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A Registered Municipal Advisor Firm
"Closing the GAP for Public Pension Funds"

Jacksonville Police and Fire Pension Fund
½ ¢ Pension Liability Surtax

Historical Review and Projection
FY 2017 – FY 2060

Prepared by:
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April 10, 2017

Purpose
To determine a reasonable, consistent initial growth rate, based on historical revenue performance research to be used as a factor in projecting future values for the Pension Liability Surtax for up to 43 years into the future.

Scope
The scope of this report is two-fold and includes the review of historical performance of the City of Jacksonville's ½¢ Discretionary Sales Surtax to determine an appropriate expected annual rate of increase in collections realized during its existence for modeling purposes. By applying a consistent annual change rate based upon that research, to the final Calendar Years (CY) 2017 –2030 the Discretionary Surtax collections may be projected. It should be stated that currently Jacksonville City uses a Fiscal Year (FY) of October 1 to September 30 annually to report the revenue. The collection and distribution of the surtax is completed on the traditional calendar year. The first projection set includes the final 14 years that remain under the Discretionary Sales Surtax.

In 2031, the Discretionary Surtax becomes the Pension Liability Surtax that is scheduled to run no longer the point the JPFPF becomes fully funded, or December 31, 2060 (30 years) whichever is sooner. The Jacksonville Police and Fire Pension Fund scheduled to receive 63.0% of the total revenue produced by continuing to collect the surtax for this renewed purpose.

Since this review covers 43 years, and two purposes (determination and projection), annual fiscal health reviews should be scheduled and followed. It is appropriate and responsible to review the reported revenue annually and bring the historical data up-to-date with the current Fiscal Year. Then update the projections for the two surtax reporting periods. In 2031, when the collection becomes the Pension Liability Surtax, the projections will play an important role in mitigating the Net Pension Liability. The annual/ regular communication of the Board's expectations regarding the purpose of practices and policies in place cannot be undervalued.

It is relevant to reflect on the impact of projecting revenue 43 years into the future. It is similar to projecting 2017 conditions, back in 1974 in that;

- Many variables will affect the collection of the surtax including an economic recession that will in all likelihood occur.
- Over the past 43 years, 11 of those years included times of specific economic downturns, generally declining economy, or recovery.
- 25.6% of those years were spent in poorer performing investment and tax return revenue environments.
- Jacksonville Discretionary Surtax experienced 4 years of negative annual gains from 2007-2010 due to the most recent downturn. That is 28.5% of surtax existence for complete year data.
- With that in mind, the historical review focused on the most recent recession from the beginning of decline to recovery (2006-2013).

It is responsible to account for economic downturns as one prepares to meet future financial obligations.

Review Processes

All historical data used within were provided by the City in Fiscal Year totals.

To meet the scope of this research, a series of Compound Annual Growth Rate (CAGR) calculations were performed based upon the reported monthly and annual collection of the current surtax supplied by the City of Jacksonville.

The Compound Annual Growth Rate (CAGR) is a measure of growth over multiple time periods. It can be considered as the growth rate that uses historical data and identifies an initial investment value, or revenue in this case, to the ending review value and assumes that the investment has been compounding over the time period. Consequently, it is important to include historical data that is representative of economic variables that were experienced during the years of projection.

An average annual return ignores the effects of compounding and it can overestimate the growth of an investment/revenue. *CAGR, on the other hand, is a geometric average that represents the one, consistent rate at which the investment would have grown if the investment had compounded at the same rate each year*.

In order to determine a rate that would ensure enough current revenue was available to meet the future pension obligation, a reasonable, consistent projection rate needed to be determined. The year-over-year percent of change is a performance indicator that reflects more than just an increase in actual revenue, and very important to determining an appropriate estimate of consistent gain. It is a measure of strength of change.

For this report, the years considered included only calendar year data reporting with full revenue. In other words, only data for calendar years beginning January, 2002 through December 31, 2016 were examined. The reporting for 2001 began in March, 2001 and the collections reported ended in February, 2017, consequently 2001 and 2017 were incomplete.

In addition to the downturns mentioned, tourism variability needs to be considered as do political changes and other factors such as unforeseen circumstances that realistically could become evident such as a hurricane and the possibility that the Jacksonville Jaguars could relocate to another market. This is why it is advantageous to use the CAGR to determine the collection increase differences that Jacksonville has already experienced to determine a relative value.

These considerations and calculations are an attempt to create a process for projecting the coming Pension Liability Surtax so that the process is in place that flows along with the local surtax revenue. When calculations are created 43 years behind the actual result, volatility concerns are constantly present.

Therefore, the most recent recessionary period that effected Jacksonville’s surtax revenue was specifically examined. A compound annual growth rate (CAGR) was calculated for the recessionary period that included the decline, recovery, and stabilization (2006 through 2013).

A CAGR calculation for each of the reported eight complete-year ranges was completed. For example, Calculations for 2006 through 2013 revenue changes; 2007-2013; 2008-2013, and so forth were completed and compounded.

Figure 1 shows the resulting CAGR's for entire period, 2002-2016 along with the calculated year-to-year return percent changes for the same period.

Note the leveling effect on the return rate that is demonstrated when the Compound Average Growth Rate (CAGR) calculation is compared to the variability evident by the graphing the reported revenue percent changes. For this length of time of reported values, the linear regression line and the CAGR are more similar and influenced by the economic decline that began with the posting of 2006 and continued to 2013, covering the entire recessionary period.

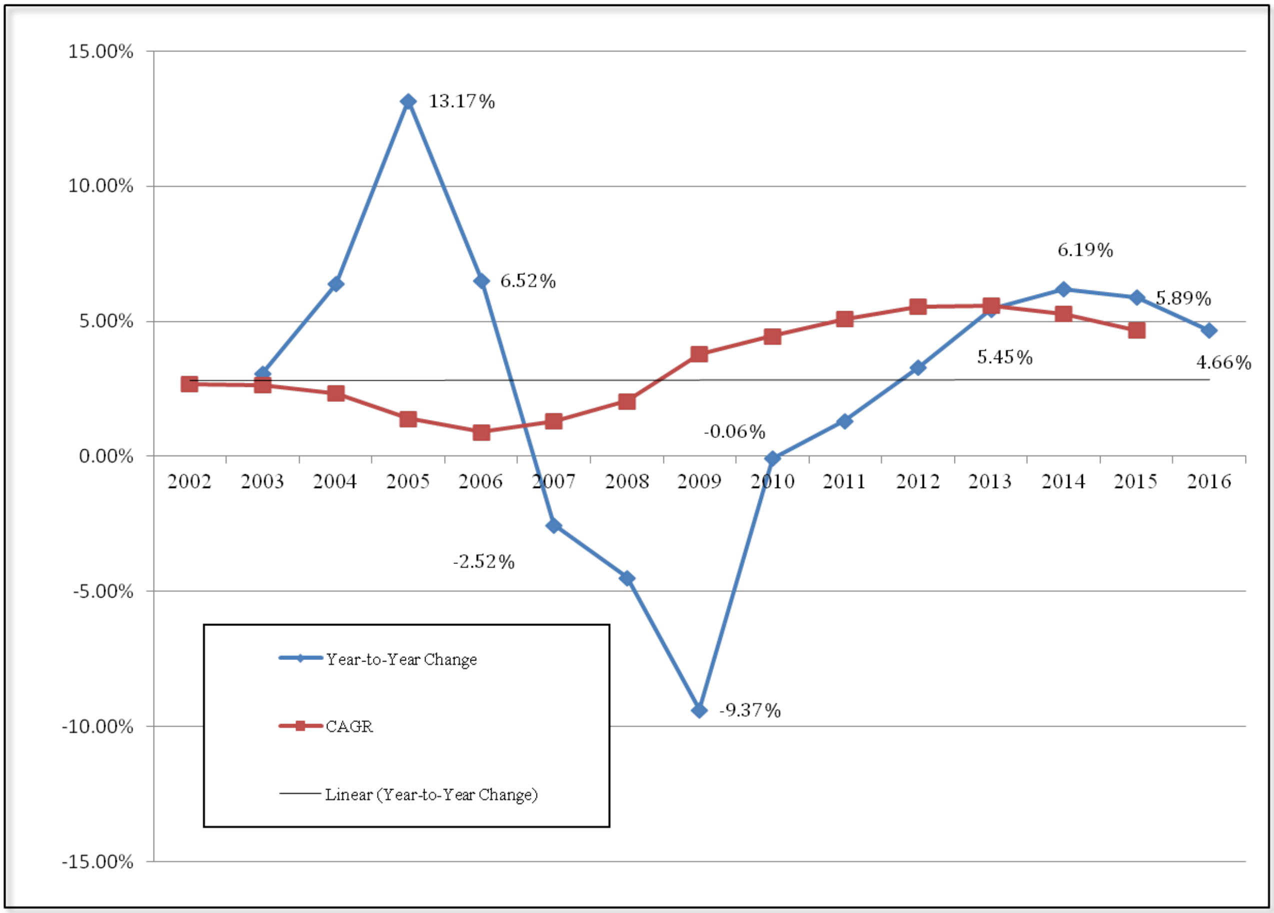

Figure 1

Additionally, the positive outlier for the data set occurred in 2005 (13.17%) just one year prior to the first decline in year-over-year return reported in 2006. The negative outlier occurred in 2009 at -9.37% lower than 2008. These data indicate a need to narrow the range of years to a more representative period of time to determine a projection rate that is representative of the economic flow experience and to determine how well the Jacksonville surtax revenue recovers from a recession as a basis of determining a consistent initial rate.

Finally, a comparison of the most suitable CAGR results will be used to project the initial Discretionary Surtax from 2017 – 2030 (13 years) and to project the renewed Pension Liability Surtax to 2060 (additional 30 years).

Calculations

The formula for the CAGR calculation is "((End Value/Start Value)^(1/(Periods - 1)) -1", where the reported end value (2013) was used, the corresponding starting value reported (2006, 2007, 2008, etc.), and the period (years considered). The "^" is an exponential calculation for compounding.

For example, in the Table 1, below represents the data necessary to calculate the CAGR for 2006-2013; 2007-2013; 2008-2013; etc. Concentrating on first columns for 2006 that reports the End Value = 68,521,369 (as they all do); the Start Value = 73,613,044; and the Periods (years) = 8, for 2006. 2010 appears as a reasonable associated value as it reflects a clear beginning of the recovery period as the second year of positive gains.

Table 1

CAGR Report of Calculation			
	Reported Annual Revenue	Periods (years)	CAGR Calculation
2006	73,613,044	8	-1.02%
2007	71,755,611	7	-0.77%
2008	68,547,123	6	-0.01%
2009	62,121,204	5	2.48%
2010	62,082,346	4	3.34%
2011	62,904,978	3	4.37%
2012	64,977,230	2	5.45%
2013	68,521,369	1	

The 2010 CAGR calculation yielded a 3.34% compounded average return. As stated in the definition of the compound annual growth rate, this 3.34% represents the one, consistent rate at which the investment would have grown if the investment had compounded at the same rate each year.

The significance of the 2010 CAGR calculation is that 2010 revenue was the lowest ($62,082,346) of the eight years during the recession. The surtax began to increase the following year to positive increases after four years of declining revenue and negative gains over the previous year. Thus, the best starting value to be compared to the 2013 when the recession was clearly complete.

Effect of Recent Recession

When examining the effect of compounding upon year-to-year returns, a very helpful method for understanding is to view the effect on a known amount from the start. $1,000,000 is used for this example.

	Annual Reported Change	Effect on $1,000,000	Running Change from $1 M.
2003	3.08%	$1,030,767	3.08%
2004	6.39%	$1,096,664	9.67%
2005	13.17%	$1,241,130	24.11%
2006	6.52%	$1,322,087	32.21%
2007	-2.52%	$1,288,727	28.87%
2008	-4.47%	$1,231,103	23.11%
2009	-9.37%	$1,115,694	11.57%
2010	-0.06%	$1,114,996	11.50%
2011	1.33%	$1,129,770	12.98%
2012	3.29%	$1,166,988	16.70%
2013	5.45%	$1,230,641	23.06%
2014	6.19%	$1,306,844	30.68%
2015	5.89%	$1,383,808	38.38%
2016	4.66%	$1,448,344	44.83%

Table 2

The annual reported revenue change is listed in the second column by year. Increasing year-over-year returns were experienced the first three full years. Then, in 2006 the return was reported at 6.52%, positive territory, yet much weaker than reported in 2005 (13.17%).

The decline continued to the bottom in 2009, then a slow improvement to 2013, when it became evident the recession was over and the following years demonstrated gains, though not as strong.

Consequently, the data suggests that the recessionary decline began in 2006 (Figure 1 and Table 2) and continued through 2009. Recovery expansion began in 2010, even though the revenue change was -0.06%, it was an improvement over -9.37% in 2009 and an early sign of recovery. The recovery was solidified by 2013 (third year of positive gains at 5.89%).

Following the effect on $1,000,000, in 2005 the compounded value yielded a total of $1,241,130. By 2013, when the recession had demonstrated improvement, the 2013 compounded value of that same $1,000,000 was $1,230,641. The total compounding effect on the original amount was $10,489 less in 2013, than it was in 2005.

By the last full year of revenue reporting in 2016, the value of that $1,000,000 had improved only $207,214 more than its value in 2005 – a 16.7% increase in value over 2005. *This reflects the effect of compounding poor performance over time, versus the improvement demonstrated by year-to-year analysis*.

Recession had a significant impact on the Jacksonville surtax revenue and must be considered in any initial projection value. Going forward, to ensure accuracy of projection, each year the current reported return totals should be included to the revenue history, and the CAGR recalculated to support a projection process that is dynamic.

Table 3

CAGR Calculation		**3.34%**
	2016 (actual)	$80,642,986
	2017	$83,336,462
Projected Amount Generated Prior to JPFPF Contribution Benefit	**2018**	$86,119,900
	2019	$88,996,304
	2020	$91,968,781
	2021	$95,040,538
	2022	$98,214,892
	2023	$101,495,269
	2024	$104,885,211
	2025	$108,388,377
$1,457,169,865	**2026**	$112,008,549
	2027	$115,749,635
	2028	$119,615,673
	2029	$123,610,836
	2030	$127,739,438

The data presented in (Table 3) illustrates the projected effect of a 3.34% initial annual assumption of surtax increase. 3.34% is the CAGR value for 2010 the first of three consecutive years of positive increases reported and evidence of the economic recovery.

Again, the recovery period was much longer than expected nationwide. The impact of tourism on Florida in general, and Jacksonville specifically has not been identified in the data provided by the City of Jacksonville. Consequently, no dollar amount or percent of revenue increase can be confidently attributed.

All CAGR projections considered were based upon the years of recession to fully understand the effect of the period. The reported 2013 final revenue total was the last year of recession recovery. Therefore, the period started in 2006 and ended in 2013.

The 3.34% CAGR result occurred in 2010 and is included within the calculations for 2006-2013 (8 years total) accounts for more than ½ the years that were fully reported, and includes: the first year that decline was evident; the years of recession; and three years that represent the economic recovery period. The recommended rate of 3.34% reflects the beginning evidence of recovery and was implemented to produce the Table 4 projection of the Discretionary Surtax through 2030.

Additionally, the rate can be applied to the Pension Liability Surtax 2031-2060 model as the <u>initial</u> anticipated annual revenue rate. As sufficient data is reported, the projections should be recalculated.

Projecting the Pension Liability Surtax

The 2015 Comprehensive Annual Financial Report (CAFR) listed the Net Pension Liability at $1.8 billion. The assets totaled $1.3 billion with a 42.7% funding ratio. The Pension Fund is to use the Pension Liability Surtax to meet the current unfunded liability. An amount in the future to generate the total NPL for the present value of debt is necessary to make the Fund whole again. Employer contributions, employee contributions, and meeting the assumed rate of return on the investments are necessary to meet the future obligation.

	2015 CAFR
TPL	$3,142,228,212
FNP	$1,341,094,047
NPL	$1,801,134,165
Funding Ratio	42.68%
Assumed Rate of Return	7.00%

Note the assumed rate of return is 7.00% and is used in a similar manner in which the surtax projection value will be used. The assumed rate is also used as a factor to determine the present value of the projected future totals.

The Table on the following pages offers the projected result when the CAGR value is applied as a constant revenue increase for 2017-2060.

Table 4

CAGR Calculation		3.34%	63% Surtax JPFPF Contribution	2016 Present Value
Projected Amount Generated Prior to JPFPF Contribution Benefit **$1,457,169,865**	2016 (actual)	$80,642,986		
	2017	$83,336,462		
	2018	$86,119,900		
	2019	$88,996,304		
	2020	$91,968,781		
	2021	$95,040,538		
	2022	$98,214,892		
	2023	$101,495,269		
	2024	$104,885,211		
	2025	$108,388,377		
	2026	$112,008,549		
	2027	$115,749,635		
	2028	$119,615,673		
	2029	$123,610,836		
	2030	$127,739,438		
Projected Surtax Collection Dedicated to the "Pension Liability Surtax"	2031	$132,005,935	$83,163,739	$30,656,551
	2032	$136,414,933	$85,941,408	$29,607,925
	2033	$140,971,192	$88,811,851	$28,595,168
	2034	$145,679,630	$91,778,167	$27,617,052
	2035	$150,545,330	$94,843,558	$26,672,394
	2036	$155,573,544	$98,011,333	$25,760,049
	2037	$160,769,700	$101,284,911	$24,878,911
	2038	$166,139,408	$104,667,827	$24,027,913

Table 4 presents the projected values for the recommended rate of 3.34%.

The estimated Pension Liability Surtax in 2031 is $132,005,935.

The projected value of Pension Liability Surtax to the JPFPF could generate $83,163,739 in 2031.

That amount would have a 2016 present value of $30,656,551.

	Year	Surtax Projected	63% to JPFPF	2016 Present Value
Projected Surtax Collection Dedicated to the "Pension Liability Surtax"	2039	$171,688,464	$108,163,733	$23,206,023
	2040	$177,422,859	$111,776,401	$22,412,247
	2041	$183,348,782	$115,509,733	$21,645,623
	2042	$189,472,632	$119,367,758	$20,905,221
	2043	$195,801,018	$123,354,641	$20,190,145
	2044	$202,340,772	$127,474,686	$19,499,529
	2045	$209,098,954	$131,732,341	$18,832,536
	2046	$216,082,859	$136,132,201	$18,188,357
	2047	$223,300,026	$140,679,016	$17,566,214
	2048	$230,758,247	$145,377,696	$16,965,351
	2049	$238,465,572	$150,233,311	$16,385,040
	2050	$246,430,322	$155,251,103	$15,824,580
	2051	$254,661,095	$160,436,490	$15,283,291
	2052	$263,166,776	$165,795,069	$14,760,517
	2053	$271,956,546	$171,332,624	$14,255,624
	2054	$281,039,895	$177,055,134	$13,768,002
	2055	$290,426,627	$182,968,775	$13,297,059
	2056	$300,126,877	$189,079,932	$12,842,225
	2057	$310,151,114	$195,395,202	$12,402,949
	2058	$320,510,161	$201,921,402	$11,978,699
	2059	$331,215,201	$208,665,577	$11,568,960
	2060	$342,277,789	$215,635,007	$11,173,237
	Total**	$6,637,842,261	$4,181,840,624	$580,767,389

Table 4, continued.

The projection for the Pension Liability Surtax extending out to 2060 is estimated at $6,637,842,261.

The projected portion of the surtax that applies to the JPFPF is estimated at $4,181,840,624.

The 2016 present value is estimated to be $580,767,389.

Recommendations

Immediately

Implement an initial rate of 3.34%, based upon the Compounded Average Growth Rate calculation for the initial projections for 2017-2030 of the Discretionary Surtax estimations, and then apply the rate to the Pension Liability Surtax out to 2060 for an initial view of what that amount may be.

Annually

- Each October, update the City's actual collected surtax revenue.
- Calculate the Compound Average Growth Rate (CAGR) after each annual reporting using a representative number of periods, the final full Reported Year revenue, and starting year revenue.
- Insert the recalculated CAGR as the base for the projections using the past year revenue out to 2030 and 2060.
- Update the projections by using representative number of periods and compare estimates, and then select the best fit.

April 4, 2017

Mr. Timothy Johnson
Executive Director
Jacksonville Police and Fire Pension Fund
One West Adams Street, Suite 100
Jacksonville, FL 32202

Re: Jacksonville Police and Fire Pension Fund – Experience Study on Payroll Growth Assumption

Dear Tim:

As requested, we are enclosing an Experience Study on the Payroll Growth Assumption for the Jacksonville Police and Fire Pension Fund (Fund).

This experience study examines the 20-year historical period from October 1, 1996 to October 1, 2016 as well as a 5-year projection to October 1, 2021. The projection incorporates the collectively bargained negotiated salary increases scheduled to be granted in 2017 through 2019. The study period provided sufficient data to form a basis for recommending a revision in the payroll growth assumption to be used in future actuarial valuations of the Fund.

Please refer to the enclosed exhibit for details.

The long-term payroll growth assumption is currently 2.5% per year for purposes of amortizing the Unfunded Actuarial Accrued Liability (UAAL) and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date). Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date. In the October 1, 2016 actuarial valuation, the payroll growth assumption was limited to the actual 10-year historical compound average payroll growth rate, as required by Florida Statute 112.64(5)(a), which was 0.067%.

Florida Statute 112.64(5)(b) states the following:

> *"An unfunded liability amortization schedule that includes a payroll growth assumption and is in existence on September 30, 1996, or is established thereafter, may be continued using the same payroll growth assumption, or one not exceeding the payroll growth assumption established at the start of the schedule, regardless of the actual 10-year average payroll growth rate, provided that:*
>
> 1. *The assumptions underlying the payroll growth rate are consistent with the actuarial assumptions used to determine unfunded liabilities, including, but not limited to, the inflation assumption; and*
> 2. *The payroll growth rate is reasonable and consistent with future expectations of payroll growth."*

Based on the above, the Fund may use a forward-looking payroll growth rate for purposes of amortizing the UAAL that is consistent with the Fund's actuarial assumptions and which is reasonable and consistent with future expectations of payroll growth.

Summary of Findings

- The actual 10-year compound average payroll growth rate through October 1, 2016 was **0.067%**.
- The actual 20-year compound average payroll growth rate through October 1, 2016 was **1.483%**.
- When covered payroll is projected to October 1, 2021, the projected 10-year compound average payroll growth rate is estimated to be **1.269%** on an open-group projection basis (based on actual payroll through September 30, 2016 and reflecting anticipated new hires from October 1, 2016 through October 1, 2021), and **-0.096%** on a closed-group basis (reflecting the anticipated plan closure on October 1, 2017).

The projected payroll through October 1, 2021 is based on the following:

- Actual covered payroll as of the October 1, 2016 actuarial valuation date.
- The negotiated across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019. These temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019. This was done to include the impact of promotions and longevity/step increases.
- Annual salary increases of 3.5% in 2020 and 2021 (equal to the current salary increase assumption).
- New employees are assumed to be hired each year after 2016 at a rate sufficient to maintain a constant employee headcount.
- New employees are assumed to have the same demographic characteristics at their dates of employment as those of members hired during the three-year period ending June 30, 2016.
- The initial (first-year) salaries for new employees are assumed to increase by the negotiated across-the-board salary increases in 2017-2019 (6.5%, 6.5%, and 7.0%), and by the Fund's inflation assumption (2.5%) in 2020 and 2021.
- Existing and future employees are assumed to decrement each year based on the current valuation assumptions.

Considerations in Making Our Recommendation

When a pension fund closes to new entrants, it is generally advisable to no longer use a payroll growth rate in the amortization of the UAAL. In fact, the Florida Division of Retirement usually requires closed pension funds to amortize the UAAL as a level dollar amount (i.e., using a 0% payroll growth assumption).

The Jacksonville Police and Fire Pension Fund is in a unique situation in that if Ordinance 2017-257 passes and the pension liability surtax is applied, then Florida Statute 112.64(6) will apply. Florida Statute 112.64(6)(a) requires the Fund to amortize the UAAL, net of the present value of the pension liability surtax, over 30 years immediately following approval of the pension liability surtax. Florida Statute 112.64(6)(b) requires the payroll of all employees in job classifications which are covered by a closed retirement plan (regardless of the plan they participate in) to be included when determining the payroll growth assumption to be used to amortize the UAAL. This means state law stipulates that the payroll growth assumption be based on an open group, rather than a closed group.

Another consideration is potential negative amortization. Any UAAL amortization schedule that results in negative amortization is generally not recommended. Negative amortization exists when the UAAL is expected to increase from one valuation date to the next if there are no changes and all actuarial assumptions are fully realized (i.e, there are no experience gains/losses). It occurs when the scheduled amortization payment on the UAAL is less than the interest on the UAAL for one year. In our opinion, it is especially important to try to prevent negative amortization for the Jacksonville Police and Fire Pension Fund because the UAAL will already be reduced by the present value of a future revenue stream (from the pension liability surtax), which will not start being received by the Fund until 2031. Under a 30-year amortization schedule, the highest payroll growth rate that will allow the initial payment to cover the interest on the UAAL (and prevent negative amortization) is between 1.27% and 1.39%, depending on whether amortization payments are made at the beginning or the end of the year.

