

## **Town of Palm Beach Retirement System Annual Report**

The Town of Palm Beach Retirement System is administered by a nine-member board of trustees, serving as fiduciaries to the members and fund. The board meets quarterly to discuss agenda items related to the administration of the retirement plan. The board consists of five (5) resident members who are appointed by Town Council, three (3) Town employees representing groups General & Ocean Rescue, Police Officers, and Fire Rescue. The trustees serve in staggering terms of office. The Town Manager serves as an ex officio voting trustee member. Trustees of the board are as follows:

Daniel Stanton, Chairman (Resident)	Jeff Amling, Trustee (Resident)
Gerald Goldsmith, Chair Pro Tem (Resident)	Kirk Blouin, Trustee (Town Mgr.)
Brett Madison, Secretary (Employee)	Michael Marx, Trustee (Employee)
Brad Kaufman, Trustee (Resident)	Daniel Wilkinson, Trustee (Employee)
Ed Carter, Trustee (Resident)	

### **Actuarial Funding and Contribution Status**

The funding status of the plan is determined after the fiscal year end, and after the system's actuary, Gabriel, Roeder & Smith (GRS), collects and analyzes the numerous system demographic and economic fiscal year experiences. These experiences are then compared to the actuarial assumptions (investment, retirement, DROP, terminations, mortality, payroll increases, etc.). The funding status and future Town contributions are identified within the fiscal year actuarial valuation based on these experiences. The current funding status is based on the most recent September 30, 2017 actuarial valuation. The 2017 fiscal year funding ratio of the retirement system is 68.9%. The 2017 Unfunded Actuarial Accrued Liability (UAAL) is \$98,995,141.

The fiscal year 2019 actuarial determined employer contribution (ADEC) rate of payroll is derived from the fiscal year 2017 actuarial valuation. In the year that begins October 1, 2018 (FY 2019), the ADEC rate is 49.30% of payroll, representing \$9,631,447 if payment is distributed evenly across the fiscal year. The actuary determined that if the Town chooses to pay the full amount at the beginning of the 2019 fiscal year, the contribution payment will be reduced to \$9,302,382, representing a savings of \$329,065 in interest cost savings (and this amount is treated as an additional contribution to reduce the UAAL).

The assumed investment return used with the 2017 valuation was 7.3%, reduced from 7.4% in the previous valuation, and is scheduled to be reduced by .10% per year until reaching 7.0% as of September 30, 2020. Likewise, the payroll growth assumption used in the 2017 valuation was 3.00%, reduced from 3.25% in the previous valuation. This assumption will be reduced to 2.75% in the September 30, 2018 valuation. These changes in assumptions increase Town contributions for fiscal year 2019 by approximately \$327,000. The board also chose to reduce the amortization period for paying off the UAAL from 30 years to 25 years during the 2017 fiscal year, causing fiscal year 2019 Town contributions to increase by \$194,000. The 2017 valuation included changes in benefits made to benefit group General/ Ocean Rescue (May, 2017) and bargaining Firefighters (August, 2017). These changes in benefits resulted in an increase in UAAL of \$2.434 million.

The board reported last year to Town Council an expected experience loss for fiscal year 2017 of \$2.85 million (primarily resulting from phasing in the fiscal year 2015 loss on the market value of assets). Due to fiscal year 2017 demographic experience gains added to an excellent 11.3% market return during the year, the total experience loss during fiscal year 2017 was \$1.27 million instead of the \$2.85 million previously estimated from fiscal year 2016 based on a past 4-years of gains and losses (smoothing of assets). This resulted with an \$84,000 increase in the required Town ADEC for fiscal year 2019.

The method of recognizing gains and losses over a 5-year period, smoothing of assets, significantly reduces the obligations of the Town in years when there are larger than normal losses experienced from market returns. Fiscal year 2015 serves as an example for how smoothing of assets serves the Town. The year 2015 fiscal year experienced a market investment loss of -4.2%, a \$23.5 million actuarial loss. Without a 5-year period for smoothing of the loss, \$23.5 million (plus or minus other non-investment gains or losses) would be added to UAAL causing a significant increase to 2017 Town contributions. The actuary calculated the fiscal year 2017 market investment return based on a five-year smoothing of the assets producing a fiscal year 6.7% rate of return, creating an actuarial investment experience loss of \$1.5 million.

The actuary has forecast an unrecognized loss of \$3.4 million for fiscal year 2018 based on the four years from 2014 through 2017. This means the fund will need to earn a market return gain of \$3.4 million above the assumed return in order to avoid a fiscal year 2018 loss.

The actuary has indicated that it will take a market 9.5% rate of return to prevent an investment experience loss for fiscal year 2018. Investment consultant, AndCo, has calculated the fiscal year 2018 six-month, March 31, 2018 net market return to be 3.02%. This means the fund will need to experience a significant improvement over the remaining months to create the investment gains needed to avoid an investment loss for the year.

The actuary recently stated from the 2017 valuation that of the required Town ADEC of \$9.6 million, \$7.2 million is the interest expense on the UAAL. This interest expense is calculated on the UAAL (\$98.99 million) at the same interest rate as the assumed investment rate of return (7.3%). This interest expense represents 75% of the annual required ADEC. The board believes this significant annual interest payment should create an appropriate incentive for the Town Council to continue with an aggressive policy to pay down the UAAL.

Town Council adopted a policy recommended by the actuary to appropriate \$5.4 million each year toward the payment of the UAAL. This annual Town contribution represents a payment above what the actuary annually determines as a required minimum of future Town contributions, or ADEC. The actuary recently opined that contributing an additional \$5.42 million per year coupled with past strengthening of the actuarial

assumptions and methods are expected to significantly strengthen the funded status of the plan.

### **Conclusion**

Trustees have expressed pleasure at seeing Town Council members attending quarterly board meetings, while listening and learning from discussions with professional consultants about the very complex issues of the Town's public retirement plan. It is occasionally suggested from Town citizens the idea that proper management of assets may prevent future investment reductions in plan assets. If there is an uncontroverted fact or axiom with institutional investing, it must be that one can rest assured that asset values will go up and go down. It is explicitly clear there is no guarantee that investments will do any of the things the portfolio was constructed to do. In fact, it will go down from time to time. The board of trustees and its advisors have been very proactive by managing the allocation of assets and portfolio managers to minimize risks and maximize returns.

