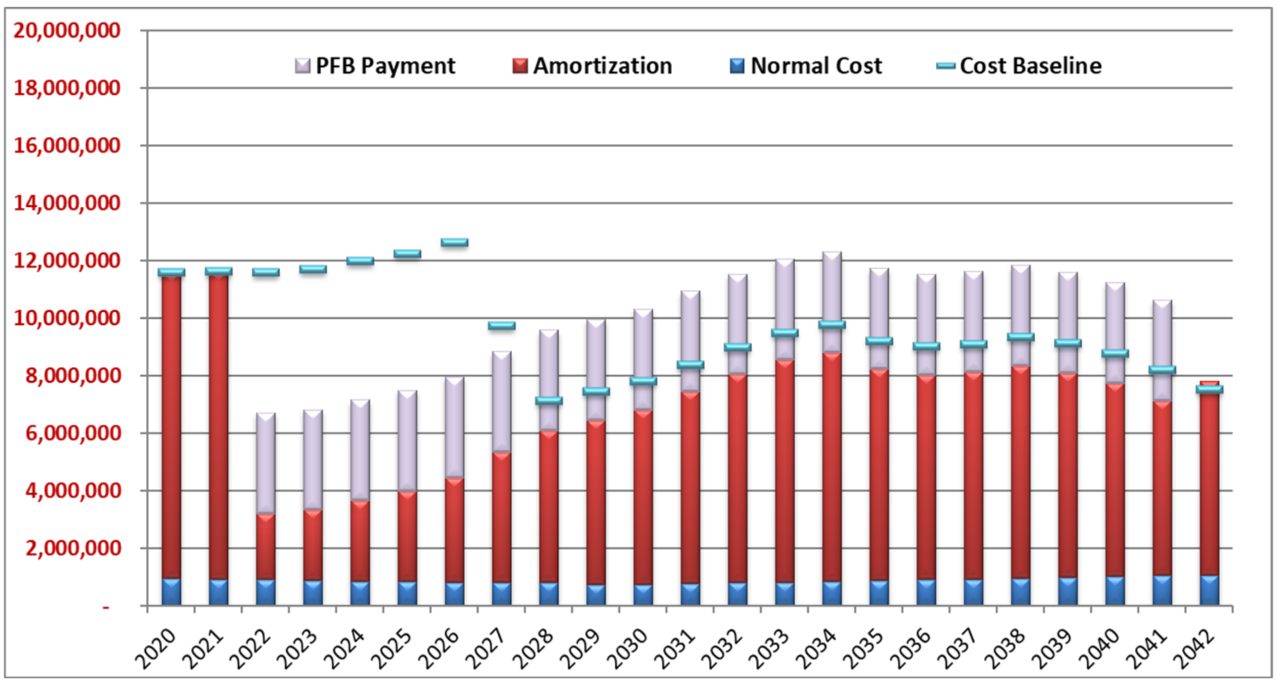
| | | | | |
|---|---|---|---|---|
| | | | | *vs Baseline* |
| 5 Year Total | $ | 33.8 | *$* | *(24.5)* |
| 10 Year Total | $ | 68.9 | *$* | *(17.5)* |
| 20 Year Total | $ | 123.8 | *$* | *3.2* |
| **Baseline** | | | | *PV Basis* |
| 5 Year Total | $ | 58.3 | *$* | *(21.8)* |
| 10 Year Total | $ | 86.4 | *$* | *(16.9)* |
| 20 Year Total | $ | 120.6 | *$* | *(5.6)* |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 3 – Case 3B: Pension Funding Bond Issuance to 100%/80% Lower Annual Returns

- Assumes 5% investment returns.
- Cash flow savings less than Case 3A, but better than Case 2B through 10 years.
- Present value of difference in payments is roughly breakeven versus 1B (i.e. no PFBs) over a 20 year period.
- Potential reward for issuing larger Pension Funding Bonds, even under the weaker return scenario.

20 Year Projection of Employer Contributions (Case 3B vs. Case 1B)




Life Cycle Cash Flows**

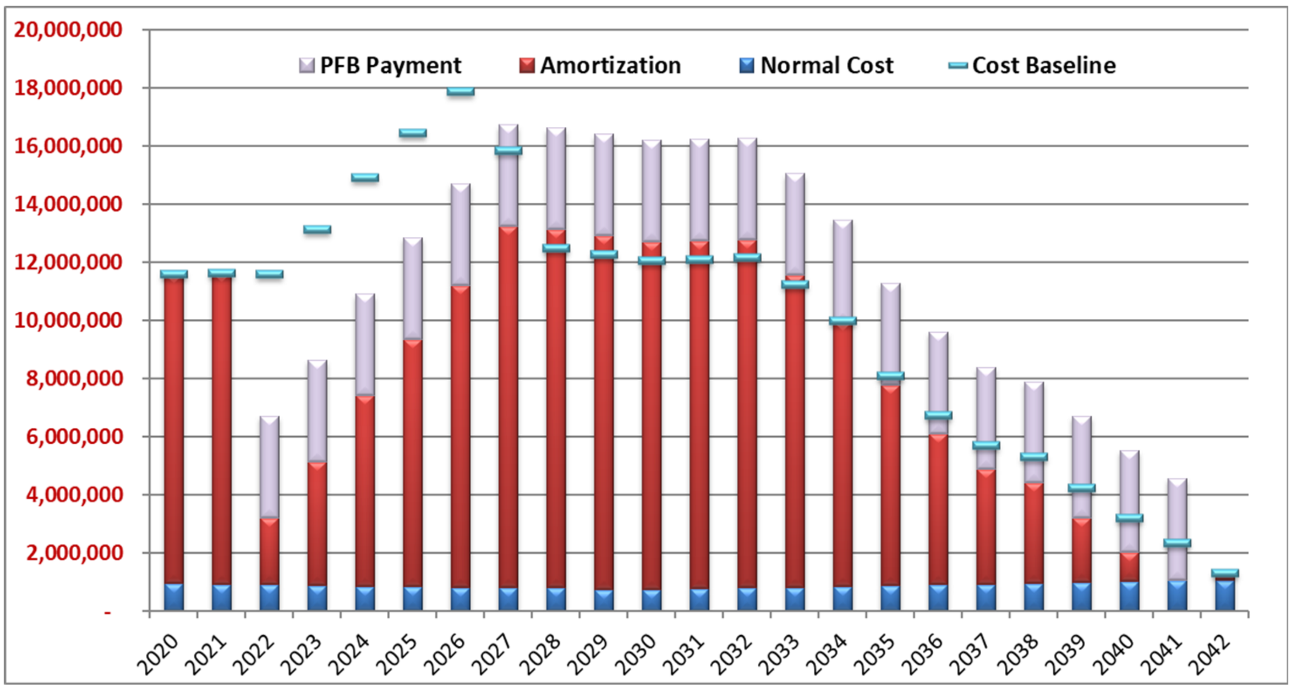
| | | | vs Baseline |
|---|---|---|---|
| 5 Year Total | $ | 37.5 | $ (24.0) |
| 10 Year Total | $ | 89.0 | $ (15.1) |
| 20 Year Total | $ | 206.3 | $ 9.8 |
| **Baseline** | | | *PV Basis* |
| 5 Year Total | $ | 61.5 | $ (21.4) |
| 10 Year Total | $ | 104.1 | $ (15.1) |
| 20 Year Total | $ | 196.5 | $ (1.4) |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 3 – Case 3C: Pension Funding Bond Issuance to 100%/80% "Black Swan" Loss with Recovery