It is important to note that the average expected future service of current active members is 10.02 years, which is far less than the 30-year amortization period required by Florida Statute 112(6)(a). Though required, a long amortization period carries more risk, especially in a closed plan, and the funded status could deteriorate in the short run. Furthermore, amortizing the UAAL over 30 years, in effect, transfers costs to future taxpayers, which deviates from language in Florida Statute 112.61 which says "*Accordingly, except as herein provided, it is the intent of this act to prohibit the use of any procedure, methodology, or assumptions the effect of which is to transfer to future taxpayers any portion of the costs which may reasonably have been expected to be paid by the current taxpayers.*"

Recommendation

For a closed pension fund, it is our recommendation to use a 0% payroll growth assumption. Based on our understanding, Florida Statute 112.64(6)(b) requires the future payroll of police officers and firefighters expected hired after October 1, 2017 (who will not become members of the Fund) to be included when setting this assumption, which deviates from our recommended practice for closed pension funds. In consideration of this prescribed method described under Florida Statute 112.64(6)(b) for determining the payroll growth assumption, **our recommendation is that the payroll growth assumption used to amortize the UAAL not exceed 1.25%.** This is based on the projected 10-year compound average payroll growth rate through 2021, which is 1.269% (reflecting the across-the-board negotiated salary increases in 2017-2019 and an OPEN group projection), and the goal of preventing negative amortization on the reduced UAAL (net of the present value of the pension liability surtax).

Additional Disclosures

This experience study was prepared at the request of the Executive Director and is intended for use by the Jacksonville Police and Fire Pension Fund and those designated or approved by the Fund. This study may be provided to other parties only in its entirety and only with the permission of the Board of Trustees.

The purpose of this study is to evaluate the payroll growth assumption to be used for the purposes of amortizing the UAAL and projecting the contribution amount to the contribution year in future actuarial valuations of the Fund. This study should not be relied on for any purpose other than the purpose described above. We are neither attorneys nor legal professionals, and the above information should not be construed as legal advice or opinion. There is no guarantee that the State will agree with the approaches used. We recommend qualified legal counsel review our interpretation of Florida Statutes.

Annual covered payroll amounts from October 1, 1996 to October 1, 2016 were obtained from prior years' actuarial valuation reports of the Jacksonville Police and Fire Pension Fund and prior years' Comprehensive Annual Financial Reports of the City of Jacksonville, downloaded from the City of Jacksonville's website.

The calculations are based on the census data as of July 1, 2016 and the asset data as of October 1, 2016, as provided to us by Pension Board Consultants and as used for the October 1, 2016 Actuarial Valuation. We reviewed this information for reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of this information. Please refer to the Actuarial Valuation report, as prepared by Pension Board Consultants, Inc., dated January 18, 2017, for a description of all actuarial assumptions, methods and plan provisions.

The projections 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 letter 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 Fund'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 this study.

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 Jacksonville Police and Fire Pension Fund. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

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 signing actuaries are independent of the plan sponsor.

Respectfully submitted,

Peter N. Strong

Peter N. Strong, FSA, MAAA, FCA
Enrolled Actuary No. 17-06975

Jeff Amrose

Jeffrey Amrose, MAAA, FCA
Enrolled Actuary No. 17-06599

Payroll Growth Assumption

The long-term payroll growth assumption is currently 2.5% per year for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date). In the most recent actuarial valuation, this assumption was limited to the actual 10-year historical compound average payroll growth rate, which was 0.067%.

The historical covered payroll and the projected payroll through October 1, 2021 for all members and future hires is shown on the next page. Projected covered payroll for years after October 1, 2016 has been included to illustrate the projected impact of the negotiated across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019, which have been added to the current salary increase assumption of 3.5%.

Based on the projected 10-year compound average payroll growth rate through 2021 (reflecting the across-the-board negotiated salary increases in 2017-2019 and an OPEN group projection), and a goal of preventing negative amortization, **our recommendation is for the payroll growth assumption used to amortize the UAAL to not exceed 1.25%.**

JACKSONVILLE POLICE AND FIRE PENSION FUND
PAYROLL GROWTH EXPERIENCE STUDY

Projected and Historical Covered Payroll for Active Member Group

Valuation Date	Covered Payroll, Open Group	Covered Payroll, Plan Closed 10-1-2017	Average Annual % Increase			
			Annual (Open Group)	10-Year (Open Group)	Annual (Closed Group)	10-Year (Closed Group)
10/1/2021*	168,984,836	147,539,843	0.566%	**1.269%**	-3.205%	-0.096%
10/1/2020*	168,033,062	152,425,187	0.882%	0.615%	-2.276%	-0.362%
10/1/2019*	166,564,176	155,975,584	7.939%	0.686%	4.421%	0.027%
10/1/2018*	154,313,674	149,372,475	6.937%	0.400%	3.513%	0.074%
10/1/2017*	144,303,214	144,303,214	6.419%	0.090%	6.419%	0.090%
10/1/2016	**135,599,741**	**135,599,741**	**2.158%**	**0.067%**	**2.158%**	**0.067%**
10/1/2015	132,735,243	132,735,243	-1.328%	0.178%	-1.328%	0.178%
10/1/2014	134,521,216	134,521,216	2.710%	1.275%	2.710%	1.275%
10/1/2013	130,972,174	130,972,174	-1.975%	1.794%	-1.975%	1.794%
10/1/2012	133,611,459	133,611,459	-10.309%	2.767%	-10.309%	2.767%
10/1/2011	148,967,906	148,967,906	-5.744%	4.470%	-5.744%	4.470%
10/1/2010	158,046,680	158,046,680	1.600%	4.981%	1.600%	4.981%
10/1/2009	155,557,729	155,557,729	4.910%	4.765%	4.910%	4.765%
10/1/2008	148,276,743	148,276,743	3.686%	2.975%	3.686%	2.975%
10/1/2007	143,006,154	143,006,154	6.171%	3.029%	6.171%	3.029%
10/1/2006	134,694,392	134,694,392	3.299%	2.919%	3.299%	2.919%
10/1/2005	130,392,284	130,392,284	10.026%	N/A	10.026%	N/A
10/1/2004	118,510,432	118,510,432	8.094%	N/A	8.094%	N/A
10/1/2003	109,636,548	109,636,548	7.806%	N/A	7.806%	N/A
10/1/2002	101,698,016	101,698,016	5.716%	N/A	5.716%	N/A
10/1/2001	96,199,000	96,199,000	-1.037%	N/A	-1.037%	N/A
10/1/2000	97,207,000	97,207,000	-0.470%	N/A	-0.470%	N/A
10/1/1999	97,666,000	97,666,000	-11.693%	N/A	-11.693%	N/A
10/1/1998	110,598,000	110,598,000	4.229%	N/A	4.229%	N/A
10/1/1997	106,111,000	106,111,000	5.039%	N/A	5.039%	N/A
10/1/1996	101,021,000	101,021,000	N/A	N/A	N/A	N/A
Average Compound Rate from 10/1/96 to 10/1/16:			**1.483%**			
Average Compound Rate from 10/1/11 to 10/1/21:			**1.269%**			

**Covered payroll for years after 10/1/2016 are projected and include negotiated salary increases for 2017-2019.*

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April 7, 2017

Mr. Timothy Johnson
Executive Director
Jacksonville Police and Fire Pension Fund
One West Adams Street, Suite 100
Jacksonville, FL 32202

Re: Jacksonville Police and Fire Pension Fund – Actuarial Impact Statement for Ordinance Nos. 2017-259 and 2017-257

Dear Tim:

As requested, we are enclosing an Actuarial Impact Statement for Ordinance Nos. 2017-259 and 2017-257, illustrating the first-year impact of proposed assumption, plan, and funding policy changes to the Jacksonville Police and Fire Pension Fund (Fund). The results are based on census and asset data as of October 1, 2016.

This is one of two actuarial impact statements that we have been requested to prepare. The Board should decide which actuarial impact statement to accept and submit to the City of Jacksonville and the Florida Division of Retirement. The two impact statements differ with regard to the payroll growth rate assumption used for purposes of amortizing the unfunded actuarial accrued liability (UAAL) and the assumed rate of growth in the annual pension liability surtax proceeds.

Please note that this actuarial impact statement is the first actuarial valuation of the Fund that the Fund's new actuary, Gabriel, Roeder, Smith & Company, has prepared. We had a limited amount of time to prepare the impact statement based on the City Council's schedule. For this reason, we did not have sufficient time to fully evaluate all of the actuarial assumptions and methods employed by the previous actuary, Pension Board Consultants, Inc. Based on our initial review of the assumptions and methods, we have concerns regarding the approach used by the previous actuary to value the impact of the fixed DROP interest crediting rate of 8.4%, which is higher than the Fund's assumed rate of investment return of 7.0%. In the actuarial impact statement, we have continued to utilize the previous actuary's 2.0% "load" on the Fund's liabilities and normal costs to account for the higher fixed interest crediting rate on DROP accounts than 7.0%. Prior to preparation of the October 1, 2017 actuarial valuation report, we recommend a full analysis be completed on the long-term impact of this interest crediting rate being 1.4% higher than the Fund's assumed investment return, the results of which could have a significant impact on the liabilities and future costs of the Fund.

The enclosed exhibits show the following:

- **October 1, 2016 Actuarial Valuation Results** – Results as prepared by the prior actuary, Pension Board Consultants, Inc., report dated January 18, 2017.

- **Revised Baseline** – Same plan provisions and actuarial assumptions as used in the October 1, 2016 Actuarial Valuation Report, except with adjustments to reflect the precise timing of the annual Cost-of-Living Adjustment.

- **Assumption Changes** – Same as the Revised Baseline, but also incorporating the collectively bargained across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019 as well as a change in the payroll growth rate (used to amortize the unfunded actuarial accrued liability (UAAL) and project the contribution amount to the contribution year) from 0.067% to 1.25%. Please refer to our experience study dated April 4, 2017 for our analysis regarding this assumption. The temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019 (reducing to 3.5% per year for 2020 and subsequent years). This was done to include the impact of promotions and longevity/step increases.

- **Impact of Ordinance Nos. 2017-259 and 2017-257** – Reflecting the changes listed above as well as the proposed changes in accordance with Ordinance Nos. 2017-259 and 2017-257, as listed below:

  - Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund will be closed to new entrants.
  - For all members of the Fund, the member contribution rate is changed to 10% of pay.
  - All members (including members hired after June 19, 2015 and previously in Group II) of the Fund will be eligible for the benefits which were in place prior to the adoption of Ordinance 2015-304-E.

    Benefits that were specifically applicable to Group II are eliminated, and language differentiating separate groups is being removed. In particular, all members will be eligible for the following benefit provisions:

    - The accrued benefit is equal to 3% of average salary for each of the first 20 years of service plus 2% of average salary for each of the next 10 years of service.
    - The normal retirement date is when a member attains 20 years of service.
    - The average salary is computed as the average of the final 2 years (52 pay periods).
    - Cost of living adjustments are 3% annually, beginning with the first January following the commencement of benefits.
    - All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Ordinance 2017-259 also amends the Fund as follows (but these changes will not have an immediate impact on the initial year's contribution requirement or the funded status of the Fund):

- Removal of the funding policy setting up 13 years of extra payments to write down the UAAL as set forth in Ordinance 2015-304-E, where funds from the newly created Unfunded Actuarial Liability Payment Account (UALPA) would provide extra payments toward the UAAL in conjunction with extra payments from the City towards the UAAL through fiscal year 2028. During this 13-year period, the extra payments used to write down the UAAL would have totaled $460 million ($110 million from the UALPA account plus $350 million in extra City payments).
- The following funding policy changes are instated:
  - The below provisions shall remain in place until the Fund is 100 percent funded:

- Beginning with the Fiscal Year 2017-2018, a liquidity ratio, defined as the market value of assets divided by the annual benefit payments, is instated, where in any year if the liquidity ratio falls below a predetermined rate, the City shall, subject to annual appropriation, make a contribution or payment in an amount sufficient to restore the Fund's liquidity ratio to at least the predetermined rate, as determined by the plan actuary.
- Beginning with the Fiscal Year 2017-2018, the City shall, subject to annual appropriation, make an annual contribution from a source other than the pension liability surtax in a predefined minimum amount, less any amount paid to restore the liquidity ratio to the minimum predetermined level.

- Effective October 1, 2017, the accumulated balances existing on September 30, 2017, together with interest thereon, in the UALPA and the Supplemental Payment Account (SPA), will be allocated as follows:
  - 20% shall be administered by the Board for the legal use of police officer members, as determined by the legally recognized collective bargaining unit.
  - 20% shall be administered by the Board for the legal use of firefighter members, as determined by the legally recognized collective bargaining unit.
  - 60% shall be administered by the Board for the sole purpose of being applied to the City's Actuarially Determined Employer Contribution (ADEC) for the year(s) selected by the City, at the discretion of the City.

  As of October 1, 2016, the balance in the UALPA was approximately $71.7 million, and the balance in the SPA was $10.0 million.
- Effective October 1, 2017, 100% of the accumulated balances existing on September 30, 2017, in the City Budget Stabilization Account (CBSA) and the Enhanced Benefit Account (EBA), together with interest thereon, shall be administered by the Board for the sole purpose of being applied to the City's ADEC for the year(s) selected by the City, at the discretion of the City.

  As of October 1, 2016, the balance in the EBA was approximately $5.3 million, and the balance in the CBSA was approximately $5.1 million.
- Effective October 1, 2017, all Chapter 175 and 185 Florida Insurance Premium Tax Rebate Dollars shall be administered by the Board for the legal use of the firefighter and police officer members, as determined by the legally recognized collective bargaining unit.

Ordinance No. 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Ordinance 2017-257 creates a new Chapter 776 entitled "Pension Liability Surtax" in the City of Jacksonville Ordinance Code.

Florida Statute 112.64(6) authorizes a county to apply the proceeds of a sales surtax, hereinafter referred to as the "pension liability surtax", to reduce the unfunded liability of a defined benefit retirement plan or system. Florida Statute 112.64(6)(a) requires the Fund to then amortize the unfunded actuarial accrued liabilities (UAAL), net of the present value of the pension liability surtax, over 30 years immediately following approval of the pension liability surtax. Florida Statute 112.64(6)(b) requires the payroll of all employees in job classifications which are covered by a closed retirement plan (regardless of the plan they participate in) to be included when determining the payroll growth assumption to be used to amortize the UAAL.

Ordinance No. 2017-257 outlines the use of the pension liability surtax for the City of Jacksonville's three defined benefit pension funds: the Police and Fire Pension Fund, the Corrections Officers Fund, and the General Employee Pension Fund. The net present value of the total projected proceeds of the pension liability surtax is to be recognized for the fiscal beginning October 1, 2017 and each fiscal year thereafter. Each eligible defined benefit plan will apply the present value of the total projected proceeds of the surtax, as determined by the City, with respect to the pro rata share of each plan's proportion of the City's total unfunded liability as determined by the October 1, 2015 actuarial valuation and each subsequent year's actuarial valuation. The pension liability surtax will begin on January 1 immediately following the expiration of The Better Jacksonville ½-cent Sales Surtax, but in no event shall collection begin later than January 1, 2031. The surtax will remain in effect no longer than 30 years and will terminate for an eligible plan prior to the end of the 30 years once that plan is 100% funded.

The impact of Ordinance Nos. 2017-259 and 2017-257 reflects the present value of a 63% share of the pension liability surtax proceeds to be allocated to the Jacksonville Police and Fire Pension Fund commencing in calendar year 2031 and continuing through calendar year 2060. The 63% share was determined based on the pro rata share of the UAAL for the Jacksonville Police and Fire Pension Fund versus the sum of the UAAL's for all three of the City of Jacksonville's defined benefit pension plans as of October 1, 2015.

Disclosures Regarding the Pension Liability Surtax and Florida Statute 112.64(6)

Ordinance 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Reflecting the pension liability surtax will involve a reduction in the Fund's current UAAL equal to the present value of a future revenue stream (generated by the pension liability surtax) to be received by the Fund in calendar years 2031 through 2060. This will delay the Fund's projected full funding date until the year 2060 and will result in annual contributions to the Fund in fiscal years 2018 through 2030 which will be significantly lower than the recommended contribution levels would be to ensure the Fund accumulates adequate assets to make all benefit payments. The maintenance of a minimum liquidity ratio (defined as the market value of assets divided by the annual benefit payments), as described in Ordinance 2017-259, will likely help prevent an insolvency in the event the Fund incurs adverse experience, but this is dependent upon the minimum liquidity ratio being adhered to. A full analysis of the impact of the liquidity ratio was outside of the scope of this assignment.

The annual pension liability surtax revenue is projected to increase 3.34% annually from calendar year 2016 to calendar year 2060. This assumption is based on the analysis of the pension liability surtax by independent municipal finance expert, GAPublic Solutions, Inc. - A Registered Municipal Advisor Firm. Assumptions regarding future growth in municipal sales tax revenues fall outside of our area of expertise. Therefore, we are unable to assess the reasonableness of this assumption, so we must defer to experts in this field. We are comfortable relying on GAPublic Solutions, Inc.'s analysis of this assumption, as they have experience in this field and have provided an independent assessment.

We are unable to assess the risk that the timing and/or amount of future pension liability surtax proceeds may significantly deviate from the projections (due to legal challenges, economic hardships, or any other reason). Any such deviations could have a significant impact on the required contribution amount shown herein and on the future solvency risk that the Fund's future assets may be insufficient to cover all future benefit payments.

The long-term payroll growth assumption for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date) is 1.25%. For a closed pension fund, it is our recommendation to use a 0% payroll growth assumption. Based on our understanding, Florida Statute 112.64(6)(b) requires the future payroll of police officers and firefighters expected hired after October 1, 2017 (who will not become members of the Fund) to be included when setting this assumption. This deviates from our recommended practice for closed pension funds. In consideration of this prescribed method described under Florida Statute 112.64(6)(b) for determining the payroll growth assumption, our recommendation is that the payroll growth assumption used to amortize the UAAL not exceed 1.25%. This recommendation is based on the projected 10-year compound average payroll growth rate through 2021, which is 1.269% (reflecting the across-the-board negotiated salary increases in 2017-2019 and an OPEN group projection), and a goal of preventing negative amortization on the reduced UAAL (net of the present value of the pension liability surtax). Please refer to our experience study report on the payroll growth assumption dated April 4, 2017 for additional information and background on this assumption.

In conjunction with offsetting the UAAL by the present value of the pension liability surtax, Florida Statute 112.64(6)(a) requires the use of a 30-year amortization period for the entire net UAAL. It is important to note that the average expected future service of current active members is 10.02 years, which is far less than the required 30-year amortization period. Though required, a long amortization period carries more risk, especially in a closed plan, and the funded status could deteriorate in the short run. Furthermore, amortizing the UAAL over 30 years, in effect, transfers costs to future taxpayers, which deviates from language in Florida Statute 112.61 which says "*Accordingly, except as herein provided, it is the intent of this act to prohibit the use of any procedure, methodology, or assumptions the effect of which is to transfer to future taxpayers any portion of the costs which may reasonably have been expected to be paid by the current taxpayers.*" When combined with advance recognition of the pension liability surtax, it is our opinion that current costs will be transferred to future taxpayers under this arrangement.

Summary of Findings

- The negotiated salary increases cause the total present value of expected benefit payments from the Fund to increase by $176,716,366, from $3,786,881,936 to $3,963,598,302.
- Ordinance No. 2017-259 causes the total present value of expected benefit payments from the Fund to increase by $64,349,077, from $3,963,598,302 to $4,027,947,379.
- Reflecting Ordinance Nos. 2017-259 and 2017-257 and the methods and assumptions described above, the fiscal year 2018 required City contribution decreases by 43.28% of covered payroll, from 149.74% to 106.46%, or by a dollar amount of $57,568,015, from $205,488,666 to $147,920,651. If the present value of the pension liability surtax were not reflected until the money is deposited into the Pension Fund and the UAAL continued to be amortized according to the schedule shown in the October 1, 2016 actuarial valuation report, the required City contribution for fiscal year 2018 would be 156.12% of covered payroll (or $216,913,548).
- The Fund's funded ratio (market value of assets divided by the actuarial accrued liability) reflecting Ordinance 2017-259 decreases from the level shown in the October 1, 2016 Actuarial Valuation Report prepared by Pension Board Consultants, from 45.24% to 43.02%.

- Reflecting Ordinance 2017-257, when the Fund's UAAL is adjusted by the present value of the pension liability surtax, it decreases from $2,004,853,382 to $1,424,085,993. The sum of the market value of assets and the present value of the pension liability surtax is 59.52% of the actuarial accrued liability. However, this is not the revised funded ratio for the Fund, as the present value of the pension liability surtax is not identified as an asset of the Fund, but instead as an offset to the UAAL.

Additional Disclosures

This report was prepared for the Jacksonville Police and Fire Pension Fund and those designated or approved by the Fund. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Board of Trustees.

The purpose of this report is to describe the immediate financial effect of the proposed changes. No statement in this report is intended to be interpreted as a recommendation in favor of the changes, or in opposition to them. This report should not be relied on for any purpose other than the purpose described above. We are neither attorneys nor legal professionals, and the above information should not be construed as legal advice or opinion. There is no guarantee that the State will agree with the approaches used. We recommend qualified legal counsel review our interpretation of Florida Statutes.

The results in this report are based on census data as of July 1, 2016 and asset data as of October 1, 2016, as provided by Pension Board Consultants and as used for the October 1, 2016 Actuarial Valuation. We reviewed this information for reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of this information. Please refer to the Actuarial Valuation report, as prepared by Pension Board Consultants, Inc., dated January 18, 2017, the Experience Study on Payroll Growth Assumption letter, dated April 4, 2017, and the Replication of October 1, 2016 Actuarial Valuation Results letter, dated April 4, 2017, for all actuarial assumptions, methods and disclosures.

Please note that the closure of the Fund may lead to future changes in investment policy over time to reflect the changing income needs of the Fund as the ratio of retirees to active members increases. An analysis of the impact of any future change in investment policy was outside the scope of this assignment. It is possible that when such changes in investment policy occur, even if the changes are not made for several years, they may have a material effect on the valuation results. We recommend the Board discuss the potential impact of the plan closure with the Fund's investment consultant and consider preparing a financial analysis of one or more scenarios.

As with any actuarial valuation, the calculation results shown herein are based upon assumptions regarding future events, which may or may not materialize. They are also based on the assumptions, methods, and plan provisions outlined in this report and in the Actuarial Valuation report dated January 18, 2017. 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 this report.

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 Jacksonville Police and Fire Pension Fund as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

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 signing actuaries are independent of the plan sponsor.

Respectfully submitted,

Peter N. Strong, FSA, MAAA, FCA
Enrolled Actuary No. 17-06975

Jeffrey Amrose, MAAA, FCA
Enrolled Actuary No. 17-06599

Description of Amendments

Ordinance 2017-259 amends the Fund as follows:

- Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund will be closed to new entrants.
- For all members of the Fund, the member contribution rate is changed to 10% of pay.
- All members (including members hired after June 19, 2015 and previously in Group II) of the Fund will be eligible for the benefits which were in place prior to the adoption of Ordinance 2015-304-E. Benefits that were specifically applicable to Group II are eliminated, and language differentiating separate groups is being removed. In particular, all members will be eligible for the following benefit provisions:
    - The accrued benefit is equal to 3% of average salary for each of the first 20 years of service plus 2% of average salary for each of the next 10 years of service.
    - The normal retirement date is when a member attains 20 years of service.
    - The average salary is computed as the average of the final 2 years (52 pay periods).
    - Cost of living adjustments are 3% annually, beginning with the first January following the commencement of benefits.
    - All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Ordinance 2017-259 also amends the Fund as follows (but these changes will not have an immediate impact on the initial year's contribution requirement or the funded status of the Fund):

- Removal of the funding policy setting up 13 years of extra payments toward the UAAL as set forth in Ordinance 2015-304-E, where funds the newly created Unfunded Actuarial Liability Payment Account (UALPA) would provide extra payments toward the UAAL in conjunction with extra payments from the City towards the UAAL through fiscal year 2028.
- The following funding policy changes are instated:
    - The below provisions shall remain in place until the Fund is 100 percent funded:
        - Beginning with the Fiscal Year 2017-2018, a liquidity ratio, defined as the market value of assets divided by the annual benefit payments, is instated, where in any year if the liquidity ratio falls below a predetermined rate, the City shall, subject to annual appropriation, make a contribution or payment in an amount sufficient to restore the Fund's liquidity ratio to at least the predetermined rate, as determined by the plan actuary.
        - Beginning with the Fiscal Year 2017-2018, the City shall, subject to annual appropriation, make an annual contribution in a predefined minimum amount, less any amount paid to restore the liquidity ratio to the minimum predetermined level.

Description of Amendments (continued)

- Effective October 1, 2017, the accumulated balances existing on September 30, 2017, together with interest thereon, in the UALPA and the Supplemental Payment Account (SBA), will be allocated as follows:
  - 20% shall be administered by the Board for the legal use of police officer members, as determined by the legally recognized collective bargaining unit.20% shall be administered by the Board for the legal use of firefighter members, as determined by the legally recognized collective bargaining unit.
  - 60% shall be administered by the Board for the sole purpose of being applied to the City's Actuarially Determined Employer Contribution (ADEC) for the year(s) selected by the City, at the discretion of the City.
- Effective October 1, 2017, 100% of the accumulated balances existing on September 30, 2017, in the City Budget Stabilization Account (CBSA) and the Enhanced Benefit Account (EBA), together with interest thereon, shall be administered by the Board for the sole purpose of being applied to the City's ADEC for the year(s) selected by the City, at the discretion of the City.
- Effective October 1, 2017, all Chapter 175 and 185 Florida Insurance Premium Tax Rebate Dollars shall be administered by the Board for the legal use of the firefighter and police officer members, as determined by the legally recognized collective bargaining unit.