Board members have expressed concern for what will happen when current trustees will at some point no longer serve on the board, and likewise members of Town Council will transition. Trustees fear that over time pressures will surface for other services and the Town Council will argue retirement plan funding levels have increased and the policy should be amended to reduce or eliminate the annual \$5.42 million allocation. Trustees have expressed their admiration and applaud Town Council for the decision to enact a policy establishing an additional \$5.42 million annual contribution toward a reduction of the UAAL. The trustees believe funding of the retirement plan continues to represent a significant risk facing the Town of Palm Beach in terms of its fiscal responsibility. We hope that future Town Councils will continue the current policy and that the annual \$5.42 million contribution will continue to be made.



FROM: Dave West, CFA, Senior Consultant  
TO: Board of Trustees  
DATE: July 10, 2018  
RE: Town of Palm Beach Retirement System: Consultant Summary of Investment Activity

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AndCo, as the Investment Consultant to the Board of Trustees of the Town of Palm Beach Retirement System ('the Plan') is pleased to provide the following summary of investment activity from the Consultant's date of hire through March 2018.

## Summary of Investment Activity

### Investment Environment

A slow, but sustained level of economic growth has provided a very constructive market environment for Pension Plan investments generally. While the low absolute level of interest rates has certainly been beneficial for the health and wellbeing of the economy, the commensurately low return afforded investors has arguably been the biggest challenge to institutional investment programs with fixed target return assumptions. The key to investment success thus far in the cycle has been driven by deploying alternate asset allocation solutions in lieu of investment in domestic bonds, and by maintaining a material allocation to the equity market. Investments with returns tied to inflation, such as commodities and commodity dependent emerging market economies, have not performed well in the low inflation environment to date.

We remain constructive on the general investment environment. The pace of economic growth should continue at a slow but steady pace while the Federal Reserve strives to manage to interest rate equilibrium through a well telegraphed schedule of hikes. The ECB, recently announcing the start of Tapering, provides further confidence of sustained economic growth abroad, all suggesting a continued period of prosperity in the maturing economic cycle. While valuations across investment areas appear universally full, reported earnings growth continues to support current equity market valuations at 18 times current profits. The orderly and prolonged credit cycle has kept investor confidence high resulting in a significant diminution of risk premiums on lower quality credit and liquidity.

The investment program is positioned well for a maturing market cycle. Investment program initiatives going forward will continue to address relative value opportunities and a continuance of a generally cycle-aware investment approach.

### Summary of Changes

The Board has implemented significant changes to the portfolio allocation to better align investments with the inherent characteristics of this market cycle, effectively implementing a more "all weather" approach to the portfolio construction. Policy level allocation targets and benchmarks have been adjusted and should provide a more productive baseline for the asset allocation. The long-term target allocation to overall equity has been increased. Domestic Equity has been increased, while allocations to emerging markets and foreign equity have been decreased proportionally. Allocations to Alternative Investments, such as Hedge Funds, Commodities, and otherwise inflation driven investments have been reduced dramatically, while allocations to Institutional Core Real Estate have been increased. Allocations to bonds will be kept at policy minimums while holdings in Alternative investments have been decreased, and associated manager engagements have been adjusted to reflect this general portfolio strategy.

With these changes to the allocation strategy complete, most recent attention has been focused on the suitability of manager mandate assignments. The investment program will maintain a reasonable balance

utilizing both active and passive index strategies as deemed optimal. Most recent changes to active investment managers include active manager transitions in International Equity, Domestic Mid Cap Equity (Value), and Investment Grade Fixed Income. Manager terminations are largely performance based. Investment managers transitioning into the program bring a process with a demonstrated performance cycle that has added value with greater consistency. The Domestic Fixed Income mandate will now have a higher quality mandate. Quality will be increased for strategic reasons primarily tied to the maturity of the current economic cycle, and an inherent need to provide more impactful protection to the total portfolio per dollars invested.

Net Cash Flow from the Plan continues to require much attention. Improving overall program liquidity of investments remains an important consideration in the asset allocation decisions and manager product changes made to date. Investments have been reconfigured to provide greater liquidity to the system. Program rebalancing initiatives have been put in place to meet the cash flow needs with minimal disruption and cost to the investment program. Management fees have been reduced, freeing up liquid assets. Additionally, the Town has and should continue to benefit from a more immediate return on investment from the annual \$5.42 million lump sum contribution (in addition to considerable interest cost savings from doing so) as the new Town policy requires. We recommend continuing to monitor the Plan's cash flows periodically with projections provided by the actuary. The following represent fund return information:

Total Return for Fiscal Year 2017 was 11.26% (Net) exceeding the Actuarial Required Rate of Return (7.3%).

Total Plan Return for Calendar Year 2017 was 14.9% (Net)

Total Return for the most recent reporting periods ended March:

<u>Net Return FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>
3.02% (Preliminary)	10.25%(Preliminary)	4.88%(Preliminary)	6.04%(Preliminary)

The high absolute return is a direct result of the asset allocation shift to equities and minimization of domestic fixed income implemented over the course of the 2017. Investment Program Peer Group, and benchmark comparisons are improving gradually as the new allocation strategy logs time.

### **General Operating Parameters**

Investment Program Purpose: Plan investments will be structured with the intention of providing the largest contribution in payment of the Pension Benefit. However, it has been generally determined that market volatility potentially impacting the Town contribution requirement be an important consideration when evaluating overall investment risk. The Retirement Board recognizes that were the Plan to undertake a more aggressive investment program at currently available funded levels, there are insufficient dollars available to mathematically achieve a rate of return sufficient to pay off the Plan UAL or to materially close the current funding gap. However, other financial strategies have appropriately been deployed by the Town to better fund the system by additional Town contributions being appropriated.

Net Cash Flow from the Plan continues to require attention. Investments have been reconfigured to provide greater liquidity to the system. We recommend continuing to monitor the Plan's cash flows periodically with projections provided by the actuary.

Actuarial Rate of Return Assumption: The Retirement Board has engaged in a constructive dialogue with the Plan's consultants on this matter to review all associated implications on Plan costing and funding. The reduction in ROR assumption to 7% (over the course of 5 years) is appropriate and should provide the opportunity to execute the investment program in a manner consistent with guiding operating parameters.

We continue to advocate consideration of appropriate time horizons when considering prospective investment outcomes.

### Summary Listing of Activity

The following actions were completed as recommended and approved by the Board of Trustees to address strategic challenges identified within the legacy investment objectives and program structure, and the impact of investments on the aggregate Plan funded position.

#### Reduction in the Actuarial ROR:

The return assumption is scheduled over a 5-year period to be reduced to 7% with the intention of improving overall Plan funding and sponsor contribution stability over time, and to reflect reduced Capital Market return expectations tempering prospective contributions from plan investments.