- 30% investment decline, followed by a 15% investment return, following by 7% per year.
- Expected annual cost goes up, but not by as much as Case 1C (i.e. no PFB).
- Lower projected payments than 2C over 5 and 10 years. Higher projected payments versus Case 2C over 20 years time period.

20 Year Projection of Employer Contributions
(Case 3C vs. Case 1C)




Life Cycle Cash Flows**

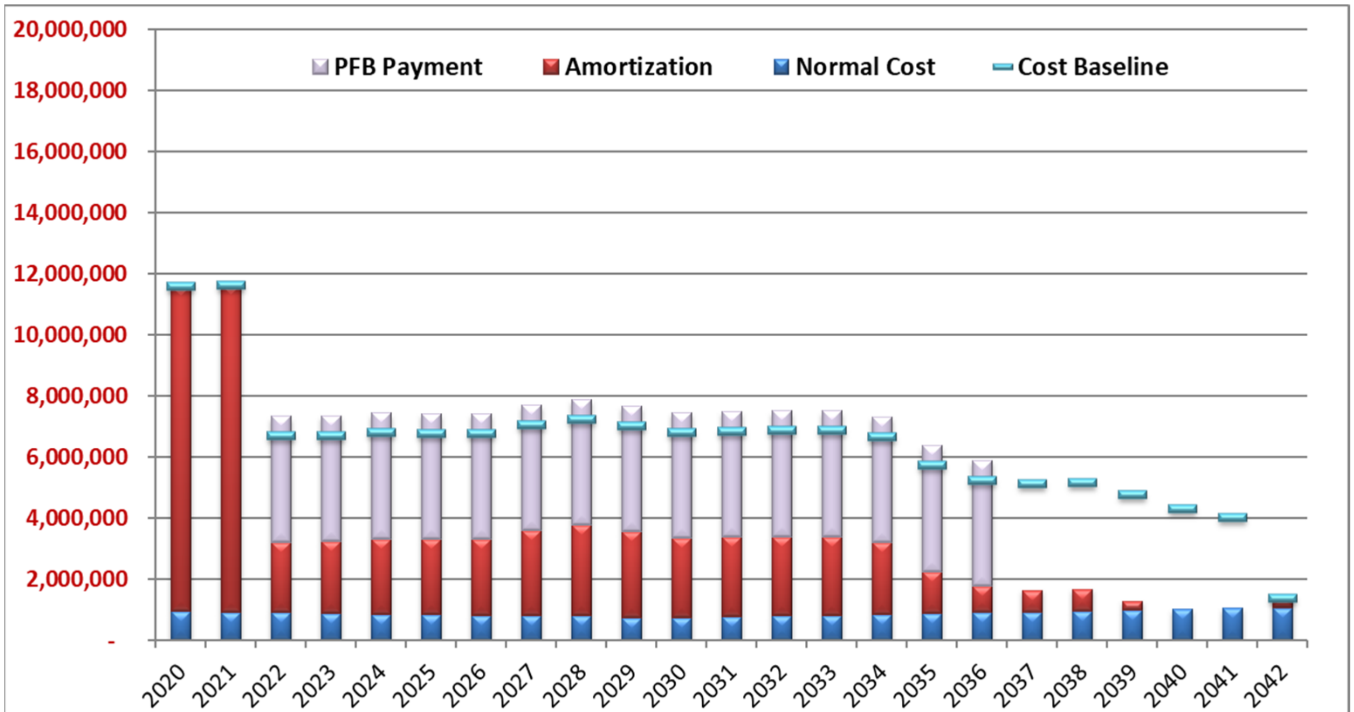
| | | | | |
|---|---|---|---|---|
| | | | *vs Baseline* | |
| 5 Year Total | $ | 53.8 | *$* | *(20.2)* |
| 10 Year Total | $ | 135.9 | *$* | *(2.9)* |
| 20 Year Total | $ | 234.6 | *$* | *26.6* |
| **Baseline** | | | *PV Basis* | |
| 5 Year Total | $ | 74.0 | *$* | *(18.2)* |
| 10 Year Total | $ | 138.9 | *$* | *(5.7)* |
| 20 Year Total | $ | 208.1 | *$* | *10.8* |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 3 – Case 3D: Pension Funding Bond Issuance to 100%/80% with 15-Year Bond Amortization

- Assumes 7% annual returns.
- PFB Amount - $47.5 Million
- Amortizing the PFB payments over 15 years vs. 20 provides a limited benefit vs. the 20 year scenario (i.e. 3A).

