LEGISLATIVE BUDGET BOARD
Austin, Texas

ACTUARIAL IMPACT STATEMENT

85TH LEGISLATIVE REGULAR SESSION

April 9, 2017

TO: Honorable Dan Flynn, Chair, House Committee on Pensions

FROM: Ursula Parks, Director, Legislative Budget Board

IN RE: **HB43** by Flynn (Relating to the public retirement systems of certain municipalities.), **Committee Report 1st House, Substituted**

The following information was supplied by Agency 338 - Pension Review Board:

CSHB 43 would make significant changes to Articles 6243e.2(1) (affecting the Houston Firefighters' Relief & Retirement Fund (HFRRF)), 6243g-4 (affecting the Houston Police Officer's Retirement System (HPOPS)), and 6243h (affecting the Houston Municipal Employees Retirement System (HMEPS)), Revised Civil Statues, to immediately reduce benefits,increase employee contributions, outline funding policies, codify certain actuarial assumptions and methods for purposes of valuing benefits, and detail an approach to making modifications to the assumptions, methods and benefits under certain economic scenarios with the intent of minimizing the volatility of future contribution requirements for the affected retirement systems. Currently,the City of Houston's (the "City") contribution structure for HFRRF is outlined in its governing statute, and for HMEPS and HPOPS the contributions are established through the most recent meet and confer agreements with the City.

The proposed changes of the bill, if enacted, would help strengthen the long-term sustainability and improve the actuarial soundness of the affected retirement systems by lowering the current and future liabilities.

Actuarial Effects

PRB's actuarial review states that the affected retirement systems are currently identified as being actuarially sound under the PRB *Guidelines for Actuarial Soundness* but the bill, if enacted, would make the retirement systems more actuarially sound. In accordance with Texas Government Code Section 802.302(h), the PRB is including the actuarial analysis prepared by Retirement Horizons Incorporated (RHI) for HFRRF, at the direction of the City. This analysis states that HFRRF's current actuarially determined contribution rate is based on a rolling or open 30-year amortization period, which means that the retirement system's UAAL will never be completely paid off.

Additionally, the City has stated that its pension liabilities for the three retirement systems have risen to $8.1 billion and it is facing the prospect of increasing costs that have the potential to outpace its ability to pay. The proposed changes help strengthen the long-term sustainability and improve the actuarial soundness of the affected retirement systems.

Also,the bill would allow HPOPS and HMEPS to rescind, prospectively, any or all benefit changes made effective under the bill, or to reestablish the deadline of the delivery of the POB proceeds, if the city fails to deliver the proceeds of pension obligation bonds before January 2, 2018. Accordingly, if any or all benefit changes are rescinded for HPOPS, the corridor minimum, maximum, and mid-point contributions would increase. The PRB does not have sufficient data to determine the magnitude of the impact. For HMEPS, based on the actuarial analysis each payment in the Legacy Liability amortization schedule would increase by approximately 10% and the corridor minimum, maximum, and mid-point contributions would increase approximately 1.4%.

Baseline and If Bill Enacted Scenarios

The following tables provide the key financial impact on HFRRF, HPOPS and HMEPS, as provided in the actuarial analyses. The Baseline scenario utilizes assumptions, methods, and plan provisions described in the latest valuation reports from the systems (July 1, 2015 valuation reports for HFRRF (prepared by RHI for the City) and HMEPS and July 1, 2016 valuation report for HPOPS), with modifications, including a lowered 7.0% discount rate; the change from an open to a closed 30-year amortization period; and marking the assets to market.

The If Bill Enacted scenario shows the effect of the additional changes to assumptions, methods, increased employee contributions, and the decreased benefit provisions as contained in the bill.

The following tables outline the previously mentioned scenarios.

Houston Firefighters' Relief & Retirement Fund (Prepared by RHI at the Request of the City)	**Baseline**	**If Bill Enacted**	**Change**
Discount Rate	7.00%	7.00%	
Amortization Method	Individual EAN	Ultimate EAN	
Actuarial Accrued Liabilities (AAL)	$5,223,159	$4,249,641	($973,518)
Actuarial Value of Assets (AVA)	($3,729,670)	($3,729,670)	$0
Unfunded Actuarial Accrued Liability (millions)	$1,493,489	$519,971	($973,518)
Funded Ratio	71.41%	87.76%	16.35%
Employer Normal Cost	34.69%	13.14%	(21.55%)
Administrative Expense	2.00%*	2.00%	0.00%
Amortization Payment	34.28%	10.68%	(23.60%)
Total Employer Contribution for FYE 2018**	70.97%	25.82%	(45.15%)

Total Employer Contributions for FYE 2018 (as a percentage of gross pay)***	64.59%	23.50%	(41.09%)