#### Tactical Objectives Adopted:

1. Restructure the investment portfolio to better maximize capital allocations.
  - a. Reduce exogenous market factor concentrations through the elimination of overlapping, and common factor driven investment mandates;
  - b. Increase domestic equity target allocation.
2. Improve the liquidity structure of the Plan investments to better address cash flow reality.
  - a. Elimination of less liquid investments;
  - b. Recognition of previous Private Equity Commitments yet to be called.

#### Completed Changes to the Investment Program:

The following changes were completed opportunistically, and as constrained by investment liquidity schedules during the fiscal year. These changes now complete the primary repositioning objectives.

1. Increased Domestic Equity allocation to new policy targets.
2. Reduction in Foreign equity allocation to new policy targets completed by termination of underperforming managers.
3. Addition of Core Real Estate (JP Morgan SPF), funded by the elimination of REIT equity and a reduction in domestic fixed income.
4. Reduction in less liquid, alternative investment strategies with termination/redemptions completed for:
  - a. Mesirow
  - b. Wellington
  - c. T. Rowe
  - d. Neuberger
  - e. IR & M
  - f. TAP
5. Review of the Plan's investments in Hedge Funds and Alternatives for:
  - a. Allocation and Purpose: Net reduction in capital committed to this area of investment
  - b. Manager Suitability Reviews: Consolidation and termination of underperforming managers
6. Review of Liquid Alternative investment focused on improving prospective fixed income returns.
7. Review and Transition of Active Equity Management Assignments:
  - a. Domestic Fixed Income: Goldman Sachs Core Plus transition to Garcia Hamilton & Assoc.
  - b. International Equity transition: Artisan Partners to WCM, and MFS
  - c. Domestic SMID Cap Equity transition: TS&W to Cooke & Bieler

March 15, 2018

Jane Struder, CPA  
Director of Finance  
Town of Palm Beach  
360 S. County Road  
Palm Beach, Florida 33480

**Re: Town of Palm Beach Retirement System – 10-Year Projections**

Dear Jane:

As requested, we have prepared projections for the Town of Palm Beach Retirement System (Plan) showing the projected assets, liabilities and contribution requirements over the next 10 years. These projections reflect the Town's funding policy (effective in 2017) to make extra payments in excess of the required employer contribution of \$5.42 million toward the unfunded actuarial liability each year until the plan becomes fully funded. This is subject to an annual cap on the total employer contribution of \$16 million per year (indexed at 2.75% per year).

The enclosed exhibits include projection results for the Plan in aggregate and for each of the three sub-groups (General & Ocean Rescue, Police Officers, and Firefighters) under the three deterministic assumption scenarios described below.

- **Scenario 1 (Baseline assumptions)** – same assumptions as used in the September 30, 2017 Actuarial Valuation Report, with two exceptions:
  - The investment return assumption is assumed to decrease by 0.1% per year from 7.3% used in the September 30, 2017 Actuarial Valuation Report to 7.0% as of September 30, 2020;
  - the payroll growth assumption is assumed to decrease from 3.00% used in the September 30, 2017 Actuarial Valuation Report to 2.75% as of September 30, 2018
- **Scenario 2 (Stress Test)** – same assumptions as described above but reflecting an actual return on the market value of assets of 5.0% each year.
- **Scenario 3 (Stress Test)** – same assumptions as described above but reflecting an actual return on the market value of assets of 3.0% each year.

Throughout the projection period, new members are assumed to be hired each year at a rate sufficient to maintain a constant active headcount. New employees are assumed to have the same average demographic characteristics (age, gender, salary – adjusted each year for inflation) at their dates of employment as those of current members with 5 years of service or less as of September 30, 2017. Additionally, DROP and Share accounts are projected forward assuming 40% payout in the

first projection year, 30% in year two, 20% in year three and the remainder paid out in year four. Projections are deterministic, meaning that throughout the projection period, Plan experience is expected to match the actuarial assumptions. For the stress test scenarios (scenarios 2 and 3) the investment return on the market value of assets each year is assumed to be 5.0% or 3.0%, as indicated, throughout the projection period.

The calculations are based upon assumptions regarding future events, which may or may not materialize. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the author of the report prior to relying on information in the report.

The calculations in this report are based upon information furnished by the Town of Palm Beach and the Plan Administrator for the September 30, 2017 Actuarial Valuation concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We reviewed this information for internal and year-to-year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by the Town or the Plan Administrator.

This report complements the September 30, 2017 Actuarial Valuation Report previously delivered to the Plan Administrator and the Town and should be considered in conjunction with the report. Please see the Actuarial Valuation Report as of September 30, 2017, dated February 22, 2018 for additional discussion of the nature of actuarial calculations and information related to participant data, economic and demographic assumptions, and benefit provisions.

Peter N. Strong and Jeffrey Amrose are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The undersigned actuaries are independent of the plan sponsor.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Plan as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and



Jane Struder, CPA

March 15, 2018

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practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Respectfully submitted,



Peter N. Strong, FSA, EA, MAAA  
Senior Consultant and Actuary



Jeffrey Amrose, EA, MAAA  
Senior Consultant and Actuary

Enclosures

cc: William P. Hanes, Esq, Plan Administrator (electronic)