20 Year Projection of Employer Contributions
(Case 3D vs. Case 3A)




Life Cycle Cash Flows**

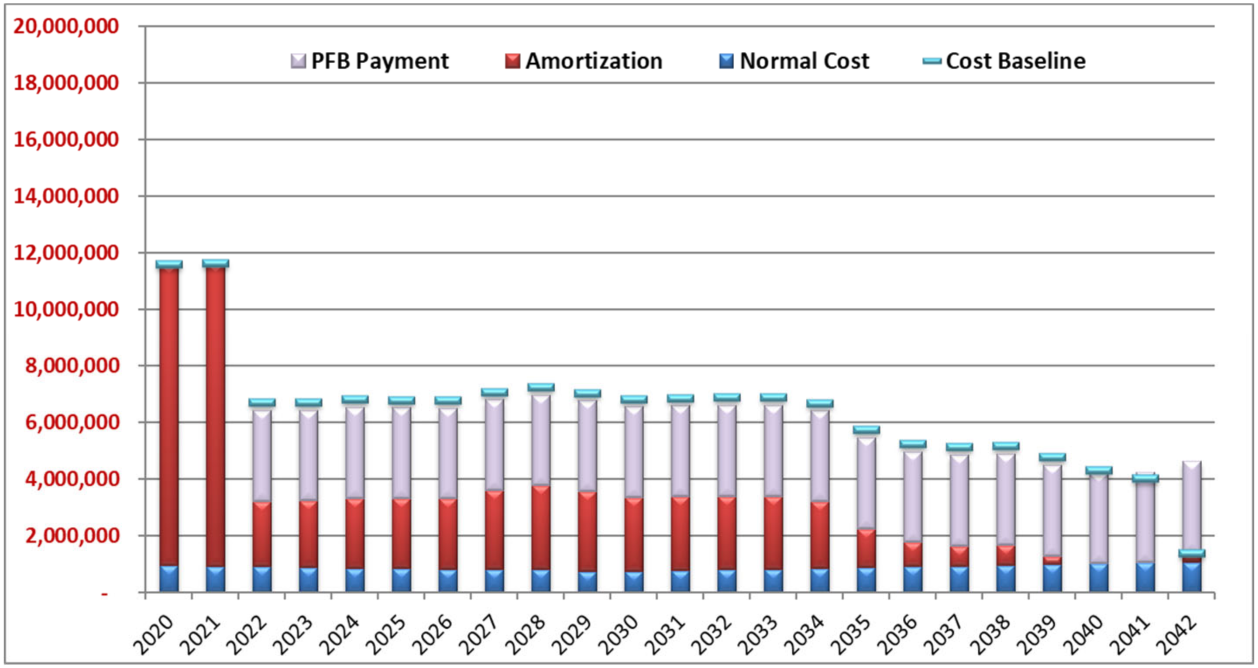
| | | | | vs Baseline |
|---|---|---|---|---|
| 5 Year Total | $ | 37.0 | $ | 3.1 |
| 10 Year Total | $ | 75.2 | $ | 6.3 |
| 20 Year Total | $ | 115.8 | $ | (8.0) |
| **Baseline** | | | | PV Basis |
| 5 Year Total | $ | 33.8 | $ | 2.8 |
| 10 Year Total | $ | 68.9 | $ | 5.2 |
| 20 Year Total | $ | 123.8 | $ | (2.2) |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Scenario 3 – Case 3E: Pension Funding Bond Issuance to 100%/80% with 25-Year Bond Amortization

- Assumes 7% annual returns.
- PFB Amount - $47.5 Million
- Limited benefit to a 25 year PFB amortization vs. a 20 year.
- Debt service on Pension Funding Bond extends beyond the years shown in the graph.

20 Year Projection of Employer Contributions
(Case 3E vs. Case 3A)




Life Cycle Cash Flows**

| | | | | |
|---|---|---|---|---|
| | | | *vs Baseline* | |
| **5 Year Total** | **$** | **32.4** | *$* | *(1.5)* |
| **10 Year Total** | **$** | **66.0** | *$* | *(2.9)* |
| **20 Year Total** | **$** | **118.0** | *$* | *(5.8)* |
| **Baseline** | | | *PV Basis* | |
| **5 Year Total** | **$** | **33.8** | *$* | *(1.3)* |
| **10 Year Total** | **$** | **68.9** | *$* | *(2.3)* |
| **20 Year Total** | **$** | **123.8** | *$* | *(3.8)* |

*Projected as of 10/1/2021 based on 2019 valuations.
** Total of projected payments for UAAL amortization, normal cost, and PFB debt service (if applicable).
Cash-flow projections prepared by Boomershine Consulting Group, LLC.

# Next Steps

- **Early July:** Update scenarios with actual investment performance and plan asset values since last valuation; modify existing scenarios or add new ones as directed by staff. Perform additional risk analysis as desired by working group.

- **By Mid-July:** Brief Pension Board(s) on opportunity/approach.

- **Balance of July:** Presentation to City Commission.

- **August:** Prepare and pass Bond Resolution; engage underwriter(s); and obtain ratings.

- Bond issue sold by end of September to lock in new pension cost structure (new Actuarially Determined Contribution plus bond debt service) prior to start of fiscal year 2022. Execute post-sale plan for investing proceeds.