**The provision for administrative expenses expressed here exceeds the maximum allowable under the bill, which is 1.25%.*

***The definition of payroll would be changed under the bill to exclude overtime. The City contribution has been calculated as a percentage of pensionable pay, excluding overtime for both the Baseline and If Bill Enacted scenarios.*

****For comparison purposes, the total employer contribution has also been calculated as a percentage of gross pay (including overtime).*

Houston Police Officer's Retirement System	**Baseline**	**If Bill Enacted**	**Change**
Discount Rate	7.0%	7.0%	
Amortization Method	Individual EAN	Ultimate EAN	
Actuarial Accrued Liabilities (AAL)	$6,894,274	$6,081,391	($812,883)
Actuarial Value of Assets (AVA)	($4,758,079)	($4,758,079)	$0
Unfunded Actuarial Accrued Liability (millions)	$2,136,195	$1,323,312	($812,883)
Funded Ratio	69.01%	78.24%	9.23%
Employer Normal Cost	22.14%	12.86%	(9.28%)
Administrative Expense	1.00%	1.00%	0.00%
Amortization Payment	29.82%	17.91%	(11.91%)
Total Employer Contribution for FYE 2018	52.96%	31.77%	(21.19%)

Both scenarios include the discounted value of expected POB proceeds ($750 million).

Houston Municipal Employees Pension System	**Baseline**	**If Bill Enacted**	**Change**
Discount Rate	7.00%	7.00%	
Amortization Method	Individual EAN	Ultimate EAN	
Actuarial Accrued Liabilities (AAL)	$5,509,951	$4,734,999	($774,952)
Actuarial Value of Assets (AVA)	($2,400,023)	($2,625,896)	$225,873
Unfunded Actuarial Accrued Liability (millions)	$3,109,928	$2,109103	($1,000,825)
Funded Ratio	43.56%	55.46%	11.90%

Normal Cost (% of payroll)	8.39%	6.98%	(1.41%)
Administrative Expenses	1.19%	1.19%	0.00%
Amortization Payment	29.64%	19.67%	(9.97%)
Total Employer Contribution for FYE 2018	39.22%	27.84%	11.38%

If Bill Enacted scenario includes the discounted value of expected POB proceeds ($250 million).

Corridor Midpoint

The bill establishes a unique funding policy that establishes a "target"contribution rate for the City, develops a minimum and maximum corridor around the City's target contribution rate, and defines steps that must be taken should the annual calculated contribution move outside this corridor. Generally, for all three retirement systems, the retirement system and the City must jointly determine the expected contribution requirements for the 31-year period beginning with the fiscal year starting July 1, 2017, consisting of the expected normal cost plus a closed 30-year amortization of the unfunded liability as it exists on June 30, 2016. For HFRRF and HPOPS, the sum of the expected normal cost, amortization payment and a provision for administrative expenses for each of the next 31 years becomes the“target” rate or corridor mid-point. For HMEPS, the corridor mid-point is the sum of the normal cost and provision for administrative expenses. The minimum and maximum contribution “corridor” then becomes the rates equal to /- 5% of the projected mid-point.

The 30-year amortization schedule of the unfunded liability as of June 30, 2016, known as the legacy liability, is established and treated separately from the corridor for HMEPS,therefore, generally any reference in this memo to outstanding amortization payments, as it relates to HMEPS, does not include the amortization of the legacy liability. Without regard to the legacy liability for HMEPS, the corridor mechanisms for all three systems are similar.

Additionally, in future years, a new base would be established to amortize gains and losses. The losses are amortized over a closed 30-year period, while the gains are amortized over the same period as the largest outstanding liability loss base, the gain and associated loss base are treated as a single base for any future actions.

Once the corridor is established in the initial valuation, it will not change. The following tables outline the estimated 31-year projections of the corridor mid-point for the three systems (and legacy liability amortization schedule for HMEPS) as provided in the actuarial analyses.

Forecast of Corridor Midpoint for HFRRF

(This projection was included in the actuarial analysis provided by RHI.)

FY	City Normal Cost Rate	Admin Expenses	Amort. Of UAAL	City Cont. Rate
2017				36.48%
2018	13.14%	2.00%	10.68%	25.82%
2019	13.14%	2.00%	10.68%	25.82%
2020	13.14%	2.00%	10.68%	25.82%
2021	13.14%	2.00%	10.68%	25.82%
2022	13.14%	2.00%	10.68%	25.82%
2023	13.14%	2.00%	10.68%	25.82%