## Town of Palm Beach Retirement System (Composite)

### Scenario 1 - Baseline Assumptions

#### 10-Year Projection - Current Valuation Assumptions

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded			Total Employer Contribution				
						Actuarial Accrued Liability	Funded Ratio	Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution	
9/30/2017	290	18,687,904	23,856,242	318,100,840	219,105,699	98,995,141	68.9%	2018	49.43%	9,195,946	5,420,000	14,615,946	
9/30/2018	290	19,091,771	23,098,170	322,667,145	223,040,153	99,626,992	69.1%	2019	49.30%	9,631,447	5,420,000	15,051,447	
9/30/2019	290	19,518,348	22,486,968	328,053,381	228,189,934	99,863,447	69.6%	2020	49.99%	9,939,719	5,420,000	15,359,719	
9/30/2020	290	19,989,378	21,884,632	334,250,169	239,172,616	95,077,553	71.6%	2021	49.94%	10,151,698	5,420,000	15,571,698	
9/30/2021	290	20,446,824	21,323,400	337,585,458	251,759,521	85,825,937	74.6%	2022	48.37%	10,070,801	5,420,000	15,490,801	
9/30/2022	290	20,923,847	21,882,270	341,803,045	264,398,015	77,405,030	77.4%	2023	45.52%	9,694,022	5,420,000	15,114,022	
9/30/2023	290	21,377,318	22,437,498	345,792,613	276,904,030	68,888,583	80.1%	2024	42.80%	9,326,817	5,420,000	14,746,817	
9/30/2024	290	21,747,802	23,106,758	349,524,307	289,261,848	60,262,459	82.8%	2025	40.06%	8,919,971	5,420,000	14,339,971	
9/30/2025	290	22,187,981	23,693,465	352,886,644	301,457,042	51,429,602	85.4%	2026	37.32%	8,452,439	5,420,000	13,872,439	
9/30/2026	290	22,550,809	24,310,383	355,913,786	313,348,944	42,564,842	88.0%	2027	34.23%	7,909,542	5,420,000	13,329,542	
9/30/2027	290	22,810,204	24,884,474	358,546,731	324,837,293	33,709,438	90.6%	2028	28.24%	6,633,741	5,420,000	12,053,741	
								2029	25.08%	5,958,618	5,420,000	11,378,618	
<b>Total:</b>										<b>\$ 105,884,761</b>	<b>\$ 65,040,000</b>	<b>\$ 170,924,761</b>	
<b>Total Present Value at 9/30/2017 (using 7% discount rate):</b>										<b>\$ 76,955,091</b>	<b>\$ 46,062,815</b>	<b>\$ 123,017,906</b>	

### Assumptions

Mortality Assumption: FRS Non-Special Risk Mortality for General Employees; FRS Special Risk Mortality for Ocean Rescue, Police Officers and Firefighters

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: Same as assumed above

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 175 or 185 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

Prepared by *Gabriel, Roeder, Smith & Company*

March 15, 2018

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## Town of Palm Beach Retirement System (Composite)

### Scenario 2 - Stress Test

10-Year Projection - 5% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year  
(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded		Total Employer Contribution				
						Actuarial Accrued Liability	Funded Ratio	Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
9/30/2017	290	18,687,904	23,856,242	318,100,840	219,105,699	98,995,141	68.9%	2018	49.43%	9,195,946	5,420,000	14,615,946
9/30/2018	290	19,091,771	23,098,170	322,667,145	222,048,581	100,618,564	68.8%	2019	49.30%	9,631,447	5,420,000	15,051,447
9/30/2019	290	19,518,348	22,486,968	328,053,381	225,161,444	102,891,938	68.6%	2020	50.29%	10,000,023	5,420,000	15,420,023
9/30/2020	290	19,989,378	21,884,632	334,250,169	233,091,312	101,158,857	69.7%	2021	50.85%	10,337,469	5,420,000	15,757,469
9/30/2021	290	20,446,824	21,323,400	337,585,458	241,596,446	95,989,012	71.6%	2022	50.18%	10,447,692	5,420,000	15,867,692
9/30/2022	290	20,923,847	21,882,270	341,803,045	249,065,661	92,737,385	72.9%	2023	48.53%	10,335,275	5,420,000	15,755,275
9/30/2023	290	21,377,318	22,437,498	345,792,613	256,284,804	89,507,809	74.1%	2024	47.33%	10,314,116	5,420,000	15,734,116
9/30/2024	290	21,747,802	23,106,758	349,524,307	263,275,630	86,248,678	75.3%	2025	46.32%	10,313,257	5,420,000	15,733,257
9/30/2025	290	22,187,981	23,693,465	352,886,644	270,015,810	82,870,834	76.5%	2026	45.44%	10,293,309	5,420,000	15,713,309
9/30/2026	290	22,550,809	24,310,383	355,913,786	276,368,842	79,544,944	77.7%	2027	44.35%	10,248,076	5,420,000	15,668,076
9/30/2027	290	22,810,204	24,884,474	358,546,731	282,324,169	76,222,563	78.7%	2028	40.11%	9,420,216	5,420,000	14,840,216
								2029	39.34%	9,347,028	5,420,000	14,767,028
Total:										\$ 119,883,854	\$ 65,040,000	\$ 184,923,854
Total Present Value at 9/30/2017 (using 7% discount rate):												
										\$ 84,799,411	\$ 46,062,814	\$ 130,862,225

Mortality Assumption:

FRS Non-Special Risk Mortality for General Employees; FRS Special Risk Mortality for Ocean Rescue, Police Officers and Firefighters

Investment Return Assumption:

7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets:

5.0% per annum

Payroll Growth Assumption:

3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FVE 2018, 30% in FVE 2019, 20% in FVE 2020, and 10% in FVE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 175 or 185 monies.

Additional contributions of \$5.42 million per year beginning in FVE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

Prepared by *Gabriel, Roeder, Smith & Company*

March 15, 2018

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## Town of Palm Beach Retirement System (Composite)

### Scenario 3 - Stress Test

10-Year Projection - 3% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Total Employer Contribution				
								Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
9/30/2017	290	18,687,904	23,856,242	318,100,840	219,105,699	98,995,141	68.9%	2018	49.43%	9,195,946	5,420,000	14,615,946
9/30/2018	290	19,091,771	23,098,170	322,667,145	221,242,200	101,424,945	68.6%	2019	49.30%	9,631,447	5,420,000	15,051,447
9/30/2019	290	19,518,348	22,486,968	328,053,381	222,657,484	105,395,897	67.9%	2020	50.54%	10,050,206	5,420,000	15,470,206
9/30/2020	290	19,989,378	21,884,632	334,250,169	227,973,803	106,276,366	68.2%	2021	51.63%	10,494,969	5,420,000	15,914,969
9/30/2021	290	20,446,824	21,323,400	337,585,458	232,939,095	104,646,363	69.0%	2022	51.73%	10,770,166	5,420,000	16,190,166
9/30/2022	290	20,923,847	21,882,270	341,803,045	235,936,397	105,866,648	69.0%	2023	51.14%	10,891,450	5,420,000	16,311,450
9/30/2023	290	21,377,318	22,437,498	345,792,613	238,573,437	107,219,176	69.0%	2024	51.45%	11,211,518	5,420,000	16,631,518
9/30/2024	290	21,747,802	23,106,758	349,524,307	240,976,496	108,547,811	68.9%	2025	51.95%	11,566,150	5,420,000	16,986,150
9/30/2025	290	22,187,981	23,693,465	352,886,644	243,196,925	109,689,719	68.9%	2026	52.70%	11,936,850	5,420,000	17,356,850
9/30/2026	290	22,550,809	24,310,383	355,913,786	245,127,137	110,786,649	68.9%	2027	53.23%	12,301,665	5,420,000	17,721,665
9/30/2027	290	22,810,204	24,884,474	358,546,731	246,807,119	111,739,612	68.8%	2028	50.32%	11,818,902	5,420,000	17,238,902
								2029	51.17%	12,156,520	5,420,000	17,576,520