Ordinance No. 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Ordinance 2017-257 creates a new Chapter 776 entitled "Pension Liability Surtax" in the City of Jacksonville Ordinance Code.

Funding Implications of Amendment

An actuarial cost estimate is attached.

Certification of Administrator

I believe the amendment to be in compliance with Part VII, Chapter 112, Florida Statutes and Section 14, Article X of the Constitution of the State of Florida.

____

For the Board of Trustees
as Plan Administrator

Plan

Jacksonville Police and Fire Pension Fund

Valuation Date

October 1, 2016

Date of Report

April 7, 2017

Report Requested by

Board of Trustees

Prepared by

Peter Strong and Jeffrey Amrose

Group Valued

All active and inactive Police Officers and Firefighters

Changes in Plan Provisions

Present Provision Before Change

Employees hired before June 19, 2015 are classified as Group I members. Employees hired on or after June 19, 2015, the effective date of Ordinance 2015-304-E, are classified as Group II Members and are eligible for the following benefit provisions:

- Average salary is computed as the average of the final 5 years.
- Members are eligible for a time service retirement upon reaching 30 years of credited service with a benefit equal to 75% of FAE and a dollar maximum of $99,999.99.
- Members are eligible for a reduced early retirement benefit with at least 25 years of credited service.
- Members are eligible for a disability retirement with benefit equal to the greater of 50% of average salary, or benefit eligible from a time service retirement.
- Members that terminate employment with at least 10 years of credited service, but less than 25, are eligible to receive a deferred retirement benefit of 2.0% per year of credited service of average salary, commencing at age 62.
- The Cost of Living Adjustment (COLA) is equal to the Social Security COLA for the same plan year, not to exceed 1.5%, beginning in the third January following commencement of benefits.
- Members are not eligible to participate in the Deferred Retirement Option Program (DROP). Members can participate in the BACKDROP at retirement eligibility with interest accrued based on the plan's actual rate of return, with the minimum interest at 0% and maximum at 10%.
- Members contribute at a rate of 10% of pay.

As a result of Ordinance 2015-304-E, the following benefit changes were made for Group I members:

- For Group I members with less than 5 years of service as of June 19, 2015, the average salary period was increased to the final four years, with the average salary no less than the 2-year average salary as of June 19, 2015.
- For Group I members with less than 20 years of service as of June 19, 2015, the COLA is 3% annually for service accrued as of June 19, 2015 and the Social Security COLA (not to exceed 6.0%) for service accrued after June 19, 2015.
- For Group I members with less than 20 years of service as of June 19, 2015, members that elect to enter the DROP will receive interest accrued based on the plan's actual rate of return, with the minimum interest at 2% and maximum at 14.4%.

Proposed Provision After Change

Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund is closed to new entrants.

For all members of the Fund, the member contribution rate is 10% of pay.

All members of the Fund are eligible for benefits that were changed as a result of Ordinance 2015-304-E. In particular, all members hired prior to October 1, 2017 are eligible for the following benefit provisions:

- Average salary is computed as the average of the final 2 years.
- Members are eligible for a time service retirement upon reaching 20 years of credited service with benefit accrual at a rate of 3% for the first 20 years of service plus 2% after 20 years of service, maximum 80% of average salary.
- Members are eligible for a disability retirement with benefit equal to the greater of 60% of average salary, or benefit eligible from a time service retirement.
- Members that terminate employment with 5 or more years of credited service, but less than 20, are eligible to receive a deferred retirement benefit of 3.0% per year of credited service of average salary, with benefit commencing at the date the member would have been eligible to receive a time service retirement.
- The COLA is 3% annually, beginning with the first January following the commencement of benefits.
- All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Changes in Actuarial Assumptions and Methods

Assumed salary increases for the years 2017-2019 include the negotiated across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019. These temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019 (reducing to 3.5% per year for 2020 and subsequent years). This was done to include the impact of promotions and longevity/step increases.

A share of 63% of the total proceeds from the City of Jacksonville's pension liability surtax is assumed to be allocated to the Jacksonville Police and Fire Pension Fund beginning with calendar year 2031. Sales tax revenue is projected to increase by 3.34% annually from the year 2016. The total unfunded actuarial accrued liability (UAAL), net of the present value of the pension liability surtax, is amortized over 30 years in accordance to Florida Statute 112.64(6).

The long-term payroll growth assumption for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date) has been changed from 0.067% to 1.25%.

All other actuarial assumptions and methods are the same as those used in the October 1, 2016 Actuarial Valuation Report.

Amortization Period for New Changes in Actuarial Accrued Liability

30 years

Actuarial Impact of Changes

See attached page(s).

ACTUARIALLY DETERMINED CONTRIBUTION (ADC)				
A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. ADC to Be Paid During Fiscal Year Ending	9/30/2018	9/30/2018	9/30/2018	9/30/2018
C. Assumed Date of Employer Contributions	12/1/2017	12/1/2017	12/1/2017	12/1/2017
D. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
E. Annual Payment to Amortize Unfunded Actuarial Liability	164,417,818	169,702,069	160,374,273	94,560,043
F. Employer Normal Cost	44,803,488	45,873,065	50,076,797	50,728,791
G. ADC if Paid on the Valuation Date: E + F	209,221,306	215,575,134	210,451,070	145,288,834
H. Chapter Funds Allocation	5,340,312	5,340,312	5,340,312	0
I. Contribution from Court Fines	832,536	832,536	832,536	832,536
J. City Contribution: G - H - I as % of Covered Payroll	203,048,458 149.74 %	209,402,286 154.33 %	204,278,222 150.55 %	144,456,298 106.46 %
K. Actuarially Determined Contribution (ADC) in Contribution Year*	205,488,666	211,918,852	209,177,225	147,920,651
M. Change in ADC from Valuation	0	6,430,186	209,177,225	(57,568,015)

*= City Contribution (item J.) x payroll growth x 1.07 ^ (2/12)

ACTUARIAL VALUE OF BENEFITS AND ASSETS

A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. Actuarially Determined Contribution (ADC) to Be Paid During Fiscal Year Ending	9/30/2018	9/30/2018	9/30/2018	9/30/2018
C. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
D. Actuarial Present Value of All Projected Benefits for				
1. Active Members	1,146,037,063	1,165,992,261	1,342,708,627	1,407,057,704
2. Inactive Members	2,577,054,098	2,620,889,675	2,620,889,675	2,620,889,675
3. Total for All Members	3,723,091,161	3,786,881,936	3,963,598,302	4,027,947,379
E. Actuarial Accrued Liabilities				
1. Active Members	768,461,161	795,248,746	873,825,745	897,362,173
2. Inactive Members	2,577,054,098	2,620,889,675	2,620,889,675	2,620,889,675
3. Total for All Members	3,345,515,259	3,416,138,421	3,494,715,420	3,518,251,848
F. Market Value of Assets				
1. Gross Market Value	1,613,043,823	1,613,043,823	1,613,043,823	1,613,043,823
2. Reserve Accounts	(95,543,156)	(95,543,156)	(95,543,156)	(95,543,156)
3. Sr. Staff Plan Assets	(4,102,201)	(4,102,201)	(4,102,201)	(4,102,201)
4. Net Market Value	1,513,398,466	1,513,398,466	1,513,398,466	1,513,398,466
G. Net Present Value of Total Pension Liability Surtax Proceeds According to Pro Rata Share of 63%	0	0	0	580,767,389
H. Unfunded Actuarial Accrued Liability: E3 - F4 - G	1,832,116,793	1,902,739,955	1,981,316,954	1,424,085,993
I. Funded Ratio: F4 / E3	45.24 %	44.30 %	43.31 %	43.02 %
J. Percent of Actuarial Accrued Liabilitiy Covered by Assets and Total Pension Liability Surtax Proceeds: (G + F4) / E3	45.24 %	44.30 %	43.31 %	59.52 %
K. Liquidity Ratio				
1. DROP Balance as of 10/1/16	310,283,837	310,283,837	310,283,837	310,283,837
2. Net Market Value (Net of DROP): F4 - K1	1,203,114,629	1,203,114,629	1,203,114,629	1,203,114,629
3. Annual Benefit Payments in Pay Status	153,366,193	153,366,193	153,366,193	153,366,193
4. Ratio: K2 : K3	7.84 : 1	7.84 : 1	7.84 : 1	7.84 : 1

CALCULATION OF EMPLOYER NORMAL COST

A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
C. Normal Cost (Individual Entry Age)	$ 45,257,077	$ 46,326,654	$ 50,530,386	$ 53,812,286
D. Assumed Amount for Expenses	11,180,135	11,180,135	11,180,135	11,180,135
E. Expected Member (including DROP) Contribution	11,633,724	11,633,724	11,633,724	14,263,630
F. Employer Normal Cost: C + D - E	44,803,488	45,873,065	50,076,797	50,728,791
G. Employer Normal Cost as a % Covered Payroll: F / B	33.04 %	33.81 %	36.91 %	37.39 %

PENSION LIABILITY SURTAX ESTIMATES
3.34% ASSUMED ANNUAL GROWTH

Calendar Year	Projectected Surtax Revenue	63% of Revenue for Police and Fire Pension Fund
2016*	$ 80,642,986	
2017	83,336,462	
2018	86,119,900	
2019	88,996,304	
2020	91,968,781	
2021	95,040,538	
2022	98,214,892	
2023	101,495,269	
2024	104,885,211	
2025	108,388,377	
2026	112,008,549	
2027	115,749,635	
2028	119,615,673	
2029	123,610,836	
2030	127,739,438	
2031	132,005,935	$ 83,163,739
2032	136,414,933	85,941,408
2033	140,971,192	88,811,851
2034	145,679,630	91,778,167
2035	150,545,330	94,843,558
2036	155,573,544	98,011,333
2037	160,769,700	101,284,911
2038	166,139,408	104,667,827
2039	171,688,464	108,163,733
2040	177,422,859	111,776,401
2041	183,348,782	115,509,733
2042	189,472,632	119,367,758
2043	195,801,018	123,354,641
2044	202,340,772	127,474,686
2045	209,098,954	131,732,341
2046	216,082,859	136,132,201
2047	223,300,026	140,679,016
2048	230,758,247	145,377,696
2049	238,465,572	150,233,311
2050	246,430,322	155,251,103
2051	254,661,095	160,436,490
2052	263,166,776	165,795,069
2053	271,956,546	171,332,624
2054	281,039,895	177,055,134
2055	290,426,627	182,968,775
2056	300,126,877	189,079,932
2057	310,151,114	195,395,202
2058	320,510,161	201,921,402
2059	331,215,201	208,665,577
2060	342,277,789	215,635,007
Total Proceeds from 2031-2060:	**$ 6,637,842,261**	**$ 4,181,840,624**
Net Present Value of Proceeds as of October 1, 2016:	**$ 921,852,999**	**$ 580,767,389**

*Based on the monthly surtax proceeds received in January 2016 through December 2016.

PARTICIPANT DATA				
	October 1, 2016 Valuation (PBC, Inc.)	*October 1, 2016 Valuation with COLA Timing Adjustment*	*October 1, 2016 After Negotiated Salary Increases*	*October 1, 2016 After Negotiated Salary Increases and Ord. 2017-259*
ACTIVE MEMBERS[1]				
Number	2,294	2,294	2,294	2,294
Annual Payroll	$ 135,965,222	$ 135,965,222	$ 135,965,222	$ 135,965,222
Average Annual Payroll	$ 59,270	$ 59,270	$ 59,270	$ 59,270
Average Age	39.4	39.4	39.4	39.4
Average Past Service	10.6	10.6	10.6	10.6
Average Age at Hire	28.8	28.8	28.8	28.8
RETIREES & BENEFICIARIES & DROP				
Number	2,831	2,831	2,831	2,831
Annual Benefits	$ 151,286,417	$ 151,286,417	$ 151,286,417	$ 151,286,417
Average Annual Benefit	$ 53,448	$ 53,439	$ 53,439	$ 53,439
Average Age	63.5	63.5	63.5	63.5
DISABILITY RETIREES				
Number	55	55	55	55
Annual Benefits	$ 2,079,776	$ 2,079,776	$ 2,079,776	$ 2,079,776
Average Annual Benefit	$ 37,814	$ 37,814	$ 37,814	$ 37,814
Average Age	62.3	62.3	62.3	62.3
TERMINATED VESTED MEMBERS				
Number	77	77	77	77
Annual Benefits	$ 1,375,534	$ 1,375,534	$ 1,375,534	$ 1,375,534
Average Annual Benefit	$ 17,864	$ 17,864	$ 17,864	$ 17,864
Average Age	43.4	43.4	43.4	43.4

[1]Active Participant data as of July 1, 2016.

GRS Retirement Consulting
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April 7, 2017

Mr. Timothy Johnson
Executive Director
Jacksonville Police and Fire Pension Fund
One West Adams Street, Suite 100
Jacksonville, FL 32202

Re: Jacksonville Police and Fire Pension Fund – Actuarial Impact Statement for Ordinance Nos. 2017-259 and 2017-257

Dear Tim:

As requested, we are enclosing an Actuarial Impact Statement for Ordinance Nos. 2017-259 and 2017-257, illustrating the first-year impact of proposed assumption, plan, and funding policy changes to the Jacksonville Police and Fire Pension Fund (Fund). The results are based on census and asset data as of October 1, 2016.

This is one of two actuarial impact statements that we have been requested to prepare. The Board should decide which actuarial impact statement to accept and submit to the City of Jacksonville and the Florida Division of Retirement. The two impact statements differ with regard to the payroll growth rate assumption used for purposes of amortizing the unfunded actuarial accrued liability (UAAL) and the assumed rate of growth in the annual pension liability surtax proceeds.

Please note that this actuarial impact statement is the first actuarial valuation of the Fund that the Fund's new actuary, Gabriel, Roeder, Smith & Company, has prepared. We had a limited amount of time to prepare the impact statement based on the City Council's schedule. For this reason, we did not have sufficient time to fully evaluate all of the actuarial assumptions and methods employed by the previous actuary, Pension Board Consultants, Inc. Based on our initial review of the assumptions and methods, we have concerns regarding the approach used by the previous actuary to value the impact of the fixed DROP interest crediting rate of 8.4%, which is higher than the Fund's assumed rate of investment return of 7.0%. In the actuarial impact statement, we have continued to utilize the previous actuary's 2.0% "load" on the Fund's liabilities and normal costs to account for the higher fixed interest crediting rate on DROP accounts than 7.0%. Prior to preparation of the October 1, 2017 actuarial valuation report, we recommend a full analysis be completed on the long-term impact of this interest crediting rate being 1.4% higher than the Fund's assumed investment return, the results of which could have a significant impact on the liabilities and future costs of the Fund.

The enclosed exhibits show the following:

- **October 1, 2016 Actuarial Valuation Results** – Results as prepared by the prior actuary, Pension Board Consultants, Inc., report dated January 18, 2017.
- **Revised Baseline** – Same plan provisions and actuarial assumptions as used in the October 1, 2016 Actuarial Valuation Report, except with adjustments to reflect the precise timing of the annual Cost-of-Living Adjustment.

- **Assumption Changes** – Same as the Revised Baseline, but also incorporating the collectively bargained across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019 as well as a change in the payroll growth rate (used to amortize the unfunded actuarial accrued liability (UAAL) and project the contribution amount to the contribution year) from 0.067% to 1.5%. Please refer to our experience study dated April 4, 2017 for our analysis regarding this assumption. The temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019 (reducing to 3.5% per year for 2020 and subsequent years). This was done to include the impact of promotions and longevity/step increases.

- **Impact of Ordinance Nos. 2017-259 and 2017-257** – Reflecting the changes listed above as well as the proposed changes in accordance with Ordinance Nos. 2017-259 and 2017-257, as listed below:

  - Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund will be closed to new entrants.
  - For all members of the Fund, the member contribution rate is changed to 10% of pay.
  - All members (including members hired after June 19, 2015 and previously in Group II) of the Fund will be eligible for the benefits which were in place prior to the adoption of Ordinance 2015-304-E.

    Benefits that were specifically applicable to Group II are eliminated, and language differentiating separate groups is being removed. In particular, all members will be eligible for the following benefit provisions:

    - The accrued benefit is equal to 3% of average salary for each of the first 20 years of service plus 2% of average salary for each of the next 10 years of service.
    - The normal retirement date is when a member attains 20 years of service.
    - The average salary is computed as the average of the final 2 years (52 pay periods).
    - Cost of living adjustments are 3% annually, beginning with the first January following the commencement of benefits.
    - All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Ordinance 2017-259 also amends the Fund as follows (but these changes will not have an immediate impact on the initial year's contribution requirement or the funded status of the Fund):

- Removal of the funding policy setting up 13 years of extra payments to write down the UAAL as set forth in Ordinance 2015-304-E, where funds from the newly created Unfunded Actuarial Liability Payment Account (UALPA) would provide extra payments toward the UAAL in conjunction with extra payments from the City towards the UAAL through fiscal year 2028. During this 13-year period, the extra payments used to write down the UAAL would have totaled $460 million ($110 million from the UALPA account plus $350 million in extra City payments).
- The following funding policy changes are instated:
  - The below provisions shall remain in place until the Fund is 100 percent funded:
    - Beginning with the Fiscal Year 2017-2018, a liquidity ratio, defined as the market value of

assets divided by the annual benefit payments, is instated, where in any year if the liquidity ratio falls below a predetermined rate, the City shall, subject to annual appropriation, make a contribution or payment in an amount sufficient to restore the Fund's liquidity ratio to at least the predetermined rate, as determined by the plan actuary.

- Beginning with the Fiscal Year 2017-2018, the City shall, subject to annual appropriation, make an annual contribution from a source other than the pension liability surtax in a predefined minimum amount, less any amount paid to restore the liquidity ratio to the minimum predetermined level.

- Effective October 1, 2017, the accumulated balances existing on September 30, 2017, together with interest thereon, in the UALPA and the Supplemental Payment Account (SPA), will be allocated as follows:
  - 20% shall be administered by the Board for the legal use of police officer members, as determined by the legally recognized collective bargaining unit.
  - 20% shall be administered by the Board for the legal use of firefighter members, as determined by the legally recognized collective bargaining unit.
  - 60% shall be administered by the Board for the sole purpose of being applied to the City's Actuarially Determined Employer Contribution (ADEC) for the year(s) selected by the City, at the discretion of the City.

    As of October 1, 2016, the balance in the UALPA was approximately $71.7 million, and the balance in the SPA was $10.0 million.

- Effective October 1, 2017, 100% of the accumulated balances existing on September 30, 2017, in the City Budget Stabilization Account (CBSA) and the Enhanced Benefit Account (EBA), together with interest thereon, shall be administered by the Board for the sole purpose of being applied to the City's ADEC for the year(s) selected by the City, at the discretion of the City.

  As of October 1, 2016, the balance in the EBA was approximately $5.3 million, and the balance in the CBSA was approximately $5.1 million.

- Effective October 1, 2017, all Chapter 175 and 185 Florida Insurance Premium Tax Rebate Dollars shall be administered by the Board for the legal use of the firefighter and police officer members, as determined by the legally recognized collective bargaining unit.

Ordinance No. 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Ordinance 2017-257 creates a new Chapter 776 entitled "Pension Liability Surtax" in the City of Jacksonville Ordinance Code.

Florida Statute 112.64(6) authorizes a county to apply the proceeds of a sales surtax, hereinafter referred to as the "pension liability surtax", to reduce the unfunded liability of a defined benefit retirement plan or system. Florida Statute 112.64(6)(a) requires the Fund to then amortize the unfunded actuarial accrued liabilities (UAAL), net of the present value of the pension liability surtax, over 30 years immediately following approval of the pension liability surtax. Florida Statute 112.64(6)(b) requires the payroll of all employees in job classifications which are covered by a closed retirement plan (regardless of the plan they participate in) to be included when determining the payroll growth assumption to be used to amortize the UAAL.

Ordinance No. 2017-257 outlines the use of the pension liability surtax for the City of Jacksonville's three defined benefit pension funds: the Police and Fire Pension Fund, the Corrections Officers Fund, and the General Employee Pension Fund. The net present value of the total projected proceeds of the pension liability surtax is to be recognized for the fiscal beginning October 1, 2017 and each fiscal year thereafter. Each eligible defined benefit plan will apply the present value of the total projected proceeds of the surtax, as determined by the City, with respect to the pro rata share of each plan's proportion of the City's total unfunded liability as determined by the October 1, 2015 actuarial valuation and each subsequent year's actuarial valuation. The pension liability surtax will begin on January 1 immediately following the expiration of The Better Jacksonville ½-cent Sales Surtax, but in no event shall collection begin later than January 1, 2031. The surtax will remain in effect no longer than 30 years and will terminate for an eligible plan prior to the end of the 30 years once that plan is 100% funded.

The impact of Ordinance Nos. 2017-259 and 2017-257 reflects the present value of a 63% share of the pension liability surtax proceeds to be allocated to the Jacksonville Police and Fire Pension Fund commencing in calendar year 2031 and continuing through calendar year 2060. The 63% share was determined based on the pro rata share of the UAAL for the Jacksonville Police and Fire Pension Fund versus the sum of the UAAL's for all three of the City of Jacksonville's defined benefit pension plans as of October 1, 2015.

Prescribed Assumptions

The annual pension liability surtax revenue is projected to increase 4.25% annually from calendar year 2016 to calendar year 2060. This assumption was set by the City of Jacksonville. Assumptions regarding future growth in municipal sales tax revenues fall outside of our area of expertise. It is our understanding that an independent municipal finance expert, GAPublic Solutions, Inc. - A Registered Municipal Advisor Firm, has analyzed the historical and projected sales tax revenue of the City of Jacksonville, and they believe an annual growth rate assumption of 3.34% is more reasonable for a long-term projection. Since municipal finance projections fall outside of our area of expertise, we are unable to assess the reasonableness of the City's 4.25% annual surtax growth assumption, but we would be more comfortable relying on a source for analysis of this assumption that is independent of the City. If GAPublic Solutions, Inc.'s recommendation of 3.34% were used instead of 4.25%, the present value of the pension liability surtax would decrease by approximately $156.7 million and the required City contribution would increase by approximately $10.4 million to $10.7 million, depending on the payroll growth rate assumption used to amortize the UAAL.

The long-term payroll growth assumption for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date) is 1.5%, as requested by the City of Jacksonville. For a closed pension fund, it is generally our recommendation to use a 0% payroll growth assumption. Based on our understanding, Florida Statute 112.64(6)(b) requires the future payroll of police officers and firefighters expected to be hired after October 1, 2017 (who will not become members of the Fund) to be included when setting this assumption. This deviates from our recommended practice for closed pension funds. In consideration of this prescribed method described under Florida Statute 112.64(6)(b) for determining the payroll growth assumption, our recommendation is that the payroll growth assumption used to amortize the UAAL not exceed 1.25%. This is based on the projected 10-year compound average payroll growth rate through 2021, which is 1.269% (reflecting the across-the-board negotiated salary increases in 2017-2019 and an OPEN group projection), and a goal of preventing negative amortization on the reduced UAAL (net of the present value of the pension liability surtax). Therefore, it is our opinion that a 1.5% payroll growth rate assumption differs from what we consider to be a reasonable range for the payroll growth rate assumption (0% to 1.25%). Please refer to our experience study report on the payroll growth assumption dated April 4, 2017 for additional information and background on this assumption.

Disclosures Regarding the Pension Liability Surtax and Florida Statute 112.64(6)

Ordinance 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Reflecting the pension liability surtax will involve a reduction in the Fund's current UAAL equal to the present value of a future revenue stream (generated by the pension liability surtax) to be received by the Fund in calendar years 2031 through 2060. This will delay the Fund's projected full funding date until the year 2060 and will result in annual contributions to the Fund in fiscal years 2018 through 2030 which will be significantly lower than the recommended contribution levels would be to ensure the Fund accumulates adequate assets to make all benefit payments. The maintenance of a minimum liquidity ratio (defined as the market value of assets divided by the annual benefit payments), as described in Ordinance 2017-259, will likely help prevent an insolvency in the event the Fund incurs adverse experience, but this is dependent upon the minimum liquidity ratio being adhered to. A full analysis of the impact of the liquidity ratio was outside of the scope of this assignment.

We are unable to assess the risk that the timing and/or amount of future pension liability surtax proceeds may significantly deviate from the projections (due to legal challenges, economic hardships, or any other reason). Any such deviations could have a significant impact on the required contribution amount shown herein and on the future solvency risk that the Fund's future assets may be insufficient to cover all future benefit payments.

In conjunction with offsetting the UAAL by the present value of the pension liability surtax, Florida Statute 112.64(6)(a) requires the use of a 30-year amortization period for the entire net UAAL. It is important to note that the average expected future service of current active members is 10.02 years, which is far less than the required 30-year amortization period. Though required, a long amortization period carries more risk, especially in a closed plan, and the funded status could deteriorate in the short run. Furthermore, amortizing the UAAL over 30 years, in effect, transfers costs to future taxpayers, which deviates from language in Florida Statute 112.61 which says "*Accordingly, except as herein provided, it is the intent of this act to prohibit the use of any procedure, methodology, or assumptions the effect of which is to transfer to future taxpayers any portion of the costs which may reasonably have been expected to be paid by the current taxpayers.*" When combined with advance recognition of the pension liability surtax, it is our opinion that current costs will be transferred to future taxpayers under this arrangement.