2024	13.14%	2.00%	10.68%	25.82%
2025	13.14%	2.00%	10.68%	25.82%
2026	13.14%	2.00%	10.68%	25.82%
2027	13.14%	2.00%	10.68%	25.82%
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2038	13.14%	2.00%	10.68%	25.82%
2039	13.14%	2.00%	10.68%	25.82%
2040	13.14%	2.00%	10.68%	25.82%
2041	13.14%	2.00%	10.68%	25.82%
2042	13.14%	2.00%	10.68%	25.82%
2043	13.14%	2.00%	10.68%	25.82%
2044	13.14%	2.00%	10.68%	25.82%
2045	13.14%	2.00%	10.68%	25.82%
2046	13.14%	2.00%	10.68%	25.82%
2047	13.14%	2.00%	10.68%	25.82%
2048	13.14%	2.00%	0.00%	15.14%

Corridor Projection Results for HPOPS

Valuation as of July 1,	Employer Normal Cost	Employer Cont Rate for FY Following Val Date	Employer Cont. Rate	Comp (in Millions)	Employer Cont (in Millions)
2016	13.86%	31.77%	31.35%	424.3	133
2017	13.89%	31.85%	31.77%	436	138.5
2018	13.86%	31.82%	31.85%	448	142.7
2019	13.88%	31.84%	31.82%	460.3	146.5
2020	13.95%	31.92%	31.84%	472.9	150.6
2021	14.00%	31.98%	31.92%	485.9	155.1
2022	14.04%	32.03%	31.98%	499.3	159.7
2023	14.07%	32.07%	32.03%	513	164.3
2024	14.09%	32.10%	32.07%	527.1	169.1
2025	14.10%	32.12%	32.10%	541.6	173.9

2026	14.11%	32.13%	32.12%	556.5	178.8
2027	14.11%	32.13%	32.13%	571.8	183.7
2028	14.11%	32.13%	32.13%	587.5	188.8
2029	14.12%	32.14%	32.13%	603.7	194
2030	14.12%	32.14%	32.14%	620.3	199.4
2031	14.12%	32.14%	32.14%	637.4	204.8
2032	14.13%	32.15%	32.14%	654.9	210.5
2033	14.13%	32.14%	32.15%	672.9	216.3
2034	14.13%	32.14%	32.14%	691.4	222.2
2035	14.14%	32.14%	32.14%	710.4	228.3
2036	14.14%	32.14%	32.14%	730	234.6
2037	14.14%	32.13%	32.14%	750.1	241.1
2038	14.15%	32.14%	32.13%	770.7	247.6
2039	14.15%	32.13%	32.14%	791.9	254.5
2040	14.15%	32.13%	32.13%	813.6	261.5
2041	14.16%	32.13%	32.13%	836	268.6
2042	14.16%	32.13%	32.13%	859	276
2043	14.16%	32.13%	32.13%	882.6	283.6
2044	14.17%	32.13%	32.13%	906.9	291.4
2045	14.17%	32.13%	32.13%	931.9	299.4
2046	14.17%	14.17%	32.13%	957.5	307.7
2047	14.18%	14.18%	14.17%	983.8	139.4

Corridor Projection Results for HMEPS

Valuation as of July 1,	Normal Cost/Employer Contribution Rate for Fiscal year Following Valuation Date	Employer Contribution Rate for Fiscal Year	Comp (in Millions)	Legacy Liability Contributions (in Millions)	Employer Contributions (in Millions)
2016	8.17%	29.36%	613.8		180.2
2017	8.21%	8.17%	630.7	124	175.5
2018	8.25%	8.21%	648	127.4	180.6
2019	8.29%	8.25%	665.8	130.9	185.8
2020	8.34%	8.29%	684.1	134.5	191.3
2021	8.37%	8.34%	702.9	138.2	196.9
2022	8.41%	8.37%	722.3	142	202.4
2023	8.44%	8.41%	742.1	145.9	208.4
2024	8.47%	8.44%	762.5	149.9	214.2
2025	8.50%	8.47%	783.5	154.1	220.4
2026	8.52%	8.50%	805.1	158.3	226.8
2027	8.54%	8.52%	827.2	162.7	233.1

2028	8.56%	8.54%	849.9	167.1	239.6
2029	8.58%	8.56%	873.3	171.7	246.4
2030	8.60%	8.58%	897.3	176.4	253.3
2031	8.62%	8.60%	922	181.3	260.5
2032	8.63%	8.62%	947.4	186.3	267.9
2033	8.64%	8.63%	973.4	191.4	275.4
2034	8.64%	8.64%	1,000.20	196.7	283.1
2035	8.65%	8.64%	1,027.70	202.1	290.8
2036	8.65%	8.65%	1,056.00	207.6	299
2037	8.66%	8.65%	1,085.00	213.3	307.1
2038	8.66%	8.66%	1,114.80	219.2	315.8
2039	8.67%	8.66%	1,145.50	225.2	324.5
2040	8.67%	8.67%	1,177.00	231.4	333.5
2041	8.68%	8.67%	1,209.40	237.8	342.6
2042	8.68%	8.68%	1,242.60	244.3	352.1
2043	8.69%	8.68%	1,276.80	251.1	361.9
2044	8.69%	8.69%	1,311.90	258	372
2045	8.70%	8.69%	1,348.00	265.1	382.2
2046	8.70%	8.70%	1,385.00	272.3	392.9
2047	8.71%	8.70%	1,423.10	-	123.9