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 132,025,789    \$ 65,040,000    \$ 197,065,789**  
**\$ 91,620,297    \$ 46,062,815    \$ 137,683,112**

Mortality Assumption:

FRS Non-Special Risk Mortality for General Employees; FRS Special Risk Mortality for Ocean Rescue, Police Officers and Firefighters

Investment Return Assumption:

7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets:

3.0% per annum

Payroll Growth Assumption:

3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021. We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 175 or 185 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

Prepared by *Gabriel, Roeder, Smith & Company*

March 15, 2018

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# Town of Palm Beach Retirement System - General Employees and Ocean Rescue

## Scenario 1 - Baseline Assumptions

### 10-Year Projection - Current Valuation Assumptions

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution												
Valuation		Active	Expected Benefit	Actuarial Accrued	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio	Fiscal Year	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
Date	Count	Payroll	Payments	Liability	Assets	Accrued Liability	Ratio	Ending	Payroll	Dollar Amount	Contribution	Contribution
9/30/2017	178	11,086,494	8,586,591	116,117,612	84,968,775	31,148,837	73.2%	2018	27.25%	3,063,127	1,705,404	4,768,531
9/30/2018	178	11,338,503	8,346,616	118,030,431	86,177,558	31,852,873	73.0%	2019	27.89%	3,232,923	1,732,890	4,965,813
9/30/2019	178	11,535,898	8,164,940	120,214,658	87,814,450	32,400,208	73.0%	2020	28.50%	3,366,071	1,758,492	5,124,563
9/30/2020	178	11,793,931	8,003,383	122,660,536	91,637,084	31,023,452	74.7%	2021	28.87%	3,469,194	1,768,526	5,237,720
9/30/2021	178	11,998,183	7,857,623	124,055,010	95,976,048	28,078,962	77.4%	2022	28.16%	3,459,656	1,773,216	5,232,872
9/30/2022	178	12,234,721	8,084,972	125,717,630	100,243,851	25,473,779	79.7%	2023	26.72%	3,338,803	1,783,706	5,122,509
9/30/2023	178	12,473,408	8,322,020	127,282,969	104,469,148	22,813,821	82.1%	2024	25.36%	3,232,024	1,794,941	5,026,965
9/30/2024	178	12,675,575	8,578,387	128,728,120	108,620,589	20,107,531	84.4%	2025	23.97%	3,114,253	1,808,470	4,922,723
9/30/2025	178	12,919,594	8,838,341	130,032,624	112,713,481	17,319,143	86.7%	2026	22.57%	2,979,353	1,825,208	4,804,561
9/30/2026	178	13,118,984	9,118,563	131,171,947	116,674,705	14,497,242	88.9%	2027	20.98%	2,823,726	1,846,008	4,669,734
9/30/2027	178	13,283,634	9,370,924	132,116,202	120,481,732	11,634,470	91.2%	2028	19.33%	2,641,333	1,870,658	4,511,991
								2029	17.54%	2,426,954	1,856,391	4,283,345

**Total:** \$ 37,147,417 \$ 21,523,910 \$ 58,671,327

**Total Present Value at 9/30/2017 (using 7% discount rate):** \$ 26,735,091 \$ 15,150,611 \$ 41,885,702

## Assumptions

Mortality Assumption: FRS Non-Special Risk Mortality for General Employees and FRS Special Risk Mortality for Ocean Rescue

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: Same as assumed above

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021. We have not determined any additional possible impact due to F.S. 112.64(5).

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

## Town of Palm Beach Retirement System - General Employees and Ocean Rescue

### Scenario 2 - Stress Test

10-Year Projection - 5% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution														
Valuation		Active	Expected		Actuarial		Unfunded		Funded	Fiscal	ADEC as	ADEC as	Additional	Total
Date	Count	Payroll	Benefit Payments	Accrued Liability	Value of Assets	Accrued Liability	Ratio	Ending Year	% of Payroll	Illustorative Dollar Amount	Contribution	Contribution		
9/30/2017	178	11,086,494	8,586,591	116,117,612	84,968,775	31,148,837	73.2%	2018	27.25%	3,063,127	1,705,404	4,768,531		
9/30/2018	178	11,338,503	8,346,616	118,030,431	85,792,866	32,237,565	72.7%	2019	27.89%	3,232,923	1,736,535	4,969,458		
9/30/2019	178	11,535,898	8,164,940	120,214,658	86,644,876	33,569,782	72.1%	2020	28.72%	3,391,651	1,768,343	5,159,994		
9/30/2020	178	11,793,931	8,003,383	122,660,536	89,298,449	33,362,087	72.8%	2021	29.52%	3,547,297	1,787,510	5,334,807		
9/30/2021	178	11,998,183	7,857,623	124,055,010	92,083,408	31,971,602	74.2%	2022	29.45%	3,618,022	1,805,270	5,423,292		
9/30/2022	178	12,234,721	8,084,972	125,717,630	94,395,959	31,321,671	75.1%	2023	28.86%	3,606,920	1,830,583	5,437,503		
9/30/2023	178	12,473,408	8,322,020	127,282,969	96,646,002	30,636,967	75.9%	2024	28.58%	3,642,292	1,855,172	5,497,464		
9/30/2024	178	12,675,575	8,578,387	128,728,120	98,813,362	29,914,758	76.8%	2025	28.31%	3,677,589	1,879,889	5,557,478		
9/30/2025	178	12,919,594	8,838,341	130,032,624	100,905,388	29,127,236	77.6%	2026	28.08%	3,707,740	1,905,008	5,612,748		
9/30/2026	178	13,118,984	9,118,563	131,171,947	102,846,123	28,325,824	78.4%	2027	27.75%	3,733,565	1,930,053	5,663,618		
9/30/2027	178	13,283,634	9,370,924	132,116,202	104,643,768	27,472,434	79.2%	2028	27.45%	3,751,173	1,953,497	5,704,670		
								2029	27.18%	3,760,869	1,956,282	5,717,151		

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 42,733,168    \$ 22,113,546    \$ 64,846,714**  
**\$ 29,874,105    \$ 15,502,333    \$ 45,376,438**