Summary of Findings

- The negotiated salary increases cause the total present value of expected benefit payments from the Fund to increase by $176,716,366, from $3,786,881,936 to $3,963,598,302.
- Ordinance No. 2017-259 causes the total present value of expected benefit payments from the Fund to increase by $64,349,077, from $3,963,598,302 to $4,027,947,379.
- Reflecting Ordinance Nos. 2017-259 and 2017-257 and the prescribed methods and assumptions described above, the fiscal year 2018 required City contribution decreases by 52.55% of covered payroll, from 149.74% to 97.19%, or by a dollar amount of $70,119,908, from $205,488,666 to $135,368,758. If the present value of the pension liability surtax were not reflected until the money is deposited into the Pension Fund and the UAAL continued to be amortized according to the schedule shown in the October 1, 2016 actuarial valuation report using our highest recommended

payroll growth assumption of 1.25%, the required City contribution for fiscal year 2018 would be 156.12% of covered payroll (or $216,913,548).

- The Fund's funded ratio (market value of assets divided by the actuarial accrued liability) reflecting Ordinance 2017-259 decreases from the level shown in the October 1, 2016 Actuarial Valuation Report prepared by Pension Board Consultants, from 45.24% to 43.02%.

- Reflecting Ordinance 2017-257, when the Fund's UAAL is adjusted by the present value of the pension liability surtax, it decreases from $2,004,853,382 to $1,267,340,486. The sum of the market value of assets and the present value of the pension liability surtax is 63.98% of the actuarial accrued liability. However, this is not the revised funded ratio for the Fund, as the present value of the pension liability surtax is not identified as an asset of the Fund, but instead as an offset to the UAAL.

Additional Disclosures

This report was prepared for the Jacksonville Police and Fire Pension Fund and those designated or approved by the Fund. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Board of Trustees.

The purpose of this report is to describe the immediate financial effect of the proposed changes. No statement in this report is intended to be interpreted as a recommendation in favor of the changes, or in opposition to them. This report should not be relied on for any purpose other than the purpose described above. We are neither attorneys nor legal professionals, and the above information should not be construed as legal advice or opinion. There is no guarantee that the State will agree with the approaches used. We recommend qualified legal counsel review our interpretation of Florida Statutes.

The results in this report are based on census data as of July 1, 2016 and asset data as of October 1, 2016, as provided by Pension Board Consultants and as used for the October 1, 2016 Actuarial Valuation. We reviewed this information for reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of this information. Please refer to the Actuarial Valuation report, as prepared by Pension Board Consultants, Inc., dated January 18, 2017, the Experience Study on Payroll Growth Assumption letter, dated April 4, 2017, and the Replication of October 1, 2016 Actuarial Valuation Results letter, dated April 4, 2017, for all actuarial assumptions, methods and disclosures.

Please note that the closure of the Fund may lead to future changes in investment policy over time to reflect the changing income needs of the Fund as the ratio of retirees to active members increases. An analysis of the impact of any future change in investment policy was outside the scope of this assignment. It is possible that when such changes in investment policy occur, even if the changes are not made for several years, they may have a material effect on the valuation results. We recommend the Board discuss the potential impact of the plan closure with the Fund's investment consultant and consider preparing a financial analysis of one or more scenarios.

As with any actuarial valuation, the calculation results shown herein are based upon assumptions regarding future events, which may or may not materialize. They are also based on the assumptions, methods, and plan provisions outlined in this report and in the Actuarial Valuation report dated January 18, 2017. 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 this report.

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 Jacksonville Police and Fire Pension Fund as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

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 signing actuaries are independent of the plan sponsor.

Respectfully submitted,

Peter N. Strong, FSA, MAAA, FCA
Enrolled Actuary No. 17-06975

Jeffrey Amrose, MAAA, FCA
Enrolled Actuary No. 17-06599

JACKSONVILLE POLICE AND FIRE PENSION FUND

Impact Statement – April 7, 2017

Description of Amendments

Ordinance 2017-259 amends the Fund as follows:

- Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund will be closed to new entrants.
- For all members of the Fund, the member contribution rate is changed to 10% of pay.
- All members (including members hired after June 19, 2015 and previously in Group II) of the Fund will be eligible for the benefits which were in place prior to the adoption of Ordinance 2015-304-E. Benefits that were specifically applicable to Group II are eliminated, and language differentiating separate groups is being removed. In particular, all members will be eligible for the following benefit provisions:
    - The accrued benefit is equal to 3% of average salary for each of the first 20 years of service plus 2% of average salary for each of the next 10 years of service.
    - The normal retirement date is when a member attains 20 years of service.
    - The average salary is computed as the average of the final 2 years (52 pay periods).
    - Cost of living adjustments are 3% annually, beginning with the first January following the commencement of benefits.
    - All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Ordinance 2017-259 also amends the Fund as follows (but these changes will not have an immediate impact on the initial year's contribution requirement or the funded status of the Fund):

- Removal of the funding policy setting up 13 years of extra payments toward the UAAL as set forth in Ordinance 2015-304-E, where funds the newly created Unfunded Actuarial Liability Payment Account (UALPA) would provide extra payments toward the UAAL in conjunction with extra payments from the City towards the UAAL through fiscal year 2028.
- The following funding policy changes are instated:
    - The below provisions shall remain in place until the Fund is 100 percent funded:
        - Beginning with the Fiscal Year 2017-2018, a liquidity ratio, defined as the market value of assets divided by the annual benefit payments, is instated, where in any year if the liquidity ratio falls below a predetermined rate, the City shall, subject to annual appropriation, make a contribution or payment in an amount sufficient to restore the Fund's liquidity ratio to at least the predetermined rate, as determined by the plan actuary.
        - Beginning with the Fiscal Year 2017-2018, the City shall, subject to annual appropriation, make an annual contribution in a predefined minimum amount, less any amount paid to restore the liquidity ratio to the minimum predetermined level.

Description of Amendments (continued)

- Effective October 1, 2017, the accumulated balances existing on September 30, 2017, together with interest thereon, in the UALPA and the Supplemental Payment Account (SBA), will be allocated as follows:
    - 20% shall be administered by the Board for the legal use of police officer members, as determined by the legally recognized collective bargaining unit.20% shall be administered by the Board for the legal use of firefighter members, as determined by the legally recognized collective bargaining unit.
    - 60% shall be administered by the Board for the sole purpose of being applied to the City's Actuarially Determined Employer Contribution (ADEC) for the year(s) selected by the City, at the discretion of the City.
- Effective October 1, 2017, 100% of the accumulated balances existing on September 30, 2017, in the City Budget Stabilization Account (CBSA) and the Enhanced Benefit Account (EBA), together with interest thereon, shall be administered by the Board for the sole purpose of being applied to the City's ADEC for the year(s) selected by the City, at the discretion of the City.
- Effective October 1, 2017, all Chapter 175 and 185 Florida Insurance Premium Tax Rebate Dollars shall be administered by the Board for the legal use of the firefighter and police officer members, as determined by the legally recognized collective bargaining unit.

Ordinance No. 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Ordinance 2017-257 creates a new Chapter 776 entitled "Pension Liability Surtax" in the City of Jacksonville Ordinance Code.

Funding Implications of Amendment

An actuarial cost estimate is attached.

Certification of Administrator

I believe the amendment to be in compliance with Part VII, Chapter 112, Florida Statutes and Section 14, Article X of the Constitution of the State of Florida.

____

For the Board of Trustees
as Plan Administrator

JACKSONVILLE POLICE AND FIRE PENSION FUND
SUPPLEMENTAL ACTUARIAL VALUATION REPORT

Plan

Jacksonville Police and Fire Pension Fund

Valuation Date

October 1, 2016

Date of Report

April 7, 2017

Report Requested by

Board of Trustees

Prepared by

Peter Strong and Jeffrey Amrose

Group Valued

All active and inactive Police Officers and Firefighters

Changes in Plan Provisions

<u>Present Provision Before Change</u>

Employees hired before June 19, 2015 are classified as Group I members. Employees hired on or after June 19, 2015, the effective date of Ordinance 2015-304-E, are classified as Group II Members and are eligible for the following benefit provisions:

- Average salary is computed as the average of the final 5 years.
- Members are eligible for a time service retirement upon reaching 30 years of credited service with a benefit equal to 75% of FAE and a dollar maximum of $99,999.99.
- Members are eligible for a reduced early retirement benefit with at least 25 years of credited service.
- Members are eligible for a disability retirement with benefit equal to the greater of 50% of average salary, or benefit eligible from a time service retirement.
- Members that terminate employment with at least 10 years of credited service, but less than 25, are eligible to receive a deferred retirement benefit of 2.0% per year of credited service of average salary, commencing at age 62.
- The Cost of Living Adjustment (COLA) is equal to the Social Security COLA for the same plan year, not to exceed 1.5%, beginning in the third January following commencement of benefits.
- Members are not eligible to participate in the Deferred Retirement Option Program (DROP). Members can participate in the BACKDROP at retirement eligibility with interest accrued based on the plan's actual rate of return, with the minimum interest at 0% and maximum at 10%.
- Members contribute at a rate of 10% of pay.

As a result of Ordinance 2015-304-E, the following benefit changes were made for Group I members:

- For Group I members with less than 5 years of service as of June 19, 2015, the average salary period was increased to the final four years, with the average salary no less than the 2-year average salary as of June 19, 2015.
- For Group I members with less than 20 years of service as of June 19, 2015, the COLA is 3% annually for service accrued as of June 19, 2015 and the Social Security COLA (not to exceed 6.0%) for service accrued after June 19, 2015.
- For Group I members with less than 20 years of service as of June 19, 2015, members that elect to enter the DROP will receive interest accrued based on the plan's actual rate of return, with the minimum interest at 2% and maximum at 14.4%.

<u>Proposed Provision After Change</u>

Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund is closed to new entrants.

For all members of the Fund, the member contribution rate is 10% of pay.

All members of the Fund are eligible for benefits that were changed as a result of Ordinance 2015-304-E. In particular, all members hired prior to October 1, 2017 are eligible for the following benefit provisions:

- Average salary is computed as the average of the final 2 years.
- Members are eligible for a time service retirement upon reaching 20 years of credited service with benefit accrual at a rate of 3% for the first 20 years of service plus 2% after 20 years of service, maximum 80% of average salary.
- Members are eligible for a disability retirement with benefit equal to the greater of 60% of average salary, or benefit eligible from a time service retirement.
- Members that terminate employment with 5 or more years of credited service, but less than 20, are eligible to receive a deferred retirement benefit of 3.0% per year of credited service of average salary, with benefit commencing at the date the member would have been eligible to receive a time service retirement.
- The COLA is 3% annually, beginning with the first January following the commencement of benefits.
- All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Changes in Actuarial Assumptions and Methods

Assumed salary increases for the years 2017-2019 include the negotiated across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019. These temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019 (reducing to 3.5% per year for 2020 and subsequent years). This was done to include the impact of promotions and longevity/step increases.

A share of 63% of the total proceeds from the City of Jacksonville's pension liability surtax is assumed to be allocated to the Jacksonville Police and Fire Pension Fund beginning with calendar year 2031. Sales tax revenue is projected to increase by 4.25% annually from the year 2016. The total unfunded actuarial accrued liability (UAAL), net of the present value of the pension liability surtax, is amortized over 30 years in accordance to Florida Statute 112.64(6).

The long-term payroll growth assumption for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date) has been changed from 0.067% to 1.5%.

Please refer to our letter for important disclosures regarding the above assumptions.

All other actuarial assumptions and methods are the same as those used in the October 1, 2016 Actuarial Valuation Report.

Amortization Period for New Changes in Actuarial Accrued Liability

30 years

Actuarial Impact of Changes

See attached page(s).

ACTUARIALLY DETERMINED CONTRIBUTION (ADC)				
A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. ADC to Be Paid During Fiscal Year Ending	9/30/2018	9/30/2018	9/30/2018	9/30/2018
C. Assumed Date of Employer Contributions	12/1/2017	12/1/2017	12/1/2017	12/1/2017
D. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
E. Annual Payment to Amortize Unfunded Actuarial Liability	164,417,818	169,702,069	157,265,752	81,976,508
F. Employer Normal Cost	44,803,488	45,873,065	50,076,797	50,728,791
G. ADC if Paid on the Valuation Date: E + F	209,221,306	215,575,134	207,342,549	132,705,299
H. Chapter Funds Allocation	5,340,312	5,340,312	5,340,312	0
I. Contribution from Court Fines	832,536	832,536	832,536	832,536
J. City Contribution: G - H - I as % of Covered Payroll	203,048,458 149.74 %	209,402,286 154.33 %	201,169,701 148.26 %	131,872,763 97.19 %
K. Actuarially Determined Contribution (ADC) in Contribution Year*	205,488,666	211,918,852	206,502,783	135,368,758
M. Change in ADC from Valuation	0	6,430,186	1,014,117	(70,119,908)

*= City Contribution (item J.) x payroll growth x 1.07 ^ (2/12)

ACTUARIAL VALUE OF BENEFITS AND ASSETS				
A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. Actuarially Determined Contribution (ADC) to Be Paid During Fiscal Year Ending	9/30/2018	9/30/2018	9/30/2018	9/30/2018
C. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
D. Actuarial Present Value of All Projected Benefits for				
1. Active Members	1,146,037,063	1,165,992,261	1,342,708,627	1,407,057,704
2. Inactive Members	2,577,054,098	2,620,889,675	2,620,889,675	2,620,889,675
3. Total for All Members	3,723,091,161	3,786,881,936	3,963,598,302	4,027,947,379
E. Actuarial Accrued Liabilities				
1. Active Members	768,461,161	795,248,746	873,825,745	897,362,173
2. Inactive Members	2,577,054,098	2,620,889,675	2,620,889,675	2,620,889,675
3. Total for All Members	3,345,515,259	3,416,138,421	3,494,715,420	3,518,251,848
F. Market Value of Assets				
1. Gross Market Value	1,613,043,823	1,613,043,823	1,613,043,823	1,613,043,823
2. Reserve Accounts	(95,543,156)	(95,543,156)	(95,543,156)	(95,543,156)
3. Sr. Staff Plan Assets	(4,102,201)	(4,102,201)	(4,102,201)	(4,102,201)
4. Net Market Value	1,513,398,466	1,513,398,466	1,513,398,466	1,513,398,466
G. Net Present Value of Total Pension Liability Surtax Proceeds According to Pro Rata Share of 63%	0	0	0	737,512,896
H. Unfunded Actuarial Accrued Liability: E3 - F4 - G	1,832,116,793	1,902,739,955	1,981,316,954	1,267,340,486
I. Funded Ratio: F4 / E3	45.24 %	44.30 %	43.31 %	43.02 %
J. Percent of Actuarial Accrued Liabilitiy Covered by Assets and Total Pension Liability Surtax Proceeds: (G + F4) / E3	45.24 %	44.30 %	43.31 %	63.98 %
K. Liquidity Ratio				
1. DROP Balance as of 10/1/16	310,283,837	310,283,837	310,283,837	310,283,837
2. Net Market Value (Net of DROP): F4 - K1	1,203,114,629	1,203,114,629	1,203,114,629	1,203,114,629
3. Annual Benefit Payments in Pay Status	153,366,193	153,366,193	153,366,193	153,366,193
4. Ratio: K2 : K3	7.84 : 1	7.84 : 1	7.84 : 1	7.84 : 1

CALCULATION OF EMPLOYER NORMAL COST

A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
C. Normal Cost (Individual Entry Age)	$ 45,257,077	$ 46,326,654	$ 50,530,386	$ 53,812,286
D. Assumed Amount for Expenses	11,180,135	11,180,135	11,180,135	11,180,135
E. Expected Member (including DROP) Contribution	11,633,724	11,633,724	11,633,724	14,263,630
F. Employer Normal Cost: C + D - E	44,803,488	45,873,065	50,076,797	50,728,791
G. Employer Normal Cost as a % Covered Payroll: F / B	33.04 %	33.81 %	36.91 %	37.39 %

PENSION LIABILITY SURTAX ESTIMATES 4.25% ASSUMED ANNUAL GROWTH		
Calendar Year	**Projectected Surtax Revenue**	**63% of Revenue for Police and Fire Pension Fund**
2016*	$ 80,642,986	
2017	84,070,313	
2018	87,643,301	
2019	91,368,142	
2020	95,251,288	
2021	99,299,467	
2022	103,519,695	
2023	107,919,282	
2024	112,505,851	
2025	117,287,350	
2026	122,272,062	
2027	127,468,625	
2028	132,886,041	
2029	138,533,698	
2030	144,421,380	
2031	150,559,289	$ 94,852,352
2032	156,958,059	98,883,577
2033	163,628,776	103,086,129
2034	170,582,999	107,467,289
2035	177,832,777	112,034,649
2036	185,390,670	116,796,122
2037	193,269,773	121,759,957
2038	201,483,738	126,934,755
2039	210,046,797	132,329,482
2040	218,973,786	137,953,485
2041	228,280,172	143,816,508
2042	237,982,079	149,928,710
2043	248,096,318	156,300,680
2044	258,640,411	162,943,459
2045	269,632,629	169,868,556
2046	281,092,016	177,087,970
2047	293,038,426	184,614,208
2048	305,492,559	192,460,312
2049	318,475,993	200,639,876
2050	332,011,223	209,167,070
2051	346,121,700	218,056,671
2052	360,831,872	227,324,079
2053	376,167,227	236,985,353
2054	392,154,334	247,057,230
2055	408,820,893	257,557,162
2056	426,195,781	268,503,342
2057	444,309,101	279,914,734
2058	463,192,238	291,811,110
2059	482,877,908	304,213,082
2060	503,400,220	317,142,138
Total Proceeds from 2031-2060:	**$ 8,805,539,764**	**$ 5,547,490,051**
Net Present Value of Proceeds as of October 1, 2016:	**$ 1,170,655,390**	**$ 737,512,896**

*Based on the monthly surtax proceeds received in January 2016 through December 2016.

PARTICIPANT DATA				
	October 1, 2016 Valuation (PBC, Inc.)	*October 1, 2016 Valuation with COLA Timing Adjustment*	*October 1, 2016 After Negotiated Salary Increases*	*October 1, 2016 After Negotiated Salary Increases and Ord. 2017-259*
ACTIVE MEMBERS[1]				
Number	2,294	2,294	2,294	2,294
Annual Payroll	$ 135,965,222	$ 135,965,222	$ 135,965,222	$ 135,965,222
Average Annual Payroll	$ 59,270	$ 59,270	$ 59,270	$ 59,270
Average Age	39.4	39.4	39.4	39.4
Average Past Service	10.6	10.6	10.6	10.6
Average Age at Hire	28.8	28.8	28.8	28.8
RETIREES & BENEFICIARIES & DROP				
Number	2,831	2,831	2,831	2,831
Annual Benefits	$ 151,286,417	$ 151,286,417	$ 151,286,417	$ 151,286,417
Average Annual Benefit	$ 53,448	$ 53,439	$ 53,439	$ 53,439
Average Age	63.5	63.5	63.5	63.5
DISABILITY RETIREES				
Number	55	55	55	55
Annual Benefits	$ 2,079,776	$ 2,079,776	$ 2,079,776	$ 2,079,776
Average Annual Benefit	$ 37,814	$ 37,814	$ 37,814	$ 37,814
Average Age	62.3	62.3	62.3	62.3
TERMINATED VESTED MEMBERS				
Number	77	77	77	77
Annual Benefits	$ 1,375,534	$ 1,375,534	$ 1,375,534	$ 1,375,534
Average Annual Benefit	$ 17,864	$ 17,864	$ 17,864	$ 17,864
Average Age	43.4	43.4	43.4	43.4

[1]Active Participant data as of July 1, 2016.

GRS Retirement Consulting

P: 954.527.1616 | F: 954.525.0083 | www.grsconsulting.com

April 8, 2017

Mr. Timothy Johnson
Executive Director
Jacksonville Police and Fire Pension Fund
One West Adams Street, Suite 100
Jacksonville, FL 32202

Re: Jacksonville Police and Fire Pension Fund – Actuarial Impact Statement for Ordinance Nos. 2017-259 and 2017-257

Dear Tim:

As requested, we are enclosing an Actuarial Impact Statement for Ordinance Nos. 2017-259 and 2017-257, illustrating the first-year impact of proposed assumption, plan, and funding policy changes to the Jacksonville Police and Fire Pension Fund (Fund). The results are based on census and asset data as of October 1, 2016.

This is the third of three actuarial impact statements that we have been requested to prepare. The Board should decide which actuarial impact statement to accept and submit to the City of Jacksonville and the Florida Division of Retirement. The three impact statements differ with regard to the payroll growth rate assumption used for purposes of amortizing the unfunded actuarial accrued liability (UAAL) and the assumed rate of growth in the annual pension liability surtax proceeds. This actuarial impact statement includes a 1.25% payroll growth assumption and a 4.25% annual pension liability surtax growth assumption.

Please note that this actuarial impact statement is the first actuarial valuation of the Fund that the Fund's new actuary, Gabriel, Roeder, Smith & Company, has prepared. We had a limited amount of time to prepare the impact statement based on the City Council's schedule. For this reason, we did not have sufficient time to fully evaluate all of the actuarial assumptions and methods employed by the previous actuary, Pension Board Consultants, Inc. Based on our initial review of the assumptions and methods, we have concerns regarding the approach used by the previous actuary to value the impact of the fixed DROP interest crediting rate of 8.4%, which is higher than the Fund's assumed rate of investment return of 7.0%. In the actuarial impact statement, we have continued to utilize the previous actuary's 2.0% "load" on the Fund's liabilities and normal costs to account for the higher fixed interest crediting rate on DROP accounts than 7.0%. Prior to preparation of the October 1, 2017 actuarial valuation report, we recommend a full analysis be completed on the long-term impact of this interest crediting rate being 1.4% higher than the Fund's assumed investment return, the results of which could have a significant impact on the liabilities and future costs of the Fund.

The enclosed exhibits show the following:

- **October 1, 2016 Actuarial Valuation Results** – Results as prepared by the prior actuary, Pension Board Consultants, Inc., report dated January 18, 2017.

- **Revised Baseline** – Same plan provisions and actuarial assumptions as used in the October 1, 2016 Actuarial Valuation Report, except with adjustments to reflect the precise timing of the annual Cost-of-Living Adjustment.

- **Assumption Changes** – Same as the Revised Baseline, but also incorporating the collectively bargained across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019 as well as a change in the payroll growth rate (used to amortize the unfunded actuarial accrued liability (UAAL) and project the contribution amount to the contribution year) from 0.067% to 1.25%. Please refer to our experience study dated April 4, 2017 for our analysis regarding this assumption. The temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019 (reducing to 3.5% per year for 2020 and subsequent years). This was done to include the impact of promotions and longevity/step increases.

- **Impact of Ordinance Nos. 2017-259 and 2017-257** – Reflecting the changes listed above as well as the proposed changes in accordance with Ordinance Nos. 2017-259 and 2017-257, as listed below:

  - Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund will be closed to new entrants.
  - For all members of the Fund, the member contribution rate is changed to 10% of pay.
  - All members (including members hired after June 19, 2015 and previously in Group II) of the Fund will be eligible for the benefits which were in place prior to the adoption of Ordinance 2015-304-E.

    Benefits that were specifically applicable to Group II are eliminated, and language differentiating separate groups is being removed. In particular, all members will be eligible for the following benefit provisions:

    - The accrued benefit is equal to 3% of average salary for each of the first 20 years of service plus 2% of average salary for each of the next 10 years of service.
    - The normal retirement date is when a member attains 20 years of service.
    - The average salary is computed as the average of the final 2 years (52 pay periods).
    - Cost of living adjustments are 3% annually, beginning with the first January following the commencement of benefits.
    - All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Ordinance 2017-259 also amends the Fund as follows (but these changes will not have an immediate impact on the initial year's contribution requirement or the funded status of the Fund):

  - Removal of the funding policy setting up 13 years of extra payments to write down the UAAL as set forth in Ordinance 2015-304-E, where funds from the newly created Unfunded Actuarial Liability Payment Account (UALPA) would provide extra payments toward the UAAL in conjunction with extra payments from the City towards the UAAL through fiscal year 2028. During this 13-year period, the extra payments used to write down the UAAL would have totaled $460 million ($110 million from the UALPA account plus $350 million in extra City payments).
  - The following funding policy changes are instated:
    - The below provisions shall remain in place until the Fund is 100 percent funded:

- Beginning with the Fiscal Year 2017-2018, a liquidity ratio, defined as the market value of assets divided by the annual benefit payments, is instated, where in any year if the liquidity ratio falls below a predetermined rate, the City shall, subject to annual appropriation, make a contribution or payment in an amount sufficient to restore the Fund's liquidity ratio to at least the predetermined rate, as determined by the plan actuary.
- Beginning with the Fiscal Year 2017-2018, the City shall, subject to annual appropriation, make an annual contribution from a source other than the pension liability surtax in a predefined minimum amount, less any amount paid to restore the liquidity ratio to the minimum predetermined level.

- Effective October 1, 2017, the accumulated balances existing on September 30, 2017, together with interest thereon, in the UALPA and the Supplemental Payment Account (SPA), will be allocated as follows:
  - 20% shall be administered by the Board for the legal use of police officer members, as determined by the legally recognized collective bargaining unit.
  - 20% shall be administered by the Board for the legal use of firefighter members, as determined by the legally recognized collective bargaining unit.
  - 60% shall be administered by the Board for the sole purpose of being applied to the City's Actuarially Determined Employer Contribution (ADEC) for the year(s) selected by the City, at the discretion of the City.