# Appendix A: Florida Pension Funding Bonds Examples

## Florida Pension Bond Transactions

| | | | | | |
|---|---|---|---|---|---|
| Par Amount | $206,080,000 | | | | |
| Issuer | City of Gainesville, FL | | | | |
| Description | Special Obligation Revenue Bonds | | | | |
| Project | (Taxable Pension Obligation Bonds) | | | | |
| Series | Series 2020 | | | | |
| Rating (M/S/F) | Aa3/-/AA- | | | | |
| Credit Enhance. | n/a | | | | |
| Redemption | 10/01/2030 @ 100% | | | | |
| Sale Date | 9/11/2020 | | | | |
| Due Date | 1-Oct | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | | | | | |
| 1 | 4,235,000 | 0.541% | 0.541% | 0.130% | 0.411% |
| 2 | 5,415,000 | 0.641% | 0.641% | 0.130% | 0.511% |
| 3 | 5,850,000 | 0.817% | 0.817% | 0.160% | 0.657% |
| 4 | 6,315,000 | 0.997% | 0.997% | 0.260% | 0.737% |
| 5 | 6,795,000 | 1.117% | 1.117% | 0.260% | 0.857% |
| 6 | 7,310,000 | 1.416% | 1.416% | 0.450% | 0.966% |
| 7 | 7,860,000 | 1.566% | 1.566% | 0.450% | 1.116% |
| 8 | 8,435,000 | 1.835% | 1.835% | 0.670% | 1.165% |
| 9 | 9,060,000 | 1.935% | 1.935% | 0.670% | 1.265% |
| 10 | 9,710,000 | 2.035% | 2.035% | 0.670% | 1.365% |
| 11 | 10,400,000 | 2.135% | 2.135% | 0.670% | 1.465% |
| 12 | 11,125,000 | 2.235% | 2.235% | 0.670% | 1.565% |
| 13 | 11,895,000 | 2.335% | 2.335% | 0.670% | 1.665% |
| 14 | 12,700,000 | 2.435% | 2.435% | 0.670% | 1.765% |
| 15 | 12,995,000 | 2.535% | 2.535% | 0.670% | 1.865% |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | 69,340,000 | 3.047% | 3.047% | 1.420% | 1.627% |
| 21 | | | | | |
| 22 | 6,640,000 | 3.097% | 3.097% | 1.420% | 1.677% |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| Purpose | Series 2020 Bonds issued to fund a portion of the currently estimated pension obligations of the City (Consolidated Police and Firefighters' Plan and Employees' Plan). Net deposit to Employees' Plan equal to $158.7M and Consolidated Plan equal to $46.2M. | | | | |
| Security | Covenant to Budget and Appropriate Non-Ad Valorem Revenues | | | | |
| Funded Ratios | End of FY2019 Employees' Plan funded ratio was equal to 71.5% (UAAL equal to $167M) and Consolidated Plan funded ratio was equal to 83.5% (UAAL equal to $48.7M) | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Par Amount | $167,155,000 | | | | |
| Issuer | City of Fort Lauderdale, FL | | | | |
| Description | Taxable Special Obligation Refunding Bonds, | | | | |
| Project | (Refunding of Series 2012 Pension Obligation Bonds) | | | | |
| Series | Series 2020 | | | | |
| Rating (M/S/F) | Aa2/AAA/- | | | | |
| Credit Enhance. | n/a | | | | |
| Redemption | 01/01/2030 @ 100% | | | | |
| Sale Date | 6/25/2020 | | | | |
| Due Date | 1-Jan | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | | | | | |
| 1 | 1,050,000 | 0.400% | 0.400% | 0.170% | 0.230% |
| 2 | 3,315,000 | 0.550% | 0.550% | 0.170% | 0.380% |
| 3 | 3,335,000 | 0.650% | 0.650% | 0.210% | 0.440% |
| 4 | 22,600,000 | 0.750% | 0.750% | 0.320% | 0.430% |
| 5 | 20,085,000 | 0.950% | 0.950% | 0.320% | 0.630% |
| 6 | 18,650,000 | 1.150% | 1.150% | 0.530% | 0.620% |
| 7 | 18,305,000 | 1.300% | 1.300% | 0.530% | 0.770% |
| 8 | 18,520,000 | 1.450% | 1.450% | 0.680% | 0.770% |
| 9 | 20,850,000 | 1.600% | 1.600% | 0.680% | 0.920% |
| 10 | 15,085,000 | 1.700% | 1.700% | 0.680% | 1.020% |
| 11 | 12,485,000 | 1.850% | 1.850% | 0.680% | 1.170% |
| 12 | 12,875,000 | 1.950% | 1.950% | 0.680% | 1.270% |
| 13 | | | | | |
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| 25 | | | | | |
| Purpose | Series 2020 Bonds refunded the Series 2012 Bonds which were issued to pay the cost of funding a portion of the UAAL of the City's General Employees' Retirement System (GERS) and Police and Firefighters' Retirement System (PFRS). Net deposit to GERS Plan equal to $146.4M and PFRS equal to $173.4M. | | | | |
| Security | Designated Revenues (Communications Services Tax Revenues, Public Service Tax Revenues, Guaranteed Entitlement Revenues and Business Tax Revenues) backed by a Covenant to Budget and Appropriate Non-Ad Valorem Revenues | | | | |
| Funded Ratios | End of FY2011 GERS Plan funded ratio was equal to 66.3% (UAAL equal to $181M) and PFRS Plan funded ratio was equal to 69.8% (UAAL equal to $218.8M) | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Par Amount | $51,670,000 | | | | |
| Issuer | City of Palm Bay, FL | | | | |
| Description | Taxable Special Obligation Refunding Bonds | | | | |
| Project | (Refunding of Series 2013 Pension Obligation Bonds) | | | | |
| Series | Series 2019 | | | | |
| Rating (M/S/F) | -/A+/AA+ | | | | |
| Credit Enhance. | BAM | | | | |
| Redemption | 10/01/29 @ 100% | | | | |
| Sale Date | 12/5/2019 | | | | |
| Due Date | 1-Oct | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | | | | | |
| 1 | 285,000 | 1.978% | 1.978% | 1.560% | 0.418% |
| 2 | 615,000 | 2.078% | 2.078% | 1.580% | 0.498% |
| 3 | 625,000 | 2.117% | 2.117% | 1.600% | 0.517% |
| 4 | 640,000 | 2.251% | 2.251% | 1.620% | 0.631% |
| 5 | 655,000 | 2.351% | 2.351% | 1.620% | 0.731% |
| 6 | 2,055,000 | 2.408% | 2.408% | 1.730% | 0.678% |
| 7 | 2,065,000 | 2.508% | 2.508% | 1.730% | 0.778% |
| 8 | 2,085,000 | 2.624% | 2.624% | 1.800% | 0.824% |
| 9 | 2,105,000 | 2.724% | 2.724% | 1.800% | 0.924% |
| 10 | 2,635,000 | 2.774% | 2.774% | 1.800% | 0.974% |
| 11 | 2,690,000 | 2.874% | 2.874% | 1.800% | 1.074% |
| 12 | 2,955,000 | 2.974% | 2.974% | 1.800% | 1.174% |
| 13 | 3,145,000 | 3.074% | 3.074% | 1.800% | 1.274% |
| 14 | 3,235,000 | 3.124% | 3.124% | 1.800% | 1.324% |
| 15 | 3,335,000 | 3.174% | 3.174% | 1.800% | 1.374% |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | 22,545,000 | 3.476% | 3.476% | 2.240% | 1.236% |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| Purpose | Series 2019 Bonds refunded the Series 2013 Bonds which were issued to refund the Series 2008 Bonds. The Series 2008 Bonds funded a deposit to the Defined Benefit Police and Firefighter's Retirement Pension System to discharge the City's unfunded actuarial accrued liability and reimburse the City for advances made by the City for a portion of the unfunded actuarial accrued liability for the prior fiscal year (2006/07). | | | | |
| Security | Designated Revenues (Communications Services Tax and Public Service Tax Revenues) backed by a Covenant to Budget and Appropriate Non-Ad Valorem Revenues | | | | |
| Funded Ratios | As of FY2006, the Police and Firefighters' Retirement Pension System plan had a funded ratio of 80% and a UAAL of $36.6M. The City previously issued pension obligation bonds in FY2004 which at the time increased the plan's funded ratio from 80.8% to 96.1%. A change in actuarial methodology combined with an increase in benefits reduced the system's funded ratio back to 80%. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Par Amount | $50,400,000 | | | | |
| Issuer | City of West Palm Beach, FL | | | | |
| Description | Special Obligation Bonds | | | | |
| Project | (Police Pension Funding Project), | | | | |
| Series | Taxable Series 2016A | | | | |
| Rating (M/S/F) | Aa3/-/AA | | | | |
| Credit Enhance. | n/a | | | | |
| Redemption | 10/01/26 @ 100% | | | | |
| Sale Date | 6/8/2016 | | | | |
| Due Date | 1-Oct | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | 505,000 | 0.650% | 0.650% | 0.430% | 0.0022 |
| 1 | 2,115,000 | 1.100% | 1.100% | 0.600% | 0.500% |
| 2 | 2,135,000 | 1.387% | 1.387% | 0.780% | 0.607% |
| 3 | 2,165,000 | 1.650% | 1.650% | 0.930% | 0.720% |
| 4 | 2,200,000 | 1.835% | 1.835% | 1.230% | 0.605% |
| 5 | 2,240,000 | 2.035% | 2.035% | 1.230% | 0.805% |
| 6 | 2,290,000 | 2.264% | 2.264% | 1.510% | 0.754% |
| 7 | 2,340,000 | 2.514% | 2.514% | 1.510% | 1.004% |
| 8 | 2,400,000 | 2.621% | 2.621% | 1.710% | 0.911% |
| 9 | 2,460,000 | 2.771% | 2.771% | 1.710% | 1.061% |
| 10 | 2,530,000 | 2.921% | 2.921% | 1.710% | 1.211% |
| 11 | 2,605,000 | 3.121% | 3.121% | 1.710% | 1.411% |
| 12 | 2,685,000 | 3.271% | 3.271% | 1.710% | 1.561% |
| 13 | 2,775,000 | 3.421% | 3.421% | 1.710% | 1.711% |
| 14 | 2,870,000 | 3.521% | 3.521% | 1.710% | 1.811% |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | 16,085,000 | 3.998% | 3.998% | 2.510% | 1.488% |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| Purpose | Series 2016 Bonds issued to pay the cost of funding $50M of the current UAAL of the Police Pension Fund and COI | | | | |
| Security | Covenant to Budget and Appropriate Non-Ad Valorem Revenues | | | | |
| Funded Ratios | End of FY2015 Police Pension Fund funded ratio was equal to 82.4%. Total UAAL as of FY2015 was equal to $56.7M. | | | | |