### Assumptions

Mortality Assumption: FRS Non-Special Risk Mortality for General Employees and FRS Special Risk Mortality for Ocean Rescue

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: 5.0% per annum

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

# Town of Palm Beach Retirement System - General Employees and Ocean Rescue

## Scenario 3 - Stress Test

10-Year Projection - 3% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution															
Valuation		Active	Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio	Fiscal Year	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution	
9/30/2017	178	11,086,494	8,586,591	116,117,612	84,968,775	31,148,837	73.2%	2018	27.25%	3,063,127	1,705,404	4,768,531			
9/30/2018	178	11,338,503	8,346,616	118,030,431	85,479,746	32,550,685	72.4%	2019	27.89%	3,232,923	1,739,461	4,972,384			
9/30/2019	178	11,535,898	8,164,940	120,214,658	85,676,982	34,537,676	71.3%	2020	28.90%	3,412,362	1,776,105	5,188,467			
9/30/2020	178	11,793,931	8,003,383	122,660,536	87,328,364	35,332,172	71.2%	2021	30.07%	3,612,937	1,801,909	5,414,846			
9/30/2021	178	11,998,183	7,857,623	124,055,010	88,763,128	35,291,882	71.6%	2022	30.54%	3,751,052	1,827,890	5,578,942			
9/30/2022	178	12,234,721	8,084,972	125,717,630	89,379,088	36,338,542	71.1%	2023	30.69%	3,835,016	1,860,406	5,695,422			
9/30/2023	178	12,473,408	8,322,020	127,282,969	89,906,848	37,376,121	70.6%	2024	31.34%	3,993,189	1,889,388	5,882,577			
9/30/2024	178	12,675,575	8,578,387	128,728,120	90,362,237	38,365,883	70.2%	2025	32.01%	4,158,742	1,915,682	6,074,424			
9/30/2025	178	12,919,594	8,838,341	130,032,624	90,776,010	39,256,614	69.8%	2026	32.77%	4,326,290	1,939,752	6,266,042			
9/30/2026	178	13,118,984	9,118,563	131,171,947	91,079,629	40,092,318	69.4%	2027	33.39%	4,493,367	1,961,431	6,454,798			
9/30/2027	178	13,283,634	9,370,924	132,116,202	91,299,766	40,816,436	69.1%	2028	34.10%	4,659,627	1,979,827	6,639,454			
Total:												\$ 47,360,931	\$ 22,379,404	\$ 69,740,335	
Total Present Value at 9/30/2017 (using 7% discount rate):												\$ 32,482,723	\$ 15,670,174	\$ 48,152,897	

### Assumptions

Mortality Assumption:

FRS Non-Special Risk Mortality for General Employees and FRS Special Risk Mortality for Ocean Rescue

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: 3.0% per annum

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

## Town of Palm Beach Retirement System - Police Officers

### Scenario 1 - Baseline Assumptions

#### 10-Year Projection - Current Valuation Assumptions

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution													
Valuation		Active	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio	Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution	
Date	Count	Payroll											
9/30/2017	54	3,865,012	6,806,177	98,305,756	68,773,459	29,532,297	70.0%	2018	76.87%	2,870,523	1,616,898	4,487,421	
9/30/2018	54	3,868,355	6,822,358	100,264,079	70,659,745	29,604,334	70.5%	2019	72.67%	2,936,040	1,610,562	4,546,602	
9/30/2019	54	3,977,579	6,784,932	102,247,662	72,595,136	29,652,526	71.0%	2020	74.56%	3,004,035	1,609,365	4,613,400	
9/30/2020	54	4,055,393	6,746,004	104,342,635	76,188,789	28,153,846	73.0%	2021	74.00%	3,065,655	1,604,941	4,670,596	
9/30/2021	54	4,166,772	6,724,918	105,395,089	80,152,449	25,242,640	76.0%	2022	71.90%	3,036,929	1,594,100	4,631,029	
9/30/2022	54	4,262,898	6,884,087	106,560,519	83,952,085	22,608,434	78.8%	2023	67.22%	2,917,232	1,583,072	4,500,304	
9/30/2023	54	4,337,863	7,065,624	107,652,261	87,687,314	19,964,947	81.5%	2024	62.97%	2,795,834	1,570,797	4,366,631	
9/30/2024	54	4,413,734	7,320,752	108,640,767	91,359,657	17,281,110	84.1%	2025	58.84%	2,658,406	1,554,261	4,212,667	
9/30/2025	54	4,491,833	7,482,887	109,452,244	94,896,626	14,555,618	86.7%	2026	54.41%	2,501,253	1,533,970	4,035,223	
9/30/2026	54	4,521,231	7,678,008	110,153,837	98,270,292	11,883,545	89.2%	2027	49.51%	2,316,270	1,513,193	3,829,463	
9/30/2027	54	4,482,448	7,878,084	110,693,064	101,417,348	9,275,716	91.6%	2028	30.90%	1,455,083	1,491,404	2,946,487	
								2029	27.09%	1,264,728	1,561,155	2,825,883	
Total:										\$ 30,821,988	\$ 18,843,718	\$ 49,665,706	
Total Present Value at 9/30/2017 (using 7% discount rate):											\$ 22,712,325	\$ 13,413,040	\$ 36,125,365

#### Assumptions

Mortality Assumption: FRS Special Risk Mortality

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: Same as assumed above

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 185 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

Prepared by *Gabriel, Roeder, Smith & Company*

March 15, 2018

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## Town of Palm Beach Retirement System - Police Officers