    As of October 1, 2016, the balance in the UALPA was approximately $71.7 million, and the balance in the SPA was $10.0 million.
- Effective October 1, 2017, 100% of the accumulated balances existing on September 30, 2017, in the City Budget Stabilization Account (CBSA) and the Enhanced Benefit Account (EBA), together with interest thereon, shall be administered by the Board for the sole purpose of being applied to the City's ADEC for the year(s) selected by the City, at the discretion of the City.

  As of October 1, 2016, the balance in the EBA was approximately $5.3 million, and the balance in the CBSA was approximately $5.1 million.
- Effective October 1, 2017, all Chapter 175 and 185 Florida Insurance Premium Tax Rebate Dollars shall be administered by the Board for the legal use of the firefighter and police officer members, as determined by the legally recognized collective bargaining unit.

Ordinance No. 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Ordinance 2017-257 creates a new Chapter 776 entitled "Pension Liability Surtax" in the City of Jacksonville Ordinance Code.

Florida Statute 112.64(6) authorizes a county to apply the proceeds of a sales surtax, hereinafter referred to as the "pension liability surtax", to reduce the unfunded liability of a defined benefit retirement plan or system. Florida Statute 112.64(6)(a) requires the Fund to then amortize the unfunded actuarial accrued liabilities (UAAL), net of the present value of the pension liability surtax, over 30 years immediately following approval of the pension liability surtax. Florida Statute 112.64(6)(b) requires the payroll of all employees in job classifications which are covered by a closed retirement plan (regardless of the plan they participate in) to be included when determining the payroll growth assumption to be used to amortize the UAAL.

Ordinance No. 2017-257 outlines the use of the pension liability surtax for the City of Jacksonville's three defined benefit pension funds: the Police and Fire Pension Fund, the Corrections Officers Fund, and the General Employee Pension Fund. The net present value of the total projected proceeds of the pension liability surtax is to be recognized for the fiscal beginning October 1, 2017 and each fiscal year thereafter. Each eligible defined benefit plan will apply the present value of the total projected proceeds of the surtax, as determined by the City, with respect to the pro rata share of each plan's proportion of the City's total unfunded liability as determined by the October 1, 2015 actuarial valuation and each subsequent year's actuarial valuation. The pension liability surtax will begin on January 1 immediately following the expiration of The Better Jacksonville ½-cent Sales Surtax, but in no event shall collection begin later than January 1, 2031. The surtax will remain in effect no longer than 30 years and will terminate for an eligible plan prior to the end of the 30 years once that plan is 100% funded.

The impact of Ordinance Nos. 2017-259 and 2017-257 reflects the present value of a 63% share of the pension liability surtax proceeds to be allocated to the Jacksonville Police and Fire Pension Fund commencing in calendar year 2031 and continuing through calendar year 2060. The 63% share was determined based on the pro rata share of the UAAL for the Jacksonville Police and Fire Pension Fund versus the sum of the UAAL's for all three of the City of Jacksonville's defined benefit pension plans as of October 1, 2015.

Prescribed Assumption

The annual pension liability surtax revenue is projected to increase 4.25% annually from calendar year 2016 to calendar year 2060. This assumption was set by the City of Jacksonville. Assumptions regarding future growth in municipal sales tax revenues fall outside of our area of expertise. It is our understanding that an independent municipal finance expert, GAPublic Solutions, Inc. - A Registered Municipal Advisor Firm, has analyzed the historical and projected sales tax revenue of the City of Jacksonville, and they believe an annual growth rate assumption of 3.34% is more reasonable for a long-term projection. Since municipal finance projections fall outside of our area of expertise, we are unable to assess the reasonableness of the City's 4.25% annual surtax growth assumption, but we would be more comfortable relying on a source for analysis of this assumption that is independent of the City. If GAPublic Solutions, Inc.'s recommendation of 3.34% were used instead of 4.25%, the present value of the pension liability surtax would decrease by approximately $156.7 million and the required City contribution would increase by approximately $10.7 million.

Disclosures Regarding the Pension Liability Surtax and Florida Statute 112.64(6)

Ordinance 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Reflecting the pension liability surtax will involve a reduction in the Fund's current UAAL equal to the present value of a future revenue stream (generated by the pension liability surtax) to be received by the Fund in calendar years 2031 through 2060. This will delay the Fund's projected full funding date until the year 2060 and will result in annual contributions to the Fund in fiscal years 2018 through 2030 which will be significantly lower than the recommended contribution levels would be to ensure the Fund accumulates adequate assets to make all benefit payments. The maintenance of a minimum liquidity ratio (defined as the market value of assets divided by the annual benefit payments), as described in Ordinance 2017-259, will likely help prevent an insolvency in the event the Fund incurs adverse experience, but this is dependent upon the minimum liquidity ratio being adhered to. A full analysis of the impact of the liquidity ratio was outside of the scope of this assignment.

We are unable to assess the risk that the timing and/or amount of future pension liability surtax proceeds may significantly deviate from the projections (due to legal challenges, economic hardships, or any other reason). Any such deviations could have a significant impact on the required contribution amount shown herein and on the future solvency risk that the Fund's future assets may be insufficient to cover all future benefit payments.

The long-term payroll growth assumption for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date) is 1.25%. For a closed pension fund, it is our recommendation to use a 0% payroll growth assumption. Based on our understanding, Florida Statute 112.64(6)(b) requires the future payroll of police officers and firefighters expected to be hired after October 1, 2017 (who will not become members of the Fund) to be included when setting this assumption. This deviates from our recommended practice for closed pension funds. In consideration of this prescribed method described under Florida Statute 112.64(6)(b) for determining the payroll growth assumption, our recommendation is that the payroll growth assumption used to amortize the UAAL not exceed 1.25%. This recommendation is based on the projected 10-year compound average payroll growth rate through 2021, which is 1.269% (reflecting the across-the-board negotiated salary increases in 2017-2019 and an OPEN group projection), and a goal of preventing negative amortization on the reduced UAAL (net of the present value of the pension liability surtax). Please refer to our experience study report on the payroll growth assumption dated April 4, 2017 for additional information and background on this assumption.

In conjunction with offsetting the UAAL by the present value of the pension liability surtax, Florida Statute 112.64(6)(a) requires the use of a 30-year amortization period for the entire net UAAL. It is important to note that the average expected future service of current active members is 10.02 years, which is far less than the required 30-year amortization period. Though required, a long amortization period carries more risk, especially in a closed plan, and the funded status could deteriorate in the short run. Furthermore, amortizing the UAAL over 30 years, in effect, transfers costs to future taxpayers, which deviates from language in Florida Statute 112.61 which says "*Accordingly, except as herein provided, it is the intent of this act to prohibit the use of any procedure, methodology, or assumptions the effect of which is to transfer to future taxpayers any portion of the costs which may reasonably have been expected to be paid by the current taxpayers.*" When combined with advance recognition of the pension liability surtax, it is our opinion that current costs will be transferred to future taxpayers under this arrangement.

Summary of Findings

- The negotiated salary increases cause the total present value of expected benefit payments from the Fund to increase by $176,716,366, from $3,786,881,936 to $3,963,598,302.
- Ordinance No. 2017-259 causes the total present value of expected benefit payments from the Fund to increase by $64,349,077, from $3,963,598,302 to $4,027,947,379.
- Reflecting Ordinance Nos. 2017-259 and 2017-257 and the prescribed methods and assumptions described above, the fiscal year 2018 required City contribution decreases by 50.95% of covered payroll, from 149.74% to 98.79%, or by a dollar amount of $68,225,601, from $205,488,666 to $137,263,065. If the present value of the pension liability surtax were not reflected until the money is deposited into the Pension Fund and the UAAL continued to be amortized according to the schedule shown in the October 1, 2016 actuarial valuation report, the required City contribution for fiscal year 2018 would be 156.12% of covered payroll (or $216,913,548).

- The Fund's funded ratio (market value of assets divided by the actuarial accrued liability) reflecting Ordinance 2017-259 decreases from the level shown in the October 1, 2016 Actuarial Valuation Report prepared by Pension Board Consultants, from 45.24% to 43.02%.

- Reflecting Ordinance 2017-257, when the Fund's UAAL is adjusted by the present value of the pension liability surtax, it decreases from $2,004,853,382 to $1,267,340,486. The sum of the market value of assets and the present value of the pension liability surtax is 63.98% of the actuarial accrued liability. However, this is not the revised funded ratio for the Fund, as the present value of the pension liability surtax is not identified as an asset of the Fund, but instead as an offset to the UAAL.

Additional Disclosures

This report was prepared for the Jacksonville Police and Fire Pension Fund and those designated or approved by the Fund. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Board of Trustees.

The purpose of this report is to describe the immediate financial effect of the proposed changes. No statement in this report is intended to be interpreted as a recommendation in favor of the changes, or in opposition to them. This report should not be relied on for any purpose other than the purpose described above. We are neither attorneys nor legal professionals, and the above information should not be construed as legal advice or opinion. There is no guarantee that the State will agree with the approaches used. We recommend qualified legal counsel review our interpretation of Florida Statutes.

The results in this report are based on census data as of July 1, 2016 and asset data as of October 1, 2016, as provided by Pension Board Consultants and as used for the October 1, 2016 Actuarial Valuation. We reviewed this information for reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of this information. Please refer to the Actuarial Valuation report, as prepared by Pension Board Consultants, Inc., dated January 18, 2017, the Experience Study on Payroll Growth Assumption letter, dated April 4, 2017, and the Replication of October 1, 2016 Actuarial Valuation Results letter, dated April 4, 2017, for all actuarial assumptions, methods and disclosures.

Please note that the closure of the Fund may lead to future changes in investment policy over time to reflect the changing income needs of the Fund as the ratio of retirees to active members increases. An analysis of the impact of any future change in investment policy was outside the scope of this assignment. It is possible that when such changes in investment policy occur, even if the changes are not made for several years, they may have a material effect on the valuation results. We recommend the Board discuss the potential impact of the plan closure with the Fund's investment consultant and consider preparing a financial analysis of one or more scenarios.

As with any actuarial valuation, the calculation results shown herein are based upon assumptions regarding future events, which may or may not materialize. They are also based on the assumptions, methods, and plan provisions outlined in this report and in the Actuarial Valuation report dated January 18, 2017. 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 this report.

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 Jacksonville Police and Fire Pension Fund as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

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 signing actuaries are independent of the plan sponsor.

Respectfully submitted,

Pete Strong

Peter N. Strong, FSA, MAAA, FCA
Enrolled Actuary No. 17-06975

Jeff Amrose

Jeffrey Amrose, MAAA, FCA
Enrolled Actuary No. 17-06599

JACKSONVILLE POLICE AND FIRE PENSION FUND

Impact Statement – April 8, 2017

Description of Amendments

Ordinance 2017-259 amends the Fund as follows:

- Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund will be closed to new entrants.
- For all members of the Fund, the member contribution rate is changed to 10% of pay.
- All members (including members hired after June 19, 2015 and previously in Group II) of the Fund will be eligible for the benefits which were in place prior to the adoption of Ordinance 2015-304-E. Benefits that were specifically applicable to Group II are eliminated, and language differentiating separate groups is being removed. In particular, all members will be eligible for the following benefit provisions:
  - The accrued benefit is equal to 3% of average salary for each of the first 20 years of service plus 2% of average salary for each of the next 10 years of service.
  - The normal retirement date is when a member attains 20 years of service.
  - The average salary is computed as the average of the final 2 years (52 pay periods).
  - Cost of living adjustments are 3% annually, beginning with the first January following the commencement of benefits.
  - All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Ordinance 2017-259 also amends the Fund as follows (but these changes will not have an immediate impact on the initial year's contribution requirement or the funded status of the Fund):

- Removal of the funding policy setting up 13 years of extra payments toward the UAAL as set forth in Ordinance 2015-304-E, where funds the newly created Unfunded Actuarial Liability Payment Account (UALPA) would provide extra payments toward the UAAL in conjunction with extra payments from the City towards the UAAL through fiscal year 2028.
- The following funding policy changes are instated:
  - The below provisions shall remain in place until the Fund is 100 percent funded:
    - Beginning with the Fiscal Year 2017-2018, a liquidity ratio, defined as the market value of assets divided by the annual benefit payments, is instated, where in any year if the liquidity ratio falls below a predetermined rate, the City shall, subject to annual appropriation, make a contribution or payment in an amount sufficient to restore the Fund's liquidity ratio to at least the predetermined rate, as determined by the plan actuary.
    - Beginning with the Fiscal Year 2017-2018, the City shall, subject to annual appropriation, make an annual contribution in a predefined minimum amount, less any amount paid to restore the liquidity ratio to the minimum predetermined level.

Description of Amendments (continued)

- Effective October 1, 2017, the accumulated balances existing on September 30, 2017, together with interest thereon, in the UALPA and the Supplemental Payment Account (SBA), will be allocated as follows:
  - 20% shall be administered by the Board for the legal use of police officer members, as determined by the legally recognized collective bargaining unit. 20% shall be administered by the Board for the legal use of firefighter members, as determined by the legally recognized collective bargaining unit.
  - 60% shall be administered by the Board for the sole purpose of being applied to the City's Actuarially Determined Employer Contribution (ADEC) for the year(s) selected by the City, at the discretion of the City.
- Effective October 1, 2017, 100% of the accumulated balances existing on September 30, 2017, in the City Budget Stabilization Account (CBSA) and the Enhanced Benefit Account (EBA), together with interest thereon, shall be administered by the Board for the sole purpose of being applied to the City's ADEC for the year(s) selected by the City, at the discretion of the City.
- Effective October 1, 2017, all Chapter 175 and 185 Florida Insurance Premium Tax Rebate Dollars shall be administered by the Board for the legal use of the firefighter and police officer members, as determined by the legally recognized collective bargaining unit.

Ordinance No. 2017-257 implements the changes required to reflect the present value of the City of Jacksonville's pension liability surtax, in accordance with Florida Statute 112.64(6). Ordinance 2017-257 creates a new Chapter 776 entitled "Pension Liability Surtax" in the City of Jacksonville Ordinance Code.

Funding Implications of Amendment

An actuarial cost estimate is attached.

Certification of Administrator

I believe the amendment to be in compliance with Part VII, Chapter 112, Florida Statutes and Section 14, Article X of the Constitution of the State of Florida.

____
For the Board of Trustees
as Plan Administrator

JACKSONVILLE POLICE AND FIRE PENSION FUND
SUPPLEMENTAL ACTUARIAL VALUATION REPORT

Plan

Jacksonville Police and Fire Pension Fund

Valuation Date

October 1, 2016

Date of Report

April 8, 2017

Report Requested by

Board of Trustees

Prepared by

Peter Strong and Jeffrey Amrose

Group Valued

All active and inactive Police Officers and Firefighters

Changes in Plan Provisions

<u>Present Provision Before Change</u>

Employees hired before June 19, 2015 are classified as Group I members. Employees hired on or after June 19, 2015, the effective date of Ordinance 2015-304-E, are classified as Group II Members and are eligible for the following benefit provisions:

- Average salary is computed as the average of the final 5 years.
- Members are eligible for a time service retirement upon reaching 30 years of credited service with a benefit equal to 75% of FAE and a dollar maximum of $99,999.99.
- Members are eligible for a reduced early retirement benefit with at least 25 years of credited service.
- Members are eligible for a disability retirement with benefit equal to the greater of 50% of average salary, or benefit eligible from a time service retirement.
- Members that terminate employment with at least 10 years of credited service, but less than 25, are eligible to receive a deferred retirement benefit of 2.0% per year of credited service of average salary, commencing at age 62.
- The Cost of Living Adjustment (COLA) is equal to the Social Security COLA for the same plan year, not to exceed 1.5%, beginning in the third January following commencement of benefits.
- Members are not eligible to participate in the Deferred Retirement Option Program (DROP). Members can participate in the BACKDROP at retirement eligibility with interest accrued based on the plan's actual rate of return, with the minimum interest at 0% and maximum at 10%.
- Members contribute at a rate of 10% of pay.

As a result of Ordinance 2015-304-E, the following benefit changes were made for Group I members:

- For Group I members with less than 5 years of service as of June 19, 2015, the average salary period was increased to the final four years, with the average salary no less than the 2-year average salary as of June 19, 2015.
- For Group I members with less than 20 years of service as of June 19, 2015, the COLA is 3% annually for service accrued as of June 19, 2015 and the Social Security COLA (not to exceed 6.0%) for service accrued after June 19, 2015.
- For Group I members with less than 20 years of service as of June 19, 2015, members that elect to enter the DROP will receive interest accrued based on the plan's actual rate of return, with the minimum interest at 2% and maximum at 14.4%.

<u>Proposed Provision After Change</u>

Effective October 1, 2017, the Jacksonville Police and Fire Pension Fund is closed to new entrants.

For all members of the Fund, the member contribution rate is 10% of pay.

All members of the Fund are eligible for benefits that were changed as a result of Ordinance 2015-304-E. In particular, all members hired prior to October 1, 2017 are eligible for the following benefit provisions:

- Average salary is computed as the average of the final 2 years.
- Members are eligible for a time service retirement upon reaching 20 years of credited service with benefit accrual at a rate of 3% for the first 20 years of service plus 2% after 20 years of service, maximum 80% of average salary.
- Members are eligible for a disability retirement with benefit equal to the greater of 60% of average salary, or benefit eligible from a time service retirement.
- Members that terminate employment with 5 or more years of credited service, but less than 20, are eligible to receive a deferred retirement benefit of 3.0% per year of credited service of average salary, with benefit commencing at the date the member would have been eligible to receive a time service retirement.
- The COLA is 3% annually, beginning with the first January following the commencement of benefits.
- All members are eligible to participate in the DROP with interest accrued at an annual rate of return of 8.4%.

Changes in Actuarial Assumptions and Methods

Assumed salary increases for the years 2017-2019 include the negotiated across-the-board salary increases of 6.5% in 2017 and 2018 and 7.0% in 2019. These temporary additional salary increases have been added to the current salary increase assumption of 3.5% per year, including inflation, for total projected salary increases of 10.0% in 2017 and 2018 and 10.5% in 2019 (reducing to 3.5% per year for 2020 and subsequent years). This was done to include the impact of promotions and longevity/step increases.

A share of 63% of the total proceeds from the City of Jacksonville's pension liability surtax is assumed to be allocated to the Jacksonville Police and Fire Pension Fund beginning with calendar year 2031. Sales tax revenue is projected to increase by 4.25% annually from the year 2016. The total unfunded actuarial accrued liability (UAAL), net of the present value of the pension liability surtax, is amortized over 30 years in accordance to Florida Statute 112.64(6).

The long-term payroll growth assumption for purposes of amortizing the UAAL and projecting the contribution amount to the contribution year (the year beginning one year after the valuation date) has been changed from 0.067% to 1.25%.

Please refer to our letter for important disclosures regarding the above assumptions.

All other actuarial assumptions and methods are the same as those used in the October 1, 2016 Actuarial Valuation Report.

Amortization Period for New Changes in Actuarial Accrued Liability

30 years

Actuarial Impact of Changes

See attached page(s).

ACTUARIALLY DETERMINED CONTRIBUTION (ADC)				
A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. ADC to Be Paid During Fiscal Year Ending	9/30/2018	9/30/2018	9/30/2018	9/30/2018
C. Assumed Date of Employer Contributions	12/1/2017	12/1/2017	12/1/2017	12/1/2017
D. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
E. Annual Payment to Amortize Unfunded Actuarial Liability	164,417,818	169,702,069	160,374,273	84,152,061
F. Employer Normal Cost	44,803,488	45,873,065	50,076,797	50,728,791
G. ADC if Paid on the Valuation Date: E + F	209,221,306	215,575,134	210,451,070	134,880,852
H. Chapter Funds Allocation	5,340,312	5,340,312	5,340,312	0
I. Contribution from Court Fines	832,536	832,536	832,536	832,536
J. City Contribution: G - H - I as % of Covered Payroll	203,048,458 149.74 %	209,402,286 154.33 %	204,278,222 150.55 %	134,048,316 98.79 %
K. Actuarially Determined Contribution (ADC) in Contribution Year*	205,488,666	211,918,852	209,177,225	137,263,065
M. Change in ADC from Valuation	0	6,430,186	3,688,559	(68,225,601)

*= City Contribution (item J.) x payroll growth x 1.07 ^ (2/12)

ACTUARIAL VALUE OF BENEFITS AND ASSETS				
A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. Actuarially Determined Contribution (ADC) to Be Paid During Fiscal Year Ending	9/30/2018	9/30/2018	9/30/2018	9/30/2018
C. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
D. Actuarial Present Value of All Projected Benefits for				
1. Active Members	1,146,037,063	1,165,992,261	1,342,708,627	1,407,057,704
2. Inactive Members	2,577,054,098	2,620,889,675	2,620,889,675	2,620,889,675
3. Total for All Members	3,723,091,161	3,786,881,936	3,963,598,302	4,027,947,379
E. Actuarial Accrued Liabilities				
1. Active Members	768,461,161	795,248,746	873,825,745	897,362,173
2. Inactive Members	2,577,054,098	2,620,889,675	2,620,889,675	2,620,889,675
3. Total for All Members	3,345,515,259	3,416,138,421	3,494,715,420	3,518,251,848
F. Market Value of Assets				
1. Gross Market Value	1,613,043,823	1,613,043,823	1,613,043,823	1,613,043,823
2. Reserve Accounts	(95,543,156)	(95,543,156)	(95,543,156)	(95,543,156)
3. Sr. Staff Plan Assets	(4,102,201)	(4,102,201)	(4,102,201)	(4,102,201)
4. Net Market Value	1,513,398,466	1,513,398,466	1,513,398,466	1,513,398,466
G. Net Present Value of Total Pension Liability Surtax Proceeds According to Pro Rata Share of 63%	0	0	0	737,512,896
H. Unfunded Actuarial Accrued Liability: E3 - F4 - G	1,832,116,793	1,902,739,955	1,981,316,954	1,267,340,486
I. Funded Ratio: F4 / E3	45.24 %	44.30 %	43.31 %	43.02 %
J. Percent of Actuarial Accrued Liabilitiy Covered by Assets and Total Pension Liability Surtax Proceeds: (G + F4) / E3	45.24 %	44.30 %	43.31 %	63.98 %
K. Liquidity Ratio				
1. DROP Balance as of 10/1/16	310,283,837	310,283,837	310,283,837	310,283,837
2. Net Market Value (Net of DROP): F4 - K1	1,203,114,629	1,203,114,629	1,203,114,629	1,203,114,629
3. Annual Benefit Payments in Pay Status	153,366,193	153,366,193	153,366,193	153,366,193
4. Ratio: K2 : K3	7.84 : 1	7.84 : 1	7.84 : 1	7.84 : 1

CALCULATION OF EMPLOYER NORMAL COST

A. Valuation Date	October 1, 2016 *Valuation (PBC, Inc.)*	October 1, 2016 *Valuation with COLA Timing Adjustment*	October 1, 2016 *After Negotiated Salary Increases and Payroll Growth Assumption Change*	October 1, 2016 *After Assumption Changes and Ordinances 2017-257 and 2017-259*
B. Covered October 1 Payroll	$ 135,599,741	$ 135,684,787	$ 135,684,787	$ 135,684,787
C. Normal Cost (Individual Entry Age)	$ 45,257,077	$ 46,326,654	$ 50,530,386	$ 53,812,286
D. Assumed Amount for Expenses	11,180,135	11,180,135	11,180,135	11,180,135
E. Expected Member (including DROP) Contribution	11,633,724	11,633,724	11,633,724	14,263,630
F. Employer Normal Cost: C + D - E	44,803,488	45,873,065	50,076,797	50,728,791
G. Employer Normal Cost as a % Covered Payroll: F / B	33.04 %	33.81 %	36.91 %	37.39 %

PENSION LIABILITY SURTAX ESTIMATES 4.25% ASSUMED ANNUAL GROWTH		
Calendar Year	**Projectected Surtax Revenue**	**63% of Revenue for Police and Fire Pension Fund**
2016*	$ 80,642,986	
2017	84,070,313	
2018	87,643,301	
2019	91,368,142	
2020	95,251,288	
2021	99,299,467	
2022	103,519,695	
2023	107,919,282	
2024	112,505,851	
2025	117,287,350	
2026	122,272,062	
2027	127,468,625	
2028	132,886,041	
2029	138,533,698	
2030	144,421,380	
2031	150,559,289	$ 94,852,352
2032	156,958,059	98,883,577
2033	163,628,776	103,086,129
2034	170,582,999	107,467,289
2035	177,832,777	112,034,649
2036	185,390,670	116,796,122
2037	193,269,773	121,759,957
2038	201,483,738	126,934,755
2039	210,046,797	132,329,482
2040	218,973,786	137,953,485
2041	228,280,172	143,816,508
2042	237,982,079	149,928,710
2043	248,096,318	156,300,680
2044	258,640,411	162,943,459
2045	269,632,629	169,868,556
2046	281,092,016	177,087,970
2047	293,038,426	184,614,208
2048	305,492,559	192,460,312
2049	318,475,993	200,639,876
2050	332,011,223	209,167,070
2051	346,121,700	218,056,671
2052	360,831,872	227,324,079
2053	376,167,227	236,985,353
2054	392,154,334	247,057,230
2055	408,820,893	257,557,162
2056	426,195,781	268,503,342
2057	444,309,101	279,914,734
2058	463,192,238	291,811,110
2059	482,877,908	304,213,082
2060	503,400,220	317,142,138
Total Proceeds from 2031-2060:	**$ 8,805,539,764**	**$ 5,547,490,051**
Net Present Value of Proceeds as of October 1, 2016:	**$ 1,170,655,390**	**$ 737,512,896**

*Based on the monthly surtax proceeds received in January 2016 through December 2016.