Actuarial Assumptions and Methods

The PRB actuaries have noted in their review that the non-prescribed assumptions and methods used in the three actuarial analyses are reasonable. The bill mandates the use of the Ultimate Entry Age Normal (UEAN) cost method and a 7.00% assumed rate of investment return, rather than what the systems used in the most recently published actuarial valuations.

The Entry Age Normal (EAN) level percent of payroll cost method is a mathematical construct designed to spread the costs of a participant's total benefit as a level amount over their entire career. This is done by calculating an annual amount that will remain relatively constant when expressed as a percentage of pay, and be sufficient to fully fund the anticipated benefits when the participant separates service. This results in a relatively stable normal cost contribution requirement from year to year.

The PRB actuarial review further states that the UEAN cost method is a variation of the Entry Age Normal (EAN) cost method. The UEAN cost method calculates the total anticipated benefits, or Present Value of Future Benefits (PVFB), based on a member's actual benefit provisions, but calculates the future accruals or Present Value of Future Normal Costs (PVFFNC) using the benefit provisions for new hires. The Actuarial Accrued Liability (AAL) is the difference between the PVFB and PVFNC. The purpose of this approach is to produce a stable normal cost calculation over the anticipated careers of the entire population, not just over the individual participant's career. When comparing results between these two variations, the UEAN cost method will result in a higher AAL than EAN. However, this is offset by lower expected future normal costs. Both cost methods converge to the same

values at the time the participant is expected to separate service.

The following tables show the changes to assumptions and methods for each system.

Summary of Changes in Assumptions for HFRRF

(Prepared by RHI at the Request of the City)

	July 1, 2015 Val	Baseline	If Bill Enacted
Cost Method	Individual EAN	Ultimate EAN	Ultimate EAN
Discount Rate	8.50%	7.00%	7.00%
Inflation	3.00%	2.75%	2.75%
Payroll Growth	3.00%	2.75%	2.75%
Individual Pay Increase Rate	Nominal rate = Real rate inflation. No changes were made to the real rate so all nominal rates decreased in accordance with the change in inflation.		
Cost of Living Adjustment	3.00%	3.00%	2.00%
DROP Interest Crediting Rate	8.50%	7.00%	4.75%
DROP Duration	5% 3 years 30% 8 years 65% 10 years	9 years	9 years
Payment of DROP balances	Unknown	Installments over 15 years for active members and 10 years for inactive members.	A factor of 0.8654 was applied to active DROP balances and a factor of 0.9105 was applied to inactive DROP balances to account for the 4.75% DROP interest crediting rate.
Development of Valuation Pay	Valuation pay is projected by increasing the prior year's pay with the nominal individual pay increase rate.	Historical valuation pay was regressed with the nominal individual pay increase rate.	Based on input from the City of Houston and the HFRRF actuary, the valuation pay was reduced 9% for future years to account for the removal of overtime.
Load of Nature of Average Monthly Salaries	5% load applied to active liabilities and normal cost for differences between the definition of avg monthly salary (average of the highest 78 pay periods), and the average of the final 78 pay		5% load was removed for members with under 20 years of service.

periods.

Summary of Changes in Assumptions for HPOPS

	July 1, 2016 Val	Baseline	If Bill Enacted
Cost Method	PUC	Individual EAN	Ultimate EAN
Discount Rate	8.00%	7.00%	7.00%
Payroll Growth	3.00%	2.75%	2.75%
Ultimate Salary Increase Rate	2.00%	2.75%	2.75%
Cost of Living Adjustment	2.70%	2.70%	2.00%
DROP Interest Crediting Rate	6.40%	6.40%	5.10%
Retirement Rates	See age/service table in valuation	For members hired after October 9, 2004, 3% per year the member's first retirement eligibility exceeds 45 is added to the retirement rate at first eligibility up to a maximum increase of 30% at age 55. For members in DROP as of July 1, 2016, retirement rates are multiplied by 110% to reflect that future employee contributions are no longer credited to the DROP balance.	

Summary of Changes in Assumptions for HMEPS

	July 1, 2015 Val	Baseline	If Bill Enacted
Discount Rate	8.00%	7.00%	7.00%
Inflation	2.50%	2.25%	2.25%
Payroll