### Scenario 2 - Stress Test

10-Year Projection - 5% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution												
Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio	Total Employer Contribution				
								Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
9/30/2017	54	3,865,012	6,806,177	98,305,756	68,773,459	29,532,297	70.0%	2018	76.87%	2,870,523	1,616,898	4,487,421
9/30/2018	54	3,868,355	6,822,358	100,264,079	70,345,420	29,918,659	70.2%	2019	72.67%	2,936,040	1,611,622	4,547,662
9/30/2019	54	3,977,579	6,784,932	102,247,662	71,634,442	30,613,220	70.1%	2020	74.99%	3,021,360	1,612,601	4,633,961
9/30/2020	54	4,055,393	6,746,004	104,342,635	74,259,523	30,083,112	71.2%	2021	75.29%	3,119,097	1,611,826	4,730,923
9/30/2021	54	4,166,772	6,724,918	105,395,089	76,930,467	28,464,622	73.0%	2022	74.45%	3,144,636	1,607,249	4,751,885
9/30/2022	54	4,262,898	6,884,087	106,560,519	79,097,843	27,462,676	74.2%	2023	71.43%	3,099,939	1,605,045	4,704,984
9/30/2023	54	4,337,863	7,065,624	107,652,261	81,172,073	26,480,188	75.4%	2024	69.29%	3,076,438	1,603,465	4,679,903
9/30/2024	54	4,413,734	7,320,752	108,640,767	83,174,913	25,465,854	76.6%	2025	68.01%	3,072,709	1,600,314	4,673,023
9/30/2025	54	4,491,833	7,482,887	109,452,244	85,035,687	24,416,557	77.7%	2026	66.62%	3,062,552	1,596,916	4,659,468
9/30/2026	54	4,521,231	7,678,008	110,153,837	86,724,948	23,428,889	78.7%	2027	64.98%	3,040,017	1,596,388	4,636,405
9/30/2027	54	4,482,448	7,878,084	110,693,064	88,209,830	22,483,234	79.7%	2028	47.40%	2,232,070	1,598,728	3,830,798
								2029	46.97%	2,192,848	1,639,886	3,832,734

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 34,868,229    \$ 19,300,938    \$ 54,169,167**  
**\$ 24,984,780    \$ 13,672,473    \$ 38,657,253**

#### Assumptions

Mortality Assumption: FRS Special Risk Mortality

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: 5.0% per annum

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 185 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

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## Town of Palm Beach Retirement System - Police Officers

### Scenario 3 - Stress Test

10-Year Projection - 3% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution												
Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio	Total Employer Contribution				
								Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
9/30/2017	54	3,865,012	6,806,177	98,305,756	68,773,459	29,532,297	70.0%	2018	76.87%	2,870,523	1,616,898	4,487,421
9/30/2018	54	3,868,355	6,822,358	100,264,079	70,089,663	30,174,416	69.9%	2019	72.67%	2,936,040	1,612,476	4,548,516
9/30/2019	54	3,977,579	6,784,932	102,247,662	70,839,973	31,407,689	69.3%	2020	75.37%	3,036,670	1,615,145	4,651,815
9/30/2020	54	4,055,393	6,746,004	104,342,635	72,635,806	31,706,829	69.6%	2021	76.43%	3,166,325	1,617,020	4,783,345
9/30/2021	54	4,166,772	6,724,918	105,395,089	74,185,103	31,209,986	70.4%	2022	76.73%	3,240,940	1,616,474	4,857,414
9/30/2022	54	4,262,898	6,884,087	106,560,519	74,938,423	31,622,096	70.3%	2023	75.28%	3,267,022	1,618,940	4,885,962
9/30/2023	54	4,337,863	7,065,624	107,652,261	75,568,125	32,084,136	70.2%	2024	75.94%	3,371,695	1,621,874	4,993,569
9/30/2024	54	4,413,734	7,320,752	108,640,767	76,133,852	32,506,915	70.1%	2025	77.06%	3,481,590	1,623,132	5,104,722
9/30/2025	54	4,491,833	7,482,887	109,452,244	76,589,091	32,863,153	70.0%	2026	78.13%	3,591,672	1,623,838	5,215,510
9/30/2026	54	4,521,231	7,678,008	110,153,837	76,907,351	33,246,486	69.8%	2027	78.97%	3,694,524	1,626,513	5,321,037
9/30/2027	54	4,482,448	7,878,084	110,693,064	77,069,145	33,623,919	69.6%	2028	62.57%	2,946,426	1,630,949	4,577,375
								2029	64.72%	3,021,527	1,661,331	4,682,858

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 38,624,954    \$ 19,484,590    \$ 58,109,544**  
**\$ 27,101,478    \$ 13,781,777    \$ 40,883,255**

#### Assumptions

Mortality Assumption: FRS Special Risk Mortality

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: 3.0% per annum

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 185 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

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## Town of Palm Beach Retirement System - Firefighters

### Scenario 1 - Baseline Assumptions

#### 10-Year Projection - Current Valuation Assumptions

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution												
Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio	Total Employer Contribution				
								Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
9/30/2017	58	3,736,398	8,463,474	103,677,472	65,363,465	38,314,007	63.0%	2018	89.93%	3,262,296	2,097,698	5,359,994
9/30/2018	58	3,884,913	7,929,196	104,372,635	66,202,850	38,169,785	63.4%	2019	88.65%	3,462,484	2,076,548	5,539,032
9/30/2019	58	4,004,871	7,537,096	105,591,061	67,780,348	37,810,713	64.2%	2020	88.22%	3,569,613	2,052,143	5,621,756
9/30/2020	58	4,140,053	7,135,245	107,246,998	71,346,743	35,900,255	66.5%	2021	86.71%	3,616,849	2,046,533	5,663,382
9/30/2021	58	4,281,870	6,740,859	108,135,359	75,631,024	32,504,335	69.9%	2022	82.89%	3,574,216	2,052,684	5,626,900
9/30/2022	58	4,426,228	6,913,211	109,524,897	80,202,079	29,322,818	73.2%	2023	77.09%	3,437,987	2,053,222	5,491,209
9/30/2023	58	4,566,047	7,049,854	110,857,383	84,747,568	26,109,815	76.4%	2024	71.56%	3,298,959	2,054,262	5,353,221
9/30/2024	58	4,658,494	7,207,619	112,155,421	89,281,602	22,873,819	79.6%	2025	66.18%	3,147,312	2,057,269	5,204,581
9/30/2025	58	4,776,553	7,372,237	113,401,776	93,846,935	19,554,841	82.8%	2026	61.25%	2,971,833	2,060,822	5,032,655
9/30/2026	58	4,910,595	7,513,812	114,588,002	98,403,947	16,184,055	85.9%	2027	55.67%	2,769,546	2,060,799	4,830,345
9/30/2027	58	5,044,122	7,635,466	115,737,465	102,938,213	12,799,252	88.9%	2028	49.61%	2,537,325	2,057,938	4,595,263
								2029	43.15%	2,266,936	2,002,454	4,269,390

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 37,915,356    \$ 24,672,372    \$ 62,587,728**  
**\$ 27,507,675    \$ 17,499,164    \$ 45,006,839**

#### Assumptions

Mortality Assumption: FRS Special Risk Mortality

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: Same as assumed above

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 175 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

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## Town of Palm Beach Retirement System - Firefighters