PARTICIPANT DATA				
	October 1, 2016 Valuation (PBC, Inc.)	*October 1, 2016 Valuation with COLA Timing Adjustment*	*October 1, 2016 After Negotiated Salary Increases*	*October 1, 2016 After Negotiated Salary Increases and Ord. 2017-259*
ACTIVE MEMBERS[1]				
Number	2,294	2,294	2,294	2,294
Annual Payroll	$ 135,965,222	$ 135,965,222	$ 135,965,222	$ 135,965,222
Average Annual Payroll	$ 59,270	$ 59,270	$ 59,270	$ 59,270
Average Age	39.4	39.4	39.4	39.4
Average Past Service	10.6	10.6	10.6	10.6
Average Age at Hire	28.8	28.8	28.8	28.8
RETIREES & BENEFICIARIES & DROP				
Number	2,831	2,831	2,831	2,831
Annual Benefits	$ 151,286,417	$ 151,286,417	$ 151,286,417	$ 151,286,417
Average Annual Benefit	$ 53,448	$ 53,439	$ 53,439	$ 53,439
Average Age	63.5	63.5	63.5	63.5
DISABILITY RETIREES				
Number	55	55	55	55
Annual Benefits	$ 2,079,776	$ 2,079,776	$ 2,079,776	$ 2,079,776
Average Annual Benefit	$ 37,814	$ 37,814	$ 37,814	$ 37,814
Average Age	62.3	62.3	62.3	62.3
TERMINATED VESTED MEMBERS				
Number	77	77	77	77
Annual Benefits	$ 1,375,534	$ 1,375,534	$ 1,375,534	$ 1,375,534
Average Annual Benefit	$ 17,864	$ 17,864	$ 17,864	$ 17,864
Average Age	43.4	43.4	43.4	43.4

[1]Active Participant data as of July 1, 2016.

GRS Retirement Consulting

P: 954.527.1616 | F: 954.525.0083 | www.grsconsulting.com

April 8, 2017

Mr. Timothy Johnson
Executive Director
Jacksonville Police and Fire Pension Fund
One West Adams Street, Suite 100
Jacksonville, FL 32202

Re: Jacksonville Police and Fire Pension Fund – 30-Year Projections

Dear Tim:

As requested, we have prepared projections for the Jacksonville Police and Fire Pension Fund (Fund) showing the projected assets, liabilities and contribution requirements over the next 30 years. The enclosed exhibits include deterministic projection results for the Fund under the following six scenarios:

- **Scenario 1 (Current Plan)** – Same plan provisions and actuarial assumptions as used in the October 1, 2016 Actuarial Valuation Report, but adjusted to reflect the precise timing of the Cost of Living Adjustment (in January of each year), the collectively bargained across-the-board salary increases scheduled to be granted in 2017 through 2019 (6.5% in 2017 and 2018 and 7.0% in 2019), and a payroll growth rate assumption of 1.25% for amortizing the unfunded actuarial accrued liability (UAAL). In addition, we have adjusted the results of the October 1, 2016 Actuarial Valuation Report to reflect the precise timing of the annual Cost of Living adjustment (January). In order to create a true "baseline", the previously scheduled additional UAAL payments (from the Unfunded Actuarial Liability Payment Account (UALPA) and the City) totaling $460 million are assumed to be made through 2028, and they are assumed to be placed in reserve until they can be used to pay off the remaining amortization bases, as suggested in Pension Board Consultants' October 1, 2016 Actuarial Valuation Report.

- **Scenario 1A (Current Plan Stress Test)** – Same plan provisions and actuarial assumptions as described in Scenario 1, but assuming the actual return on the market value of assets is -15.0% during fiscal year 2019.

- **Scenario 2 (Pension Reform)** – Reflecting the changes proposed by Ordinance Nos. 2017-257 and 2017-259, including plan changes for both Group I and Group employees, the plan closure, and the pension liability surtax, as described in our Actuarial Impact Statement dated April 7, 2017. The annual proceeds from the pension liability surtax are projected to increase 4.25% per year from calendar year 2016 (the same annual growth rate used by the City of Jacksonville for their modeling purposes). A payroll growth rate assumption of 1.5% is used for amortizing the UAAL (the same rate used by the City for their modeling purposes). The previously scheduled additional UAAL payments totaling $460 million are no longer assumed to be made.

- **Scenario 2A (Pension Reform Stress Test)** – Same plan provisions and actuarial assumptions as Scenario 2, but assuming the actual return on the market value of assets is -15.0% during fiscal year 2019.

- **Scenario 3 (Pension Reform)** – Same as Scenario 2, except the annual proceeds from the pension liability surtax are projected to increase by 3.34% per year from the calendar year 2016 (the rate recommended by GAPublic Solutions, Inc. - A Registered Municipal Advisor Firm) and a payroll growth rate assumption of 1.25% for amortizing UAAL.

- **Scenario 3A (Pension Reform Stress Test)** – Same plan provisions and actuarial assumptions as Scenario 3, but assuming the actual return on the market value of assets is -15.0% during fiscal year 2019.

Disclosures

Please refer to the Actuarial Valuation report dated January 18, 2017, as prepared by Pension Board Consultants, Inc.; the Experience Study on the Payroll Growth Assumption dated April 4, 2017; the Replication of the October 1, 2016 Actuarial Valuation Results letter dated April 4, 2017; and the Actuarial Impact Statement for Ordinance Nos. 2017-257 and 2017-259, dated April 7, 2017, for a full description of the plan provisions, actuarial assumptions and methods, and relevant disclosures concerning the assumptions and methods and the treatment of the pension liability surtax.

This report was prepared at the request of the Executive Director and is intended for use by the Jacksonville Police and Fire Pension Fund and those designated or approved by the Fund. This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Board of Trustees.

The purpose of this report is to describe the projected long-term financial effects of proposed changes. No statement in this report is intended to be interpreted as a recommendation in favor of the changes, or in opposition to them. This report should not be relied on for any purpose other than the purpose described above.

In the baseline projections (Scenarios 1 and 1A), new members are assumed to be hired each year throughout the projection period at a rate sufficient to maintain a constant active headcount. New employees are assumed to have the same demographic characteristics at their dates of employment as those of members hired during the three-year period ending June 30, 2016. The initial (first year) salaries for new employees are assumed to increase by the negotiated across-the-board salary increases in 2017-2019 (6.5%, 6.5% and 7.0%, respectively), and by the Fund's inflation assumption (2.5%) in 2020 and thereafter. Existing and future employees are assumed to decrement each year based on the current valuation assumptions. Annual expenses and contributions from Chapter Funds Allocation and Court Fines are projected to increase 2.5% annually. DROP accounts are projected forward assuming 10% of the beginning-of-year balances will be distributed each year.

Projections are deterministic, meaning that throughout the projection period, Plan experience is expected to match the actuarial assumptions. In the stress test scenarios, the investment return on the market value of assets each year is assumed to be 7.0% in years 2017-2018, -15% for year 2019, and 7.0% for years 2020 and thereafter throughout the remainder of the projection period.

The results in this report are based on the census data as of July 1, 2016 and asset data as of October 1, 2016, as provided by Pension Board Consultants and as used for the October 1, 2016 Actuarial Valuation. We reviewed this information for reasonability, but did not audit the data. We are not responsible for the accuracy or completeness of this information.

As with any actuarial valuation, the calculation results shown herein are based upon assumptions regarding future events, which may or may not materialize. They are also based on the assumptions, methods, and plan provisions outlined in this report, in the Actuarial Valuation report dated January 18, 2017, and in the Actuarial Impact Statement for Ordinance Nos. 2017-257 and 2017-259, dated April 7, 2017. 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.

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 Jacksonville Police and Fire Pension Fund as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

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 signing actuaries are independent of the plan sponsor.

Respectfully submitted,

Pete Strong

Peter N. Strong, FSA, MAAA, FCA
Enrolled Actuary No. 17-06975

Jeff Amrose

Jeffrey Amrose, MAAA, FCA
Enrolled Actuary No. 17-06599

Jacksonville Police and Fire Pension Fund

30-Year Projection of Required City Contribution

(7.0% Actual Rate of Return on Fund Assets Assumed to be Earned Each Year)

Scenario 1: Current Plan - Including All Assumption Changes (with Payroll Growth Rate of 1.25%)

Fiscal Year Ending	Valuation Date	Covered October 1 Payroll	Actuarial Accrued Liability	Net Market Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio on Valuation Date	Required City Contribution[1] % of Pay	Required City Contribution[1] $ Amount
2018	10/1/2016	135,684,787	3,494,715,420	1,513,398,466	1,981,316,954	43.31%	150.55%	209,177,225
2019	10/1/2017	144,303,214	3,597,034,237	1,607,423,814	1,989,610,422	44.69%	144.11%	212,948,284
2020	10/1/2018	154,313,674	3,702,354,471	1,748,934,652	1,953,419,819	47.24%	135.10%	213,480,155
2021	10/1/2019	166,564,176	3,811,449,823	1,898,666,874	1,912,782,949	49.81%	127.55%	217,551,926
2022	10/1/2020	168,033,062	3,925,513,049	2,054,151,361	1,871,361,688	52.33%	127.31%	219,048,054
2023	10/1/2021	168,984,836	4,039,358,443	2,217,185,539	1,822,172,904	54.89%	127.47%	220,565,679
2024	10/1/2022	170,072,421	4,151,905,840	2,384,814,233	1,767,091,606	57.44%	127.11%	221,355,217
2025	10/1/2023	170,217,209	4,261,864,967	2,556,344,448	1,705,520,519	59.98%	126.94%	221,263,757
2026	10/1/2024	168,849,991	4,367,279,171	2,730,334,481	1,636,944,690	62.52%	127.45%	220,358,541
2027	10/1/2025	168,379,649	4,465,197,777	2,904,122,113	1,561,075,664	65.04%	115.36%	198,902,386
2028	10/1/2026	168,161,690	4,557,818,327	3,079,730,519	1,478,087,808	67.57%	109.89%	189,227,081
2029	10/1/2027	168,747,629	4,643,540,535	3,233,266,572	1,410,273,963	69.63%	108.89%	188,158,580
2030	10/1/2028	168,654,050	4,723,749,971	3,377,901,145	1,345,848,826	71.51%	108.57%	187,507,550
2031	10/1/2029	168,314,244	4,796,555,600	3,520,454,514	1,276,101,086	73.40%	108.18%	186,452,482
2032	10/1/2030	168,798,482	4,859,797,544	3,660,038,502	1,199,759,042	75.31%	106.70%	184,432,811
2033	10/1/2031	171,217,956	4,916,960,178	3,800,189,468	1,116,770,710	77.29%	96.40%	169,005,333
2034	10/1/2032	174,244,567	4,970,751,244	4,890,173,519	80,577,726	98.38%	16.64%	29,690,890
2035	10/1/2033	177,411,142	5,021,777,851	5,085,370,186	(63,592,334)	101.27%	16.10%	29,245,395
2036	10/1/2034	180,683,645	5,068,812,622	5,138,065,982	(69,253,360)	101.37%	15.40%	28,497,666
2037	10/1/2035	184,326,130	5,109,943,030	5,185,558,341	(75,615,311)	101.48%	14.56%	27,488,770
2038	10/1/2036	188,910,783	5,147,631,656	5,230,308,419	(82,676,763)	101.61%	14.05%	27,178,086
2039	10/1/2037	194,108,894	5,183,665,528	5,273,143,173	(89,477,645)	101.73%	13.67%	27,172,165
2040	10/1/2038	199,644,945	5,219,260,758	5,315,689,102	(96,428,344)	101.85%	13.39%	27,382,124
2041	10/1/2039	205,325,445	5,255,279,168	5,358,919,030	(103,639,862)	101.97%	13.24%	27,845,600
2042	10/1/2040	211,035,247	5,292,327,587	5,403,424,123	(111,096,537)	102.10%	13.20%	28,529,774
2043	10/1/2041	216,835,736	5,330,469,062	5,449,325,240	(118,856,178)	102.23%	13.19%	29,277,310
2044	10/1/2042	222,478,673	5,369,770,069	5,496,879,999	(127,109,930)	102.37%	13.19%	30,048,532
2045	10/1/2043	229,203,615	5,409,872,004	5,545,807,431	(135,935,427)	102.51%	13.17%	30,920,138
2046	10/1/2044	236,057,809	5,451,550,623	5,596,843,763	(145,293,139)	102.67%	13.15%	31,796,613
2047	10/1/2045	239,245,146	5,495,252,620	5,650,575,266	(155,322,647)	102.83%	13.21%	32,374,049
Total:								**3,666,882,175**
Total Present Value at 7%:								**2,188,829,650**

[1]Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date.

Assumptions

Mortality Assumption: FRS Special Risk Mortality

Healthy Lives: RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years using Scale BB; 90% blue collar / 10% white collar adjustment for males; 100% white collar adjustment for females.

Disabled Lives: 60% of RP-2000 Mortality Table for disabled annuitants with 4-year setback for males and 2-year set-forward for females, and 40% of RP-2000 Mortality Table for healthy annuitants with 100% white collar adjustment. No mortality improvements projected.

Investment Return Assumption: 7.0% per year
Actual Return on Plan Assets: 7.0% per year
Salary Increase Assumption: 10.0% for years 2017-2018, 10.5% for year 2019, and 3.5% for years 2020 and thereafter
Payroll Growth Rate Assumption: 1.25% per year
DROP Accounts: Projected forward assuming 10% payout per projection year

Annual Expenses and Contributions from Chapter Funds Allocation and Court Fines are projected to increase by 2.5% per year.

No future actuarial experience gains or losses are assumed. Extra UAAL payments of $460 million assumed placed in reserve until equal to UAAL.

Jacksonville Police and Fire Pension Fund

30-Year Projection of Required City Contribution

(Stress Test: -15% Actual Rate of Return on Fund Assets in Year 2019, All Other Years 7.0% Actual Rate of Return)

Scenario 1A: Current Plan - Including All Assumption Changes (with Payroll Growth Rate of 1.25%)

Fiscal Year Ending	Valuation Date	Covered October 1 Payroll	Actuarial Accrued Liability	Net Market Value of Assets	Unfunded Actuarial Accrued Liability	Funded Ratio on Valuation Date	Required City Contribution[1] % of Pay	Required City Contribution[1] $ Amount
2018	10/1/2016	135,684,787	3,494,715,420	1,513,398,466	1,981,316,954	43.31%	150.55%	209,177,225
2019	10/1/2017	144,303,214	3,597,034,237	1,607,423,814	1,989,610,422	44.69%	144.11%	212,948,285
2020	10/1/2018	154,313,674	3,702,354,471	1,748,934,652	1,953,419,819	47.24%	135.10%	213,480,156
2021	10/1/2019	166,564,176	3,811,449,823	1,508,286,770	2,303,163,053	39.57%	143.11%	244,095,015
2022	10/1/2020	168,033,062	3,925,513,049	1,636,444,650	2,289,068,400	41.69%	144.32%	248,325,943
2023	10/1/2021	168,984,836	4,039,358,443	1,798,640,463	2,240,717,980	44.53%	144.73%	250,429,726
2024	10/1/2022	170,072,421	4,151,905,840	1,968,298,344	2,183,607,496	47.41%	144.47%	251,600,039
2025	10/1/2023	170,217,209	4,261,864,967	2,142,626,977	2,119,237,990	50.27%	144.51%	251,878,700
2026	10/1/2024	168,849,991	4,367,279,171	2,320,018,746	2,047,260,425	53.12%	145.38%	251,354,830
2027	10/1/2025	168,379,649	4,465,197,777	2,497,842,265	1,967,355,511	55.94%	133.38%	229,977,670
2028	10/1/2026	168,161,690	4,557,818,327	2,678,177,111	1,879,641,216	58.76%	128.14%	220,651,743
2029	10/1/2027	168,747,629	4,643,540,535	2,836,854,979	1,806,685,556	61.09%	127.34%	220,036,859
2030	10/1/2028	168,654,050	4,723,749,971	2,987,365,129	1,736,384,842	63.24%	127.27%	219,790,724
2031	10/1/2029	168,314,244	4,796,555,600	3,136,690,735	1,659,864,866	65.39%	127.15%	219,140,462
2032	10/1/2030	168,798,482	4,859,797,544	3,283,954,254	1,575,843,290	67.57%	125.85%	217,518,884
2033	10/1/2031	171,217,956	4,916,960,178	3,432,755,462	1,484,204,716	69.81%	124.32%	217,960,568
2034	10/1/2032	174,244,567	4,970,751,244	3,583,887,538	1,386,863,707	72.10%	111.21%	198,426,857
2035	10/1/2033	177,411,142	5,021,777,851	3,740,026,287	1,281,751,564	74.48%	108.28%	196,710,098
2036	10/1/2034	180,683,645	5,068,812,622	3,879,095,495	1,189,717,126	76.53%	15.40%	28,497,666
2037	10/1/2035	184,326,130	5,109,943,030	5,179,641,713	(69,698,683)	101.36%	14.56%	27,488,770
2038	10/1/2036	188,910,783	5,147,631,656	5,223,977,628	(76,345,972)	101.48%	14.05%	27,178,086
2039	10/1/2037	194,108,894	5,183,665,528	5,266,369,226	(82,703,698)	101.60%	13.67%	27,172,165
2040	10/1/2038	199,644,945	5,219,260,758	5,308,440,980	(89,180,221)	101.71%	13.39%	27,382,124
2041	10/1/2039	205,325,445	5,255,279,168	5,351,163,539	(95,884,371)	101.82%	13.24%	27,845,600
2042	10/1/2040	211,035,247	5,292,327,587	5,395,125,748	(102,798,161)	101.94%	13.20%	28,529,774
2043	10/1/2041	216,835,736	5,330,469,062	5,440,445,978	(109,976,916)	102.06%	13.19%	29,277,310
2044	10/1/2042	222,478,673	5,369,770,069	5,487,379,188	(117,609,119)	102.19%	13.19%	30,048,532
2045	10/1/2043	229,203,615	5,409,872,004	5,535,641,564	(125,769,560)	102.32%	13.17%	30,920,138
2046	10/1/2044	236,057,809	5,451,550,623	5,585,966,285	(134,415,661)	102.47%	13.15%	31,796,613
2047	10/1/2045	239,245,146	5,495,252,620	5,638,936,365	(143,683,745)	102.61%	13.21%	32,374,049
Total:								**4,422,014,612**
Total Present Value at 7%:								**2,528,052,236**

[1]Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date.

Assumptions

Mortality Assumption: FRS Special Risk Mortality

Healthy Lives: RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years using Scale BB; 90% blue collar / 10% white collar adjustment for males; 100% white collar adjustment for females.

Disabled Lives: 60% of RP-2000 Mortality Table for disabled annuitants with 4-year setback for males and 2-year set-forward for females, and 40% of RP-2000 Mortality Table for healthy annuitants with 100% white collar adjustment. No mortality improvements projected.

Investment Return Assumption: 7.0% per year

Actual Return on Plan Assets: 7.0% for years 2017-2018, -15% for year 2019, and 7.0% for years 2020 and thereafter

Salary Increase Assumption: 10.0% for years 2017-2018, 10.5% for year 2019, and 3.5% for years 2020 and thereafter

Payroll Growth Rate Assumption: 1.25% per year

DROP Accounts: Projected forward assuming 10% payout per projection year

Annual Expenses and Contributions from Chapter Funds Allocation and Court Fines are projected to increase by 2.5% per year.

No future actuarial experience gains or losses, other than investment losses for the year 2019, are assumed. Extra UAAL payments = $460 million.

Jacksonville Police and Fire Pension Fund

30-Year Projection of Required City Contribution
(7.0% Actual Rate of Return on Fund Assets Assumed to be Earned Each Year)

Scenario 2: Reflecting Plan and Method Changes as a result of Ord. 2017-257 and Ord. 2017-259 with Pension Liability Surtax Growth Rate of 4.25% and Payroll Growth Rate of 1.50%

Fiscal Year Ending	Valuation Date	Covered October 1 Payroll	Actuarial Accrued Liability	Net Market Value of Assets	Net Present Value of Future Pension Liability Surtax Proceeds	Unfunded Actuarial Accrued Liability	Funded Ratio on Valuation Date	Liquidity Ratio	Required City Contribution[1] % of Pay	Required City Contribution[1] $ Amount
2018	10/1/2016	135,684,787	3,518,251,848	1,513,398,466	737,512,896	2,004,853,382	43.02%	7.84 : 1	97.19%	135,368,758
2019	10/1/2017	144,303,214	3,626,011,048	1,604,804,878	789,138,799	2,021,206,170	44.26%	7.71 : 1	92.51%	137,035,240
2020	10/1/2018	149,372,475	3,738,070,177	1,663,867,687	844,378,514	2,074,202,490	44.51%	7.78 : 1	91.39%	140,125,086
2021	10/1/2019	155,975,584	3,853,716,001	1,722,524,317	903,485,010	2,131,191,684	44.70%	7.85 : 1	89.80%	143,781,134
2022	10/1/2020	152,425,187	3,974,071,147	1,782,669,814	966,728,961	2,191,401,333	44.86%	7.87 : 1	92.28%	144,385,053
2023	10/1/2021	147,539,843	4,093,707,741	1,842,493,726	1,034,399,989	2,251,214,015	45.01%	7.86 : 1	95.35%	144,402,063
2024	10/1/2022	142,292,659	4,211,391,364	1,897,908,864	1,106,807,988	2,313,482,499	45.07%	7.80 : 1	98.71%	144,183,891
2025	10/1/2023	134,964,361	4,325,585,334	1,946,787,142	1,184,284,547	2,378,798,193	45.01%	7.67 : 1	103.26%	143,064,669
2026	10/1/2024	125,244,391	4,434,018,529	1,987,321,870	1,267,184,465	2,446,696,659	44.82%	7.45 : 1	109.76%	141,108,542
2027	10/1/2025	114,565,867	4,533,374,605	2,015,857,527	1,355,887,378	2,517,517,077	44.47%	7.30 : 1	117.98%	138,748,799
2028	10/1/2026	106,423,249	4,625,484,701	2,033,481,245	1,450,799,494	2,592,003,456	43.96%	7.05 : 1	125.71%	137,326,993
2029	10/1/2027	97,102,141	4,708,867,408	2,037,014,891	1,552,355,459	2,671,852,517	43.26%	6.83 : 1	136.01%	135,570,624
2030	10/1/2028	88,611,010	4,784,514,039	2,028,514,753	1,661,020,341	2,755,999,286	42.40%	6.53 : 1	147.50%	134,163,522
2031	10/1/2029	78,000,450	4,850,496,446	2,005,001,803	1,777,291,765	2,845,494,643	41.34%	6.18 : 1	165.08%	132,180,569
2032	10/1/2030	66,655,621	4,903,951,001	1,964,246,748	1,901,702,188	2,939,704,253	40.05%	5.88 : 1	189.90%	129,931,993
2033	10/1/2031	60,699,458	4,948,040,792	1,981,652,618	1,961,854,040	2,966,388,174	40.05%	5.82 : 1	207.58%	129,342,682
2034	10/1/2032	56,328,281	4,985,906,269	2,018,333,918	1,997,956,090	2,967,572,351	40.48%	5.83 : 1	223.99%	129,514,365
2035	10/1/2033	51,718,469	5,017,908,254	2,053,634,178	2,032,283,105	2,964,274,076	40.93%	5.81 : 1	244.28%	129,685,273
2036	10/1/2034	45,116,687	5,042,300,202	2,087,201,231	2,064,527,990	2,955,098,971	41.39%	5.76 : 1	279.18%	129,293,820
2037	10/1/2035	36,420,290	5,056,281,813	2,117,416,925	2,094,354,382	2,938,864,888	41.88%	5.72 : 1	342.99%	128,228,608
2038	10/1/2036	28,560,001	5,059,613,437	2,144,752,436	2,121,394,272	2,914,861,001	42.39%	5.68 : 1	434.06%	127,253,029
2039	10/1/2037	21,440,332	5,052,144,843	2,168,880,618	2,145,245,446	2,883,264,224	42.93%	5.64 : 1	574.66%	126,475,377
2040	10/1/2038	14,211,285	5,033,812,770	2,190,354,340	2,165,468,728	2,843,458,430	43.51%	5.63 : 1	861.51%	125,676,822
2041	10/1/2039	9,638,565	5,006,133,228	2,211,709,284	2,181,585,025	2,794,423,944	44.18%	5.63 : 1	1270.43%	125,697,110
2042	10/1/2040	6,766,012	4,970,566,368	2,234,344,663	2,193,072,136	2,736,221,705	44.95%	5.65 : 1	1819.06%	126,340,844
2043	10/1/2041	4,511,937	4,928,396,978	2,260,741,904	2,199,361,331	2,667,655,075	45.87%	5.70 : 1	2746.94%	127,226,065
2044	10/1/2042	3,057,575	4,880,000,366	2,292,721,235	2,199,833,672	2,587,279,131	46.98%	5.76 : 1	4087.40%	128,288,432
2045	10/1/2043	1,923,828	4,825,945,536	2,331,955,025	2,193,816,050	2,493,990,511	48.32%	5.86 : 1	6547.42%	129,300,437
2046	10/1/2044	1,044,173	4,766,420,485	2,379,905,987	2,180,576,941	2,386,514,499	49.93%	5.98 : 1	12123.11%	129,942,069
2047	10/1/2045	586,333	4,701,567,150	2,437,879,274	2,159,321,829	2,263,687,875	51.85%	6.14 : 1	21435.70%	129,016,537
Total:										**4,002,658,407**
Total Present Value at 7%:										**1,810,854,598**

[1]Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date.