## Florida Pension Bond Transactions

| Par Amount | $25,000,000 | | | | |
|---|---|---|---|---|---|
| Issuer | City of Hialeah, FL | | | | |
| Description | Taxable Special Obligation Refunding | | | | |
| Project | and Revenue Bonds, | | | | |
| Series | Series 2015A | | | | |
| Rating (M/S/F) | -/A+/A- | | | | |
| Credit Enhance. | AGM | | | | |
| Redemption | 12/01/25 @ 100% | | | | |
| Sale Date | 11/20/2015 | | | | |
| Due Date | 1-Dec | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | | | | | |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | 1,145,000 | 2.657% | 2.657% | 1.700% | 0.957% |
| 5 | 1,180,000 | 3.057% | 3.057% | 1.700% | 1.357% |
| 6 | 1,220,000 | 3.453% | 3.453% | 2.040% | 1.413% |
| 7 | 1,265,000 | 3.603% | 3.603% | 2.040% | 1.563% |
| 8 | 1,310,000 | 3.781% | 3.781% | 2.260% | 1.521% |
| 9 | 1,360,000 | 3.931% | 3.931% | 2.260% | 1.671% |
| 10 | 1,415,000 | 4.031% | 4.031% | 2.260% | 1.771% |
| 11 | 1,475,000 | 4.231% | 4.231% | 2.260% | 1.971% |
| 12 | 1,540,000 | 4.381% | 4.381% | 2.260% | 2.121% |
| 13 | 1,610,000 | 4.481% | 4.481% | 2.260% | 2.221% |
| 14 | 1,685,000 | 4.581% | 4.581% | 2.260% | 2.321% |
| 15 | 1,765,000 | 4.681% | 4.681% | 2.260% | 2.421% |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | 8,030,000 | 5.137% | 5.137% | 3.020% | 2.117% |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |

| Par Amount | $37,435,000 | | | | |
|---|---|---|---|---|---|
| Issuer | City of Miami, FL | | | | |
| Description | Non-Ad Valorem Refunding Revenue Bonds, | | | | |
| Project | Taxable Pension | | | | |
| Series | Series 2009 | | | | |
| Rating (M/S/F) | Aa3/A/- | | | | |
| Credit Enhance. | n/a | | | | |
| Redemption | 12/01/2019 @ 100% | | | | |
| Sale Date | 7/10/2009 | | | | |
| Due Date | 1-Dec | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | | | | | |
| 1 | 1,275,000 | 3.400% | 3.400% | 0.450% | 2.950% |
| 2 | | | | | |
| 3 | | | | | |
| 4 | 4,125,000 | 4.750% | 4.750% | 2.220% | 2.530% |
| 5 | 100,000 | 5.250% | 5.250% | 2.220% | 3.030% |
| 6 | 100,000 | 5.500% | 5.500% | 2.890% | 2.610% |
| 7 | 1,150,000 | 6.350% | 6.350% | 2.890% | 3.460% |
| 8 | | | | | |
| 9 | 18,205,000 | 6.750% | 7.200% | 3.320% | 3.880% |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | 8,185,000 | 7.000% | 7.450% | 3.320% | 4.130% |
| 15 | | | | | |
| 16 | 4,295,000 | 7.550% | 7.550% | 4.200% | 3.350% |
| 17 | | | | | |
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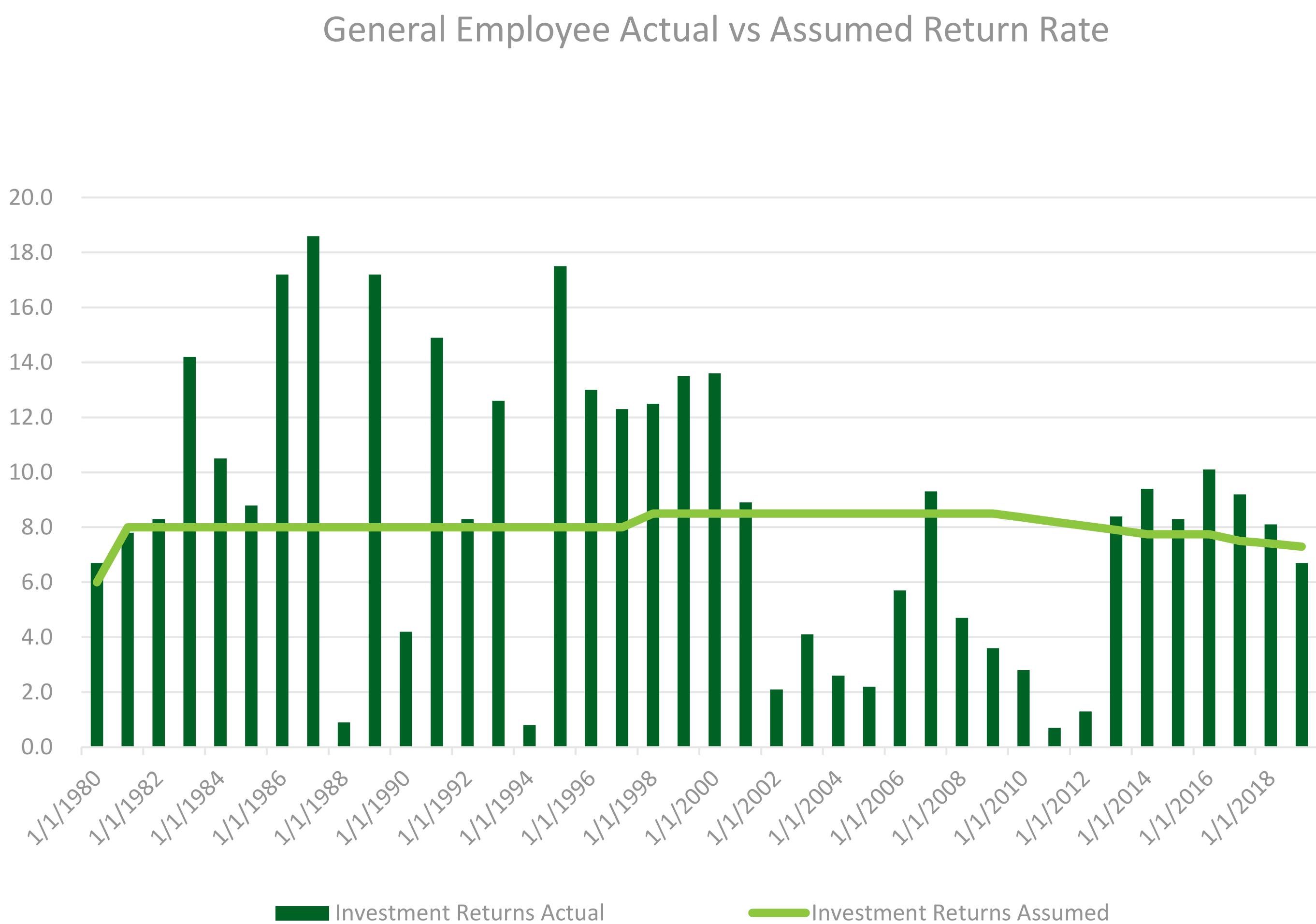
| 24 | | | | | |
| 25 | | | | | |