### Scenario 2 - Stress Test

10-Year Projection - 5% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution												
Valuation		Active	Expected Benefit	Actuarial Accrued	Actuarial Value of Assets	Unfunded Actuarial	Funded Ratio	Fiscal Year	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
Date	Count	Payroll	Payments	Liability		Liability		Ending				
9/30/2017	58	3,736,398	8,463,474	103,677,472	65,363,465	38,314,007	63.0%	2018	89.93%	3,262,296	2,097,698	5,359,994
9/30/2018	58	3,884,913	7,929,196	104,372,635	65,910,295	38,462,340	63.1%	2019	88.65%	3,462,484	2,071,843	5,534,327
9/30/2019	58	4,004,871	7,537,096	105,591,061	66,882,125	38,708,936	63.3%	2020	88.65%	3,587,012	2,039,056	5,626,068
9/30/2020	58	4,140,053	7,135,245	107,246,998	69,533,340	37,713,658	64.8%	2021	88.01%	3,671,075	2,020,664	5,691,739
9/30/2021	58	4,281,870	6,740,859	108,135,359	72,582,571	35,552,788	67.1%	2022	85.46%	3,685,034	2,007,481	5,692,515
9/30/2022	58	4,426,228	6,913,211	109,524,897	75,571,859	33,953,038	69.0%	2023	81.36%	3,628,416	1,984,372	5,612,788
9/30/2023	58	4,566,047	7,049,854	110,857,383	78,466,729	32,390,654	70.8%	2024	77.99%	3,595,386	1,961,363	5,556,749
9/30/2024	58	4,658,494	7,207,619	112,155,421	81,287,355	30,868,066	72.5%	2025	74.92%	3,562,959	1,939,797	5,502,756
9/30/2025	58	4,776,553	7,372,237	113,401,776	84,074,735	29,327,041	74.1%	2026	72.61%	3,523,017	1,918,076	5,441,093
9/30/2026	58	4,910,595	7,513,812	114,588,002	86,797,771	27,790,231	75.7%	2027	69.84%	3,474,494	1,893,559	5,368,053
9/30/2027	58	5,044,122	7,635,466	115,737,465	89,470,570	26,266,895	77.3%	2028	67.20%	3,436,973	1,867,775	5,304,748
								2029	64.59%	3,393,311	1,823,832	5,217,143

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 42,282,457    \$ 23,625,516    \$ 65,907,973**  
**\$ 29,940,526    \$ 16,888,008    \$ 46,828,534**

#### Assumptions

Mortality Assumption: FRS Special Risk Mortality

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: 5.0% per annum

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021.

We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 175 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

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## Town of Palm Beach Retirement System - Firefighters

### Scenario 3 - Stress Test

10-Year Projection - 3% Actual Rate of Return on Plan Assets Assumed to be Earned Each Year

(7.3% Investment Return Assumption, decreasing 0.1% per year until 7.0%)

Total Employer Contribution												
Valuation Date	Active Count	Payroll	Expected Benefit Payments	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio	Total Employer Contribution				
								Fiscal Year Ending	ADEC as % of Payroll	ADEC as Illustrative Dollar Amount	Additional Contribution	Total Contribution
9/30/2017	58	3,736,398	8,463,474	103,677,472	65,363,465	38,314,007	63.0%	2018	89.93%	3,262,296	2,097,698	5,359,994
9/30/2018	58	3,884,913	7,929,196	104,372,635	65,672,791	38,699,844	62.9%	2019	88.65%	3,462,484	2,068,063	5,530,547
9/30/2019	58	4,004,871	7,537,096	105,591,061	66,140,529	39,450,532	62.6%	2020	89.00%	3,601,174	2,028,750	5,629,924
9/30/2020	58	4,140,053	7,135,245	107,246,998	68,009,633	39,237,365	63.4%	2021	89.08%	3,715,707	2,001,071	5,716,778
9/30/2021	58	4,281,870	6,740,859	108,135,359	69,990,864	38,144,495	64.7%	2022	87.62%	3,778,174	1,975,636	5,753,810
9/30/2022	58	4,426,228	6,913,211	109,524,897	71,618,886	37,906,011	65.4%	2023	84.97%	3,789,412	1,940,654	5,730,066
9/30/2023	58	4,566,047	7,049,854	110,857,383	73,098,464	37,758,919	65.9%	2024	83.44%	3,846,634	1,908,738	5,755,372
9/30/2024	58	4,658,494	7,207,619	112,155,421	74,480,407	37,675,014	66.4%	2025	82.55%	3,925,818	1,881,186	5,807,004
9/30/2025	58	4,776,553	7,372,237	113,401,776	75,831,824	37,569,952	66.9%	2026	82.83%	4,018,888	1,856,410	5,875,298
9/30/2026	58	4,910,595	7,513,812	114,588,002	77,140,157	37,447,845	67.3%	2027	82.69%	4,113,774	1,832,056	5,945,830
9/30/2027	58	5,044,122	7,635,466	115,737,465	78,438,208	37,299,257	67.8%	2028	82.37%	4,212,849	1,809,224	6,022,073
								2029	82.09%	4,312,694	1,776,520	6,089,214

**Total:**

**Total Present Value at 9/30/2017 (using 7% discount rate):**

**\$ 46,039,904    \$ 23,176,006    \$ 69,215,910**  
**\$ 32,036,096    \$ 16,610,864    \$ 48,646,960**

#### Assumptions

Mortality Assumption: FRS Special Risk Mortality

Investment Return Assumption: 7.30% as of 9/30/17, 7.20% as of 9/30/18, 7.10% as of 9/30/19, and 7.00% as of 9/30/20 and thereafter

Actual Return on Plan Assets: 3.0% per annum

Payroll Growth Assumption: 3.0% as of 9/30/17, 2.75% as of 9/30/18 and thereafter

For the Share and DROP accounts, 40% of the total was included in the benefit payments in the FYE 2018, 30% in FYE 2019, 20% in FYE 2020, and 10% in FYE 2021. We have not determined any additional possible impact due to F.S. 112.64(5).

Total employer contributions should not expect any reduction from Chapter 175 monies.

Additional contributions of \$5.42 million per year beginning in FYE 2017 until the Plan is fully funded, subject to total annual contribution cap of \$16 million, indexed after 2017, allocated between the benefit groups based on each group's proportion of the total amount of unfunded actuarial accrued liability as of the prior valuation year.

Future experience was assumed to be consistent with the aforementioned actuarial assumptions and methods. If experience differs from the actuarial assumptions or if the Board adopts different assumptions or methods, future results could be significantly different from the projected results above.

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## Town of Palm Beach Retirement System (Composite) Projected Total Employer Contributions (in \$thousands)