Assumptions

Mortality Assumption: FRS Special Risk Mortality

Healthy Lives: RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years using Scale BB; 90% blue collar / 10% white collar adjustment for males; 100% white collar adjustment for females.

Disabled Lives: 60% of RP-2000 Mortality Table for disabled annuitants with 4-year setback for males and 2-year set-forward for females, and 40% of RP-2000 Mortality Table for healthy annuitants with 100% white collar adjustment. No mortality improvements projected.

Investment Return Assumption:	7.0% per year
Actual Return on Plan Assets:	7.0% per year
Salary Increase Assumption:	10.0% for years 2017-2018, 10.5% for year 2019, and 3.5% for years 2020 and thereafter
Payroll Growth Rate Assumption:	1.5% per year
Pension Liability Surtax:	Projected to increase 4.25% annually
Annual Expenses and Contributions from Court Fines:	Projected to increase 2.5% annually
DROP Accounts:	Projected forward assuming 10% payout per projection year

No future actuarial experience gains or losses are assumed. Extra UAAL payments = $0.

Jacksonville Police and Fire Pension Fund

30-Year Projection of Required City Contribution

(Stress Test: -15% Actual Rate of Return on Fund Assets in Year 2019, All Other Years 7.0% Actual Rate of Return)

Scenario 2A: Reflecting Plan and Method Changes as a result of Ord. 2017-257 and Ord. 2017-259 with Pension Liability Surtax Growth Rate of 4.25% and Payroll Growth Rate of 1.50%

Fiscal Year Ending	Valuation Date	Covered October 1 Payroll	Actuarial Accrued Liability	Net Market Value of Assets	Net Present Value of Future Pension Liability Surtax Proceeds	Unfunded Actuarial Accrued Liability	Funded Ratio on Valuation Date	Liquidity Ratio	Required City Contribution[1] % of Pay	Required City Contribution[1] $ Amount
2018	10/1/2016	135,684,787	3,518,251,848	1,513,398,466	737,512,896	2,004,853,382	43.02%	7.84 : 1	97.19%	135,368,758
2019	10/1/2017	144,303,214	3,626,011,048	1,604,804,878	789,138,799	2,021,206,170	44.26%	7.71 : 1	92.51%	137,035,240
2020	10/1/2018	149,372,475	3,738,070,177	1,663,867,687	844,378,514	2,074,202,490	44.51%	7.78 : 1	91.39%	140,125,086
2021	10/1/2019	155,975,584	3,853,716,001	1,368,360,439	903,485,010	2,485,355,562	35.51%	5.91 : 1	104.49%	167,297,148
2022	10/1/2020	152,425,187	3,974,071,147	1,403,714,464	966,728,961	2,570,356,683	35.32%	5.88 : 1	108.63%	169,968,234
2023	10/1/2021	147,539,843	4,093,707,741	1,462,173,637	1,034,399,989	2,631,534,104	35.72%	5.95 : 1	112.56%	170,478,884
2024	10/1/2022	142,292,659	4,211,391,364	1,518,340,373	1,106,807,988	2,693,050,991	36.05%	5.97 : 1	116.83%	170,641,480
2025	10/1/2023	134,964,361	4,325,585,334	1,568,551,053	1,184,284,547	2,757,034,281	36.26%	5.94 : 1	122.63%	169,899,323
2026	10/1/2024	125,244,391	4,434,018,529	1,610,918,876	1,267,184,465	2,823,099,653	36.33%	5.83 : 1	130.93%	168,325,741
2027	10/1/2025	114,565,867	4,533,374,605	1,641,819,404	1,355,887,378	2,891,555,201	36.22%	5.74 : 1	141.45%	166,354,917
2028	10/1/2026	106,423,249	4,625,484,701	1,662,382,855	1,450,799,494	2,963,101,846	35.94%	5.58 : 1	151.34%	165,328,158
2029	10/1/2027	97,102,141	4,708,867,408	1,669,478,161	1,552,355,459	3,039,389,247	35.45%	5.42 : 1	164.50%	163,971,053
2030	10/1/2028	88,611,010	4,784,514,039	1,665,211,699	1,661,020,341	3,119,302,340	34.80%	5.20 : 1	179.17%	162,969,262
2031	10/1/2029	78,000,450	4,850,496,446	1,646,655,994	1,777,291,765	3,203,840,452	33.95%	4.93 : 1	201.57%	161,396,705
2032	10/1/2030	66,655,621	4,903,951,001	1,611,638,874	1,901,702,188	3,292,312,127	32.86%	4.69 : 1	233.21%	159,565,540
2033	10/1/2031	60,699,458	4,948,040,792	1,635,623,459	1,961,854,040	3,312,417,333	33.06%	4.67 : 1	255.82%	159,400,515
2034	10/1/2032	56,328,281	4,985,906,269	1,679,790,613	1,997,956,090	3,306,115,656	33.69%	4.73 : 1	276.71%	159,998,035
2035	10/1/2033	51,718,469	5,017,908,254	1,723,554,723	2,032,283,105	3,294,353,531	34.35%	4.76 : 1	302.50%	160,597,595
2036	10/1/2034	45,116,687	5,042,300,202	1,766,633,741	2,064,527,990	3,275,666,461	35.04%	4.77 : 1	346.86%	160,640,097
2037	10/1/2035	36,420,290	5,056,281,813	1,807,485,896	2,094,354,382	3,248,795,918	35.75%	4.79 : 1	428.02%	160,017,278
2038	10/1/2036	28,560,001	5,059,613,437	1,846,666,751	2,121,394,272	3,212,946,686	36.50%	4.81 : 1	544.03%	159,494,914
2039	10/1/2037	21,440,332	5,052,144,843	1,883,942,812	2,145,245,446	3,168,202,031	37.29%	4.82 : 1	723.25%	159,178,518
2040	10/1/2038	14,211,285	5,033,812,770	1,919,969,704	2,165,468,728	3,113,843,066	38.14%	4.86 : 1	1088.90%	158,848,906
2041	10/1/2039	9,638,565	5,006,133,228	1,957,390,084	2,181,585,025	3,048,743,144	39.10%	4.92 : 1	1610.55%	159,349,469
2042	10/1/2040	6,766,012	4,970,566,368	1,997,717,248	2,193,072,136	2,972,849,120	40.19%	5.00 : 1	2310.54%	160,475,980
2043	10/1/2041	4,511,937	4,928,396,978	2,043,558,594	2,199,361,331	2,884,838,384	41.46%	5.10 : 1	3494.42%	161,845,835
2044	10/1/2042	3,057,575	4,880,000,366	2,096,859,689	2,199,833,672	2,783,140,677	42.97%	5.23 : 1	5206.25%	163,404,947
2045	10/1/2043	1,923,828	4,825,945,536	2,159,426,325	2,193,816,050	2,666,519,211	44.75%	5.39 : 1	8352.38%	164,945,338
2046	10/1/2044	1,044,173	4,766,420,485	2,232,874,948	2,180,576,941	2,533,545,538	46.85%	5.58 : 1	15509.56%	166,239,881
2047	10/1/2045	586,333	4,701,567,150	2,318,696,106	2,159,321,829	2,382,871,044	49.32%	5.81 : 1	27706.76%	166,760,582
Total:										**4,829,923,419**
Total Present Value at 7%:										**2,113,034,314**

[1]Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date.

Assumptions

Mortality Assumption: FRS Special Risk Mortality

Healthy Lives: RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years using Scale BB; 90% blue collar / 10% white collar adjustment for males; 100% white collar adjustment for females.

Disabled Lives: 60% of RP-2000 Mortality Table for disabled annuitants with 4-year setback for males and 2-year set-forward for females, and 40% of RP-2000 Mortality Table for healthy annuitants with 100% white collar adjustment. No mortality improvements projected.

Investment Return Assumption:	7.0% per year
Actual Return on Plan Assets:	7.0% for years 2017-2018, -15% for year 2019, and 7.0% for years 2020 and thereafter
Salary Increase Assumption:	10.0% for years 2017-2018, 10.5% for year 2019, and 3.5% for years 2020 and thereafter
Payroll Growth Rate Assumption:	1.5% per year
Pension Liability Surtax:	Projected to increase 4.25% annually
Annual Expenses and Contributions from Court Fines:	Projected to increase 2.5% annually
DROP Accounts:	Projected forward assuming 10% payout per projection year

No future actuarial experience gains or losses, other than investment losses for the year 2019, are assumed. Extra UAAL payments = $0.

Jacksonville Police and Fire Pension Fund

30-Year Projection of Required City Contribution

(7.0% Actual Rate of Return on Fund Assets Assumed to be Earned Each Year)

Scenario 3: Reflecting Plan and Method Changes as a result of Ordinance 2017-257 and Ordinance 2017-259 with Pension Liability Surtax Growth Rate of 3.34% and Payroll Growth Rate of 1.25%

Fiscal Year Ending	Valuation Date	Covered October 1 Payroll	Actuarial Accrued Liability	Net Market Value of Assets	Net Present Value of Future Pension Liability Surtax Proceeds	Unfunded Actuarial Accrued Liability	Funded Ratio on Valuation Date	Liquidity Ratio	Required City Contribution[1]	
									% of Pay	$ Amount
2018	10/1/2016	135,684,787	3,518,251,848	1,513,398,466	580,767,389	2,004,853,382	43.02%	7.84 : 1	106.46%	147,920,652
2019	10/1/2017	144,303,214	3,626,011,048	1,604,804,878	621,421,107	2,021,206,170	44.26%	7.71 : 1	101.78%	150,399,046
2020	10/1/2018	149,372,475	3,738,070,177	1,677,298,214	664,920,584	2,060,771,963	44.87%	7.86 : 1	100.36%	153,504,174
2021	10/1/2019	155,975,584	3,853,716,001	1,751,194,254	711,465,025	2,102,521,747	45.44%	8.01 : 1	98.37%	157,115,094
2022	10/1/2020	152,425,187	3,974,071,147	1,827,662,270	761,267,577	2,146,408,877	45.99%	8.11 : 1	101.02%	157,674,909
2023	10/1/2021	147,539,843	4,093,707,741	1,904,902,991	814,556,307	2,188,804,750	46.53%	8.18 : 1	104.34%	157,640,354
2024	10/1/2022	142,292,659	4,211,391,364	1,978,906,924	871,575,249	2,232,484,440	46.99%	8.18 : 1	108.00%	157,366,439
2025	10/1/2023	134,964,361	4,325,585,334	2,047,620,036	932,585,516	2,277,965,299	47.34%	8.13 : 1	113.02%	156,189,823
2026	10/1/2024	125,244,391	4,434,018,529	2,109,318,393	997,866,502	2,324,700,136	47.57%	7.98 : 1	120.22%	154,173,397
2027	10/1/2025	114,565,867	4,533,374,605	2,160,437,721	1,067,717,157	2,372,936,883	47.66%	7.90 : 1	129.35%	151,749,379
2028	10/1/2026	106,423,249	4,625,484,701	2,202,161,448	1,142,457,358	2,423,323,253	47.61%	7.72 : 1	137.88%	150,256,683
2029	10/1/2027	97,102,141	4,708,867,408	2,231,413,329	1,222,429,373	2,477,454,079	47.39%	7.57 : 1	149.28%	148,428,074
2030	10/1/2028	88,611,010	4,784,514,039	2,250,355,850	1,307,999,430	2,534,158,189	47.03%	7.34 : 1	161.95%	146,943,734
2031	10/1/2029	78,000,450	4,850,496,446	2,256,129,247	1,399,559,390	2,594,367,199	46.51%	7.06 : 1	181.39%	144,881,630
2032	10/1/2030	66,655,621	4,903,951,001	2,246,627,940	1,497,528,547	2,657,323,060	45.81%	6.84 : 1	208.85%	142,549,767
2033	10/1/2031	60,699,458	4,948,040,792	2,288,398,902	1,538,379,972	2,659,641,891	46.25%	6.84 : 1	228.25%	141,868,533
2034	10/1/2032	56,328,281	4,985,906,269	2,346,997,033	1,557,895,263	2,638,909,236	47.07%	6.90 : 1	246.09%	141,944,601
2035	10/1/2033	51,718,469	5,017,908,254	2,404,292,689	1,575,831,703	2,613,615,565	47.91%	6.92 : 1	268.16%	142,016,839
2036	10/1/2034	45,116,687	5,042,300,202	2,459,850,768	1,591,980,411	2,582,449,434	48.78%	6.90 : 1	306.34%	141,523,664
2037	10/1/2035	36,420,290	5,056,281,813	2,511,960,576	1,606,114,602	2,544,321,237	49.68%	6.90 : 1	376.34%	140,352,877
2038	10/1/2036	28,560,001	5,059,613,437	2,560,989,566	1,617,988,217	2,498,623,871	50.62%	6.90 : 1	476.20%	139,265,558
2039	10/1/2037	21,440,332	5,052,144,843	2,606,493,814	1,627,334,469	2,445,651,029	51.59%	6.89 : 1	630.26%	138,370,462
2040	10/1/2038	14,211,285	5,033,812,770	2,648,893,582	1,633,864,266	2,384,919,188	52.62%	6.92 : 1	944.53%	137,449,189
2041	10/1/2039	9,638,565	5,006,133,228	2,690,577,727	1,637,264,537	2,315,555,501	53.75%	6.97 : 1	1391.52%	137,338,654
2042	10/1/2040	6,766,012	4,970,566,368	2,732,783,122	1,637,196,421	2,237,783,246	54.98%	7.03 : 1	1989.59%	137,844,099
2043	10/1/2041	4,511,937	4,928,396,978	2,777,808,485	1,633,293,337	2,150,588,493	56.36%	7.12 : 1	2999.54%	138,583,170
2044	10/1/2042	3,057,575	4,880,000,366	2,827,272,968	1,625,158,909	2,052,727,397	57.94%	7.22 : 1	4455.24%	139,489,060
2045	10/1/2043	1,923,828	4,825,945,536	2,882,626,795	1,612,364,741	1,943,318,741	59.73%	7.36 : 1	7123.48%	140,330,054
2046	10/1/2044	1,044,173	4,766,420,485	2,945,085,457	1,594,448,035	1,821,335,028	61.79%	7.51 : 1	13166.12%	140,774,006
2047	10/1/2045	586,333	4,701,567,150	3,015,677,865	1,570,909,033	1,685,889,285	64.14%	7.70 : 1	23245.97%	139,567,518
Total:										**4,373,511,436**
Total Present Value at 7%:										**1,980,088,113**

[1]Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date.

Assumptions

Mortality Assumption: FRS Special Risk Mortality

Healthy Lives: RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years using Scale BB; 90% blue collar / 10% white collar adjustment for males; 100% white collar adjustment for females.

Disabled Lives: 60% of RP-2000 Mortality Table for disabled annuitants with 4-year setback for males and 2-year set-forward for females, and 40% of RP-2000 Mortality Table for healthy annuitants with 100% white collar adjustment. No mortality improvements projected.

Investment Return Assumption:	7.0% per year
Actual Return on Plan Assets:	7.0% per year
Salary Increase Assumption:	10.0% for years 2017-2018, 10.5% for year 2019, and 3.5% for years 2020 and thereafter
Payroll Growth Rate Assumption:	1.25% per year
Pension Liability Surtax:	Projected to increase 3.34% annually
Annual Expenses and Contributions from Court Fines:	Projected to increase 2.5% annually
DROP Accounts:	Projected forward assuming 10% payout per projection year

No future actuarial experience gains or losses are assumed. Extra UAAL payments = $0.

Jacksonville Police and Fire Pension Fund

30-Year Projection of Required City Contribution

(Stress Test: -15% Actual Rate of Return on Fund Assets in Year 2019, All Other Years 7.0% Actual Rate of Return)

Scenario 3A: Reflecting Plan and Method Changes as a result of Ordinance 2017-257 and Ordinance 2017-259 with Pension Liability Surtax Growth Rate of 3.34% and Payroll Growth Rate of 1.25%

Fiscal Year Ending	Valuation Date	Covered October 1 Payroll	Actuarial Accrued Liability	Net Market Value of Assets	Net Present Value of Future Pension Liability Surtax Proceeds	Unfunded Actuarial Accrued Liability	Funded Ratio on Valuation Date	Liquidity Ratio	Required City Contribution[1]	
									% of Pay	$ Amount
2018	10/1/2016	135,684,787	3,518,251,848	1,513,398,466	580,767,389	2,004,853,382	43.02%	7.84 : 1	106.46%	147,920,652
2019	10/1/2017	144,303,214	3,626,011,048	1,604,804,878	621,421,107	2,021,206,170	44.26%	7.71 : 1	101.78%	150,399,046
2020	10/1/2018	149,372,475	3,738,070,177	1,677,298,214	664,920,584	2,060,771,963	44.87%	7.86 : 1	100.36%	153,504,174
2021	10/1/2019	155,975,584	3,853,716,001	1,391,135,622	711,465,025	2,462,580,379	36.10%	6.03 : 1	113.70%	181,596,536
2022	10/1/2020	152,425,187	3,974,071,147	1,442,399,534	761,267,577	2,531,671,613	36.30%	6.08 : 1	118.07%	184,292,077
2023	10/1/2021	147,539,843	4,093,707,741	1,518,867,007	814,556,307	2,574,840,734	37.10%	6.23 : 1	122.26%	184,710,462
2024	10/1/2022	142,292,659	4,211,391,364	1,594,328,790	871,575,249	2,617,062,573	37.86%	6.34 : 1	126.81%	184,763,807
2025	10/1/2023	134,964,361	4,325,585,334	1,665,086,449	932,585,516	2,660,498,886	38.49%	6.38 : 1	133.07%	183,908,016
2026	10/1/2024	125,244,391	4,434,018,529	1,729,322,639	997,866,502	2,704,695,890	39.00%	6.34 : 1	142.08%	182,216,040
2027	10/1/2025	114,565,867	4,533,374,605	1,783,500,731	1,067,717,157	2,749,873,874	39.34%	6.33 : 1	153.54%	180,121,036
2028	10/1/2026	106,423,249	4,625,484,701	1,828,844,495	1,142,457,358	2,796,640,205	39.54%	6.24 : 1	164.22%	178,961,678
2029	10/1/2027	97,102,141	4,708,867,408	1,862,321,862	1,222,429,373	2,846,545,546	39.55%	6.16 : 1	178.48%	177,468,967
2030	10/1/2028	88,611,010	4,784,514,039	1,886,142,326	1,307,999,430	2,898,371,713	39.42%	6.01 : 1	194.33%	176,324,705
2031	10/1/2029	78,000,450	4,850,496,446	1,897,494,532	1,399,559,390	2,953,001,914	39.12%	5.80 : 1	218.61%	174,605,954
2032	10/1/2030	66,655,621	4,903,951,001	1,894,326,435	1,497,528,547	3,009,624,566	38.63%	5.65 : 1	252.91%	172,622,432
2033	10/1/2031	60,699,458	4,948,040,792	1,943,241,318	1,538,379,972	3,004,799,474	39.27%	5.69 : 1	277.20%	172,294,370
2034	10/1/2032	56,328,281	4,985,906,269	2,009,856,171	1,557,895,263	2,976,050,099	40.31%	5.80 : 1	299.46%	172,723,550
2035	10/1/2033	51,718,469	5,017,908,254	2,076,107,612	1,575,831,703	2,941,800,643	41.37%	5.88 : 1	326.95%	173,149,923
2036	10/1/2034	45,116,687	5,042,300,202	2,141,626,210	1,591,980,411	2,900,673,992	42.47%	5.92 : 1	374.50%	173,014,126
2037	10/1/2035	36,420,290	5,056,281,813	2,204,772,699	1,606,114,602	2,851,509,114	43.60%	5.98 : 1	461.76%	172,206,774
2038	10/1/2036	28,560,001	5,059,613,437	2,265,993,332	1,617,988,217	2,793,620,105	44.79%	6.04 : 1	586.40%	171,491,082
2039	10/1/2037	21,440,332	5,052,144,843	2,324,931,513	1,627,334,469	2,727,213,330	46.02%	6.09 : 1	778.76%	170,973,214
2040	10/1/2038	14,211,285	5,033,812,770	2,382,103,231	1,633,864,266	2,651,709,539	47.32%	6.17 : 1	1171.20%	170,434,374
2041	10/1/2039	9,638,565	5,006,133,228	2,439,996,996	1,637,264,537	2,566,136,232	48.74%	6.27 : 1	1729.68%	170,714,750
2042	10/1/2040	6,766,012	4,970,566,368	2,499,955,888	1,637,196,421	2,470,610,480	50.30%	6.39 : 1	2476.97%	171,611,441
2043	10/1/2041	4,511,937	4,928,396,978	2,564,395,768	1,633,293,337	2,364,001,210	52.03%	6.53 : 1	3738.88%	172,741,428
2044	10/1/2042	3,057,575	4,880,000,366	2,635,052,417	1,625,158,909	2,244,947,949	54.00%	6.70 : 1	5559.02%	174,047,418
2045	10/1/2043	1,923,828	4,825,945,536	2,713,500,141	1,612,364,741	2,112,445,395	56.23%	6.90 : 1	8899.47%	175,316,450
2046	10/1/2044	1,044,173	4,766,420,485	2,801,097,381	1,594,448,035	1,965,323,104	58.77%	7.12 : 1	16489.36%	176,306,636
2047	10/1/2045	586,333	4,701,567,150	2,899,046,067	1,570,909,033	1,802,521,082	61.66%	7.39 : 1	29385.41%	176,428,353
Total:										**5,206,869,471**
Total Present Value at 7%:										**2,287,561,035**

[1]Future contributions are assumed to be equal to the dollar amount of the calculated contribution, payable in December of the fiscal year beginning one year after the valuation date.