| Par Amount | $53,030,000 | | | | |
|---|---|---|---|---|---|
| Issuer | City of Miami Beach, FL | | | | |
| Description | Taxable Special Obligation Refunding Bonds | | | | |
| Project | (Pension Funding Project), | | | | |
| Series | Series 2005 | | | | |
| Rating (M/S/F) | Aaa/AAA/- | | | | |
| Credit Enhance. | Ambac | | | | |
| Redemption | 9/01/2015 @ 100% | | | | |
| Sale Date | 8/15/2005 | | | | |
| Due Date | 1-Sep | | | | |
| Maturity (yr) | Par | Coupon | Yield | UST | Spread |
| 6 mo | | | | | |
| 1 | 2,380,000 | 4.240% | 4.240% | 3.910% | 0.330% |
| 2 | 2,475,000 | 4.380% | 4.380% | 4.080% | 0.300% |
| 3 | 2,585,000 | 4.500% | 4.500% | 4.110% | 0.390% |
| 4 | 2,705,000 | 4.570% | 4.570% | 4.150% | 0.420% |
| 5 | 2,830,000 | 4.610% | 4.610% | 4.150% | 0.460% |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | 16,895,000 | 4.860% | 4.860% | 4.270% | 0.590% |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | 23,160,000 | 5.230% | 5.230% | 4.530% | 0.700% |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |

| | City of Hialeah, FL | City of Miami, FL | City of Miami Beach, FL |
|---|---|---|---|
| Purpose | Series 2015A Bonds issued to provide funds to finance a portion of the annual required contribution for FY2015 & 2016 with respect to the Employees Retirement System (defined benefit plan) | Series 2009 Bonds issued to refund the Non-Ad Valorem Variable Rate Ref Rev Bonds, Taxable Pension Series 2006 and pay swap termination. The Series 2006 Bonds were issued to refund a portion of the Series 1995 Bonds. Original bonds were issued for the purpose of discharging certain of the City's UAAL with respect to three pension plans maintained by the City. | Series 2005 Bonds issued to refund the Series 1994 (Pension Funding Project) Bonds. Original bonds were issued for the purpose of discharging certain of the City's UAAL with respect to three pension plans maintained by the City. |
| Security | Bonds are secured by Franchise Fee Revenue (franchise granted to Florida Power & Light to supply electricity and other electric related services to the City). | Covenant to Budget and Appropriate Non-Ad Valorem Revenues | Covenant to Budget and Appropriate Non-Ad Valorem Revenues |
| Funded Ratios | End of FY2014 Employees' Retirement System plan funded ratio was equal to 70.7%. Total UAAL as of FY2014 was equal to $233.4M. | | |

# Appendix B: Historical Pension Investment Returns

# General Employee Pension Investment Returns

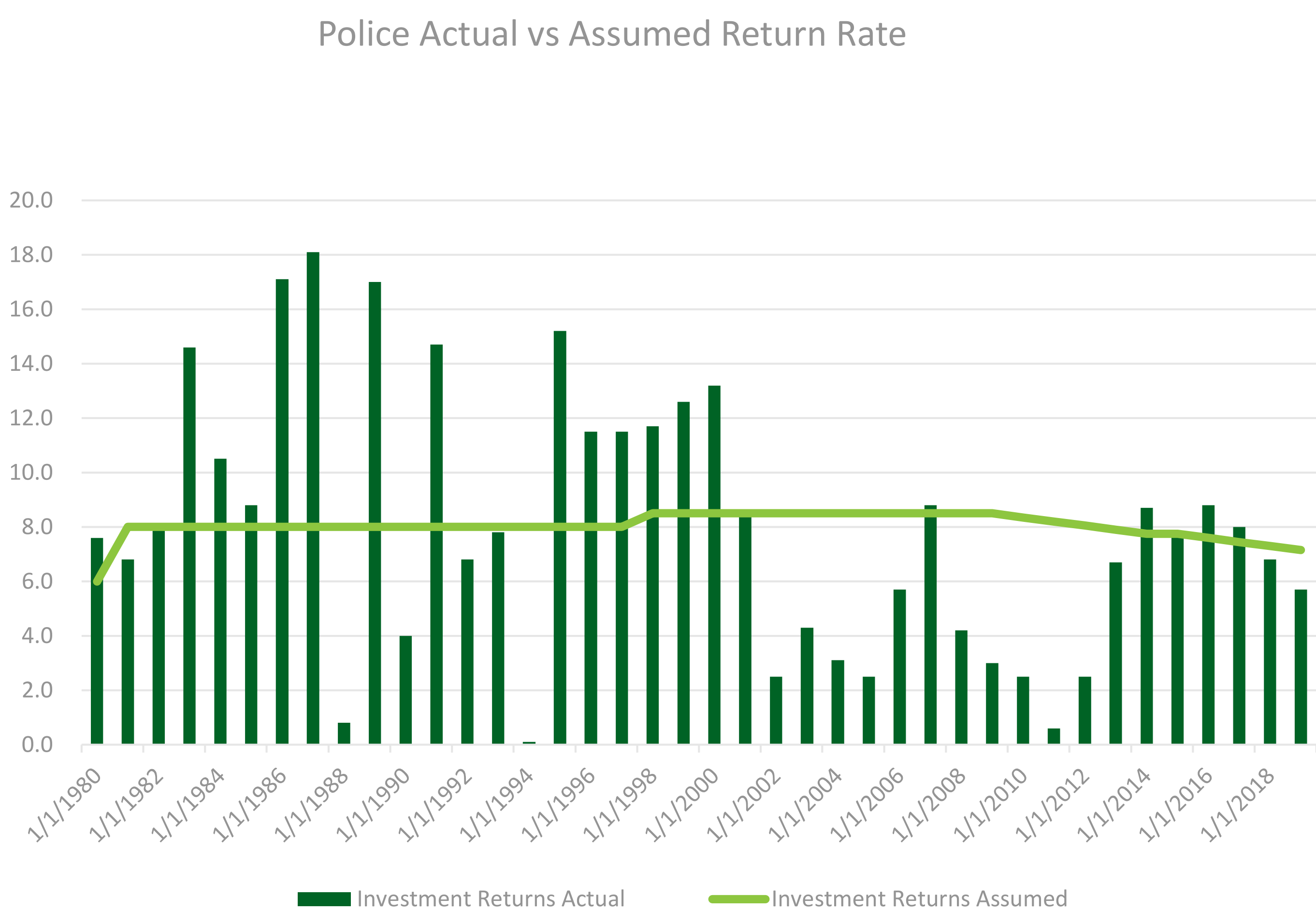



| Current Discount Rate: |
|---|
| 7.2% |

| Average Return Last: | |
|---|---|
| 5yrs | 8.5% |
| 10yrs | 6.5 |
| 15yrs | 6.0 |
| 20yrs | 6.1 |
| 40yrs | 8.4 |

Source: GRS Actuarial Valuation, as of 10/1/2019

# Police Pension Investment Returns



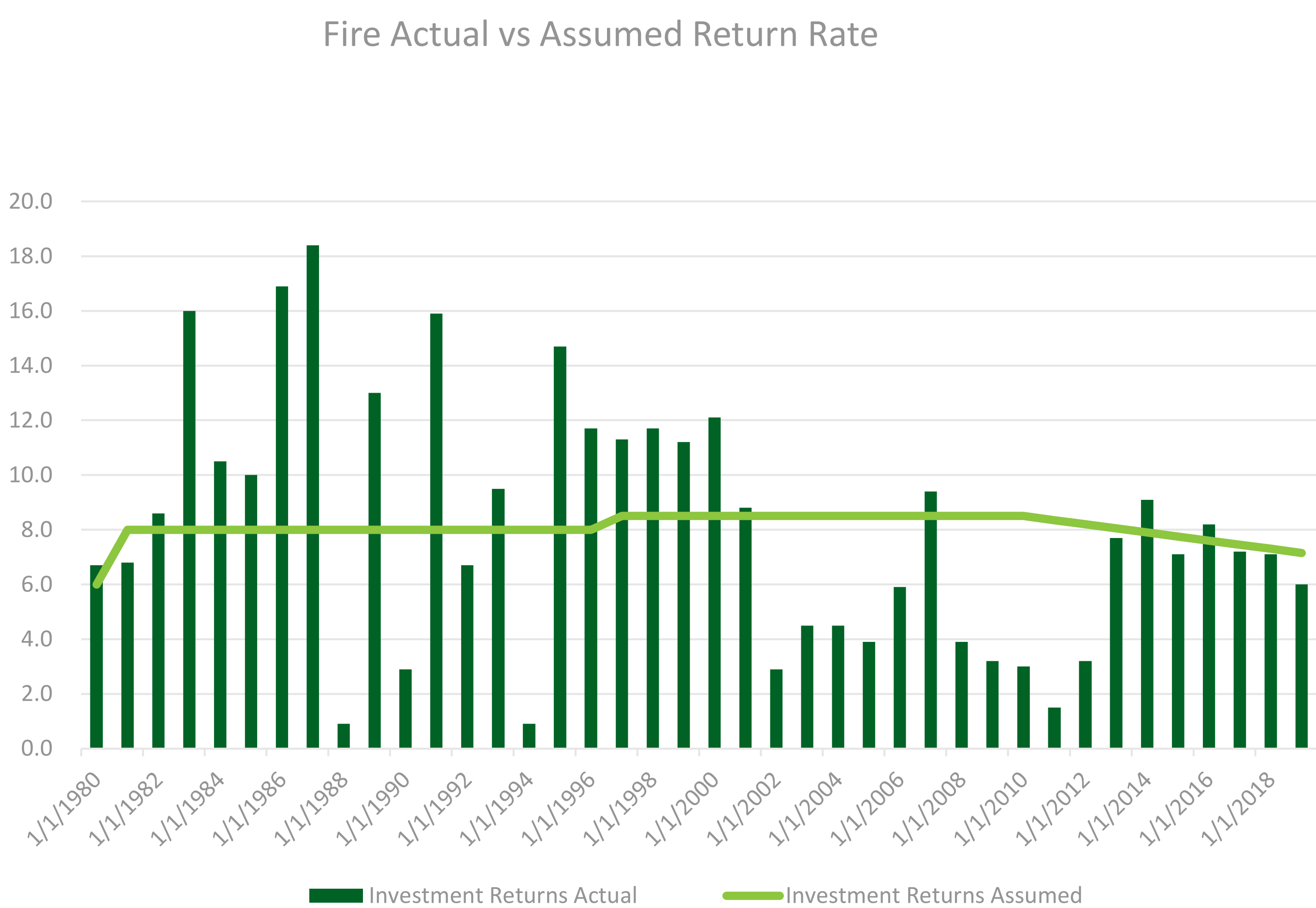

Current Discount Rate:
7.0%

Average Return Last:

| | |
|---|---|
| 5yrs | 7.4% |
| 10yrs | 5.8 |
| 15yrs | 5.5 |
| 20yrs | 5.7 |
| 40yrs | 7.9 |

Source: GRS Actuarial Valuation, as of 10/1/2019

# Firefighter Pension Investment Returns




Current Discount Rate:
7.0%

| Average Return Last: | |
|---|---|
| 5yrs | 7.1% |
| 10yrs | 6.0 |
| 15yrs | 5.8 |
| 20yrs | 6.0 |
| 40yrs | 8.3 |

Source: GRS Actuarial Valuation, as of 10/1/2019

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