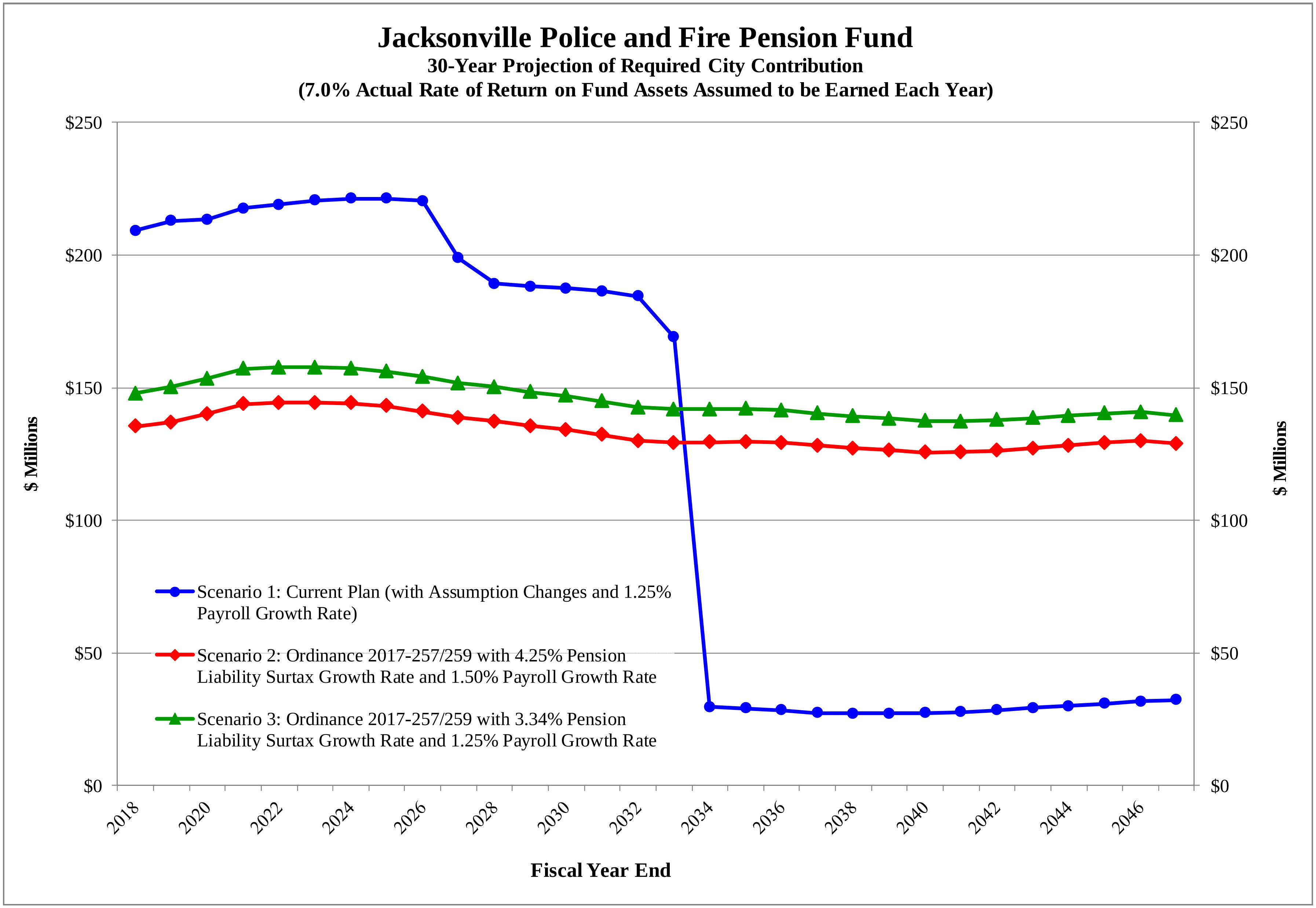
Assumptions

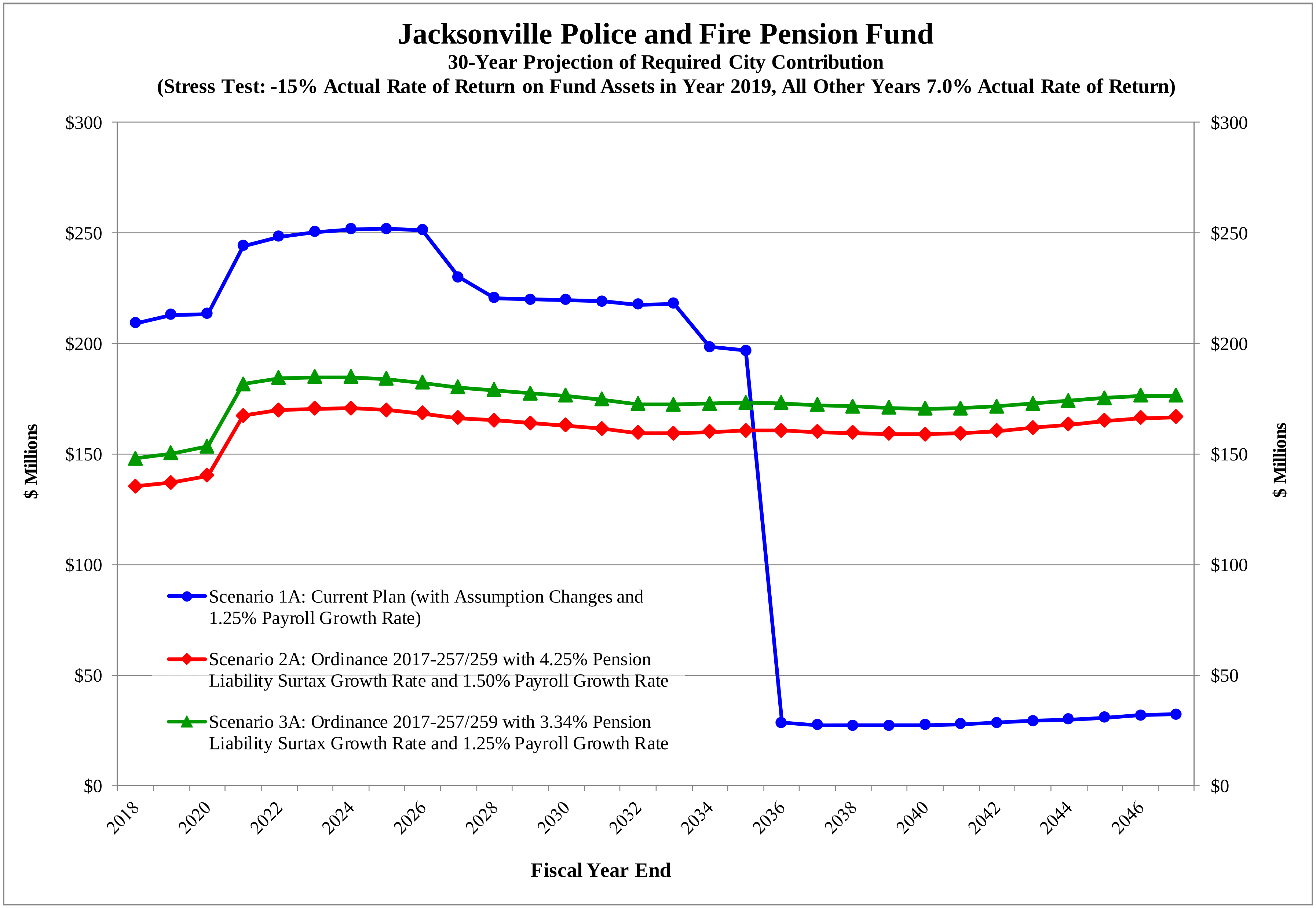
Mortality Assumption: FRS Special Risk Mortality

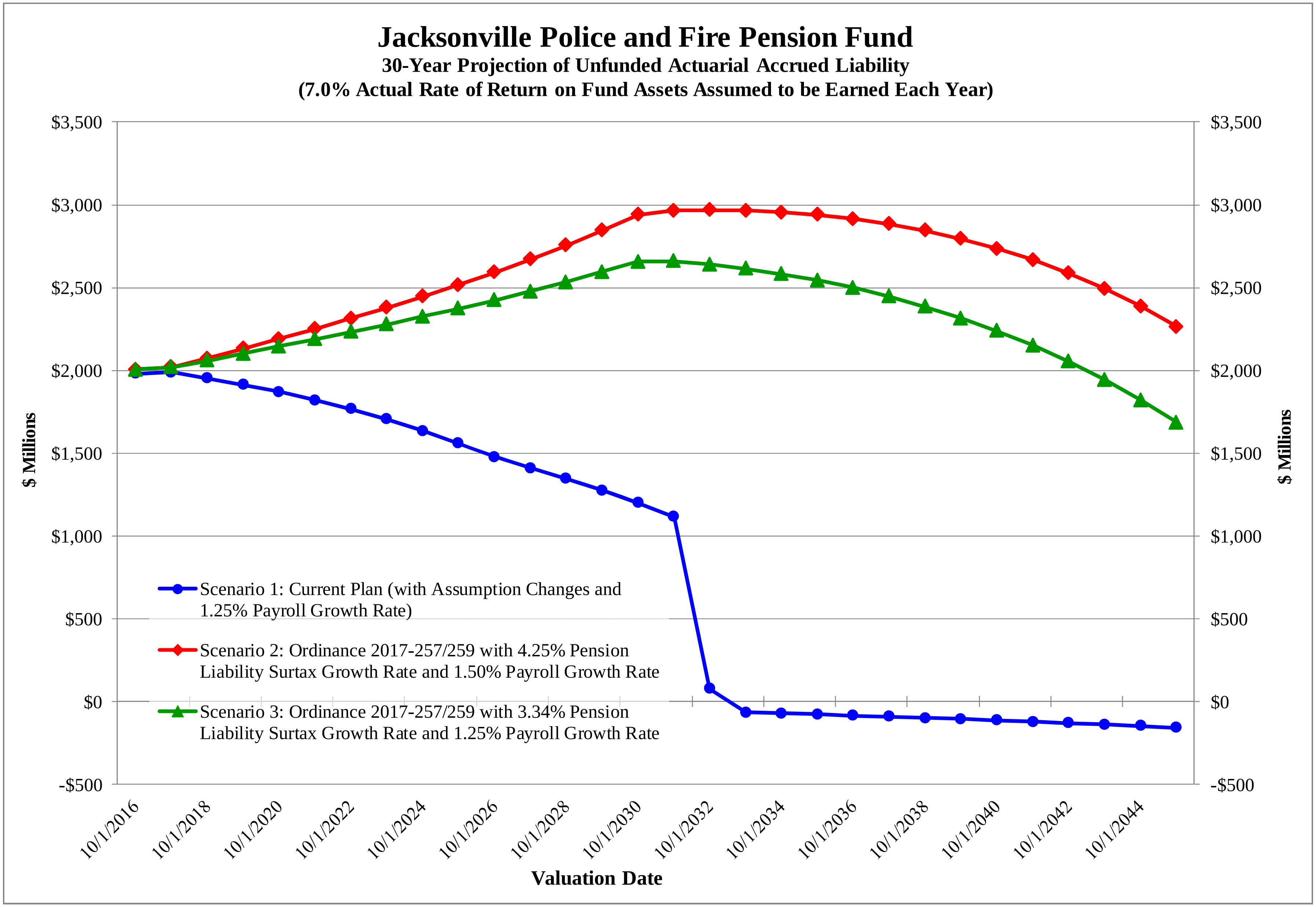
Healthy Lives: RP-2000 Combined Healthy Participant Mortality Table (for pre-retirement mortality) and the RP-2000 Mortality Table for Annuitants (for post-retirement mortality), with mortality improvements projected to all future years using Scale BB; 90% blue collar / 10% white collar adjustment for males; 100% white collar adjustment for females.

Disabled Lives: 60% of RP-2000 Mortality Table for disabled annuitants with 4-year setback for males and 2-year set-forward for females, and 40% of RP-2000 Mortality Table for healthy annuitants with 100% white collar adjustment. No mortality improvements projected.

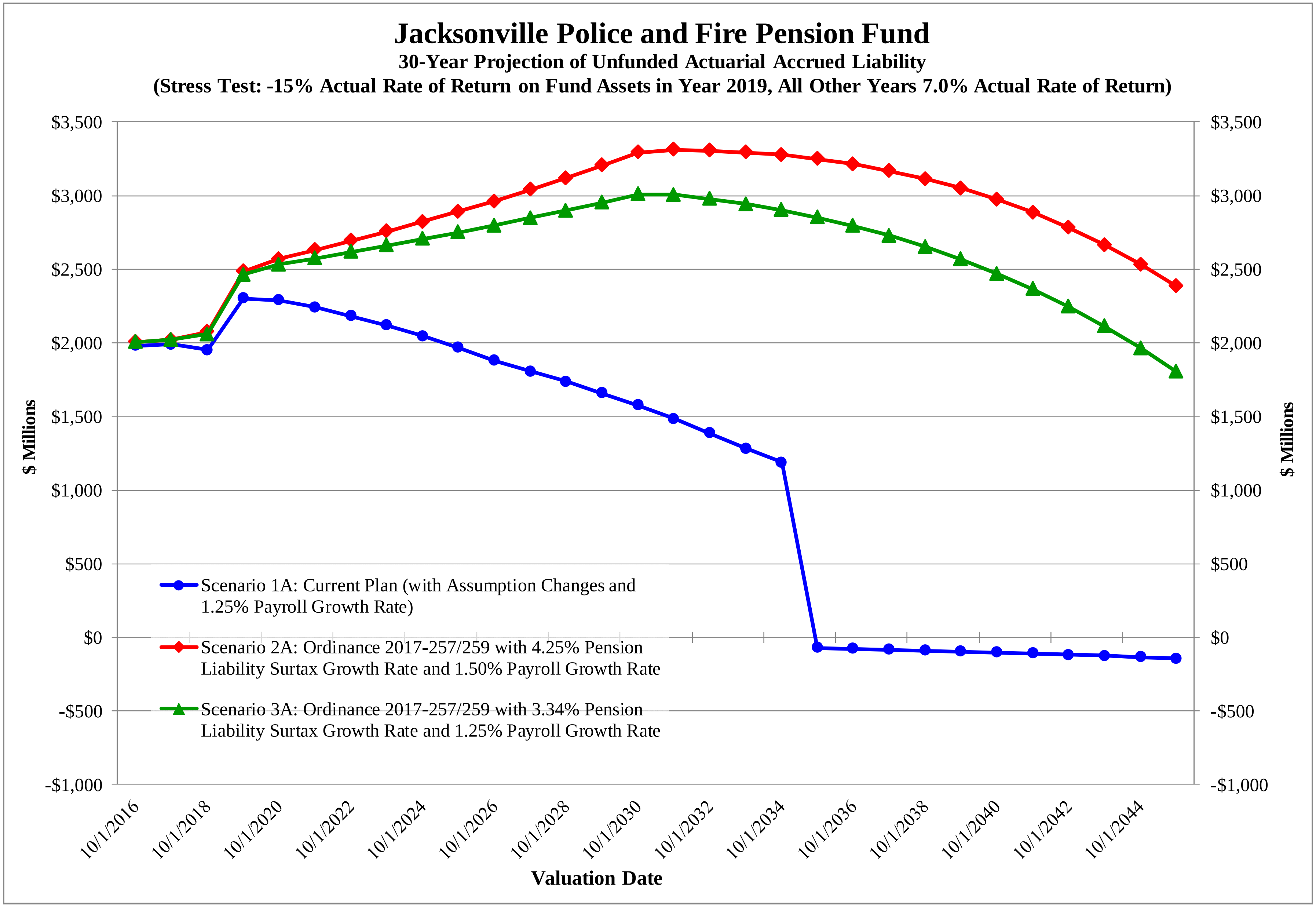
Investment Return Assumption: 7.0% per year
Actual Return on Plan Assets: 7.0% for years 2017-2018, -15% for year 2019, and 7.0% for years 2020 and thereafter
Salary Increase Assumption: 10.0% for years 2017-2018, 10.5% for year 2019, and 3.5% for years 2020 and thereafter
Payroll Growth Rate Assumption: 1.25% per year
Pension Liability Surtax: Projected to increase 3.34% annually
Annual Expenses and Contributions from Court Fines: Projected to increase 2.5% annually
DROP Accounts: Projected forward assuming 10% payout per projection year
No future actuarial experience gains or losses, other than investment losses for the year 2019, are assumed. Extra UAAL payments = $0.

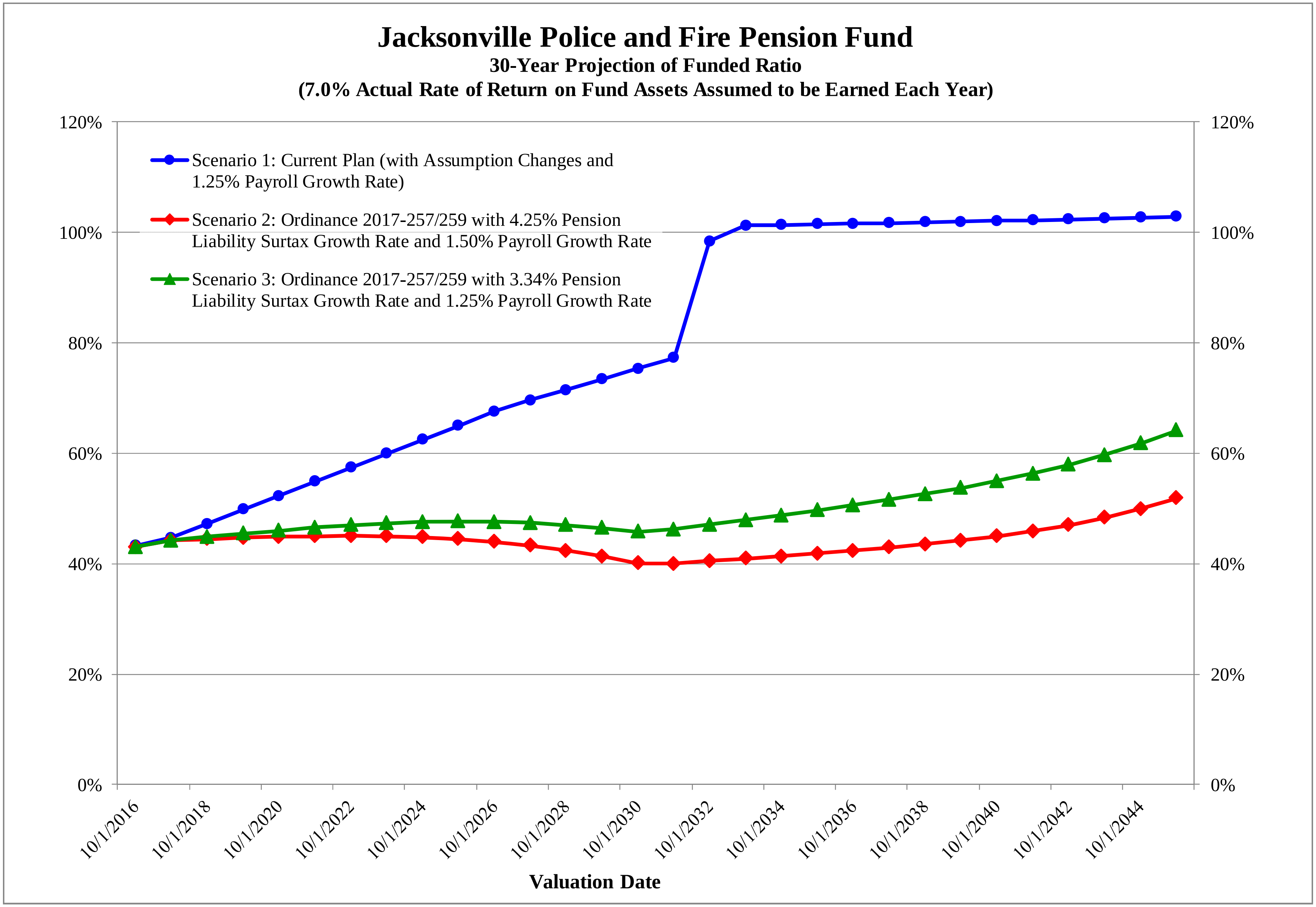

Jacksonville Police and Fire Pension Fund
30-Year Projection of Required City Contribution
(7.0% Actual Rate of Return on Fund Assets Assumed to be Earned Each Year)
$ Millions
$250
$200
$150
$100
$50
$0
Scenario 1: Current Plan (with Assumption Changes and 1.25% Payroll Growth Rate)
Scenario 2: Ordinance 2017-257/259 with 4.25% Pension Liability Surtax Growth Rate and 1.50% Payroll Growth Rate
Scenario 3: Ordinance 2017-257/259 with 3.34% Pension Liability Surtax Growth Rate and 1.25% Payroll Growth Rate
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
2042
2044
2046
Fiscal Year End

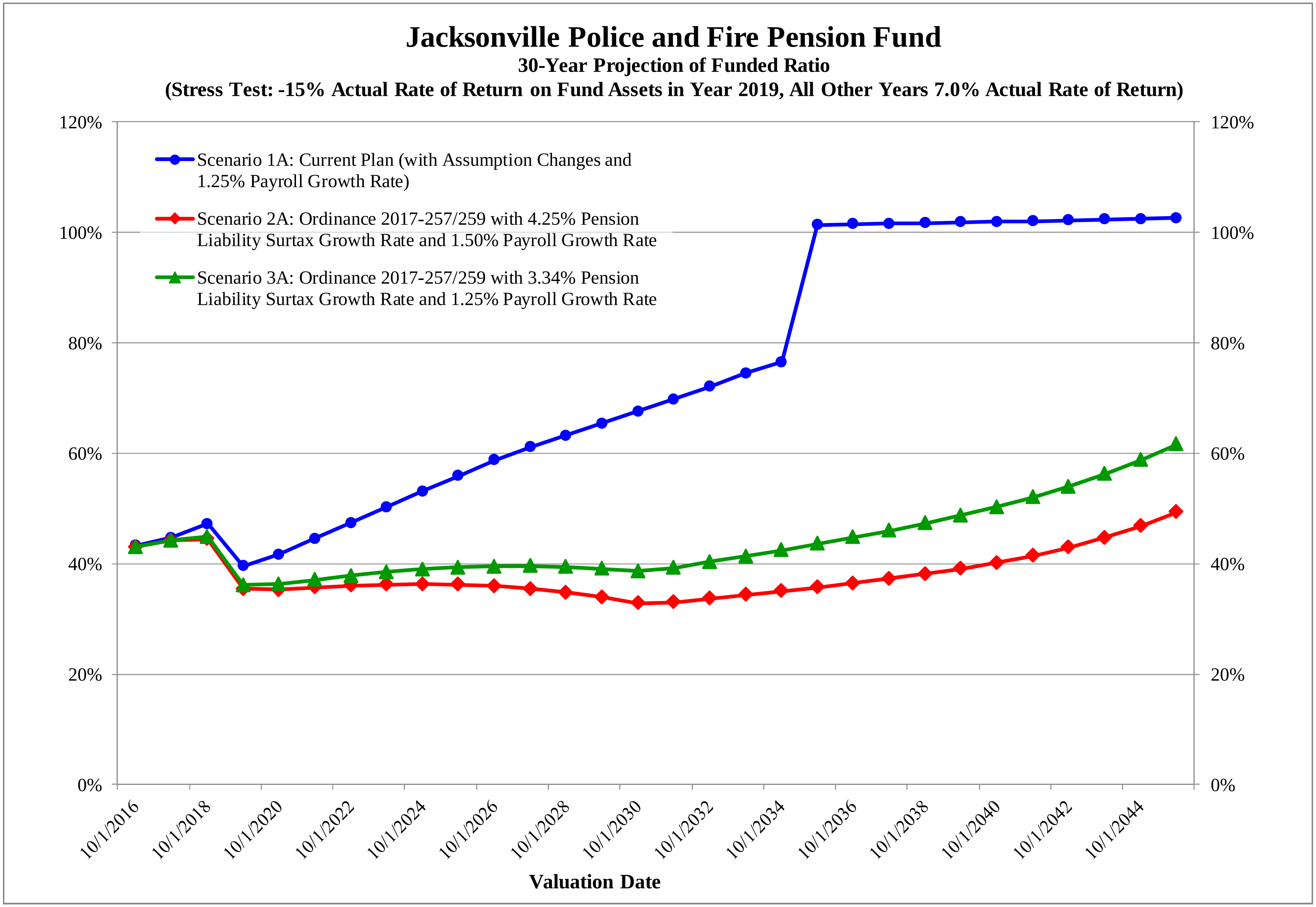

Jacksonville Police and Fire Pension Fund
30-Year Projection of Required City Contribution
(Stress Test: -15% Actual Rate of Return on Fund Assets in Year 2019, All Other Years 7.0% Actual Rate of Return)
$300
$250
$200
$150
$100
$50
$0
$ Millions
Scenario 1A: Current Plan (with Assumption Changes and 1.25% Payroll Growth Rate)
Scenario 2A: Ordinance 2017-257/259 with 4.25% Pension Liability Surtax Growth Rate and 1.50% Payroll Growth Rate
Scenario 3A: Ordinance 2017-257/259 with 3.34% Pension Liability Surtax Growth Rate and 1.25% Payroll Growth Rate
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
2038
2040
2042
2044
2046
Fiscal Year End



Jacksonville Police and Fire Pension Fund
30-Year Projection of Unfunded Actuarial Accrued Liability
(7.0% Actual Rate of Return on Fund Assets Assumed to be Earned Each Year)
$ Millions
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
-$500
Scenario 1: Current Plan (with Assumption Changes and 1.25% Payroll Growth Rate)
Scenario 2: Ordinance 2017-257/259 with 4.25% Pension Liability Surtax Growth Rate and 1.50% Payroll Growth Rate
Scenario 3: Ordinance 2017-257/259 with 3.34% Pension Liability Surtax Growth Rate and 1.25% Payroll Growth Rate
10/1/2016
10/1/2018
10/1/2020
10/1/2022
10/1/2024
10/1/2026
10/1/2028
10/1/2030
10/1/2032
10/1/2034
10/1/2036
10/1/2038
10/1/2040
10/1/2042
10/1/2044
Valuation Date


Jacksonville Police and Fire Pension Fund
30-Year Projection of Unfunded Actuarial Accrued Liability
(Stress Test: -15% Actual Rate of Return on Fund Assets in Year 2019, All Other Years 7.0% Actual Rate of Return)
$ Millions
$3,500
$3,000
$2,500
$2,000
$1,500
$1,000
$500
$0
-$500
-$1,000
Scenario 1A: Current Plan (with Assumption Changes and 1.25% Payroll Growth Rate)
Scenario 2A: Ordinance 2017-257/259 with 4.25% Pension Liability Surtax Growth Rate and 1.50% Payroll Growth Rate
Scenario 3A: Ordinance 2017-257/259 with 3.34% Pension Liability Surtax Growth Rate and 1.25% Payroll Growth Rate
10/1/2016
10/1/2018
10/1/2020
10/1/2022
10/1/2024
10/1/2026
10/1/2028
10/1/2030
10/1/2032
10/1/2034
10/1/2036
10/1/2038
10/1/2040
10/1/2042
10/1/2044
Valuation Date


Jacksonville Police and Fire Pension Fund
30-Year Projection of Funded Ratio
(7.0% Actual Rate of Return on Fund Assets Assumed to be Earned Each Year)
Scenario 1: Current Plan (with Assumption Changes and 1.25% Payroll Growth Rate)
Scenario 2: Ordinance 2017-257/259 with 4.25% Pension Liability Surtax Growth Rate and 1.50% Payroll Growth Rate
Scenario 3: Ordinance 2017-257/259 with 3.34% Pension Liability Surtax Growth Rate and 1.25% Payroll Growth Rate
120%
100%
80%
60%
40%
20%
0%
10/1/2016
10/1/2018
10/1/2020
10/1/2022
10/1/2024
10/1/2026
10/1/2028
10/1/2030
10/1/2032
10/1/2034
10/1/2036
10/1/2038
10/1/2040
10/1/2042
10/1/2044
Valuation Date


Jacksonville Police and Fire Pension Fund
30-Year Projection of Funded Ratio
(Stress Test: -15% Actual Rate of Return on Fund Assets in Year 2019, All Other Years 7.0% Actual Rate of Return)
Scenario 1A: Current Plan (with Assumption Changes and 1.25% Payroll Growth Rate)
Scenario 2A: Ordinance 2017-257/259 with 4.25% Pension Liability Surtax Growth Rate and 1.50% Payroll Growth Rate
Scenario 3A: Ordinance 2017-257/259 with 3.34% Pension Liability Surtax Growth Rate and 1.25% Payroll Growth Rate
120%
100%
80%
60%
40%
20%
0%
10/1/2016
10/1/2018
10/1/2020
10/1/2022
10/1/2024
10/1/2026
10/1/2028
10/1/2030
10/1/2032
10/1/2034
10/1/2036
10/1/2038
10/1/2040
10/1/2042
10/1/2044
Valuation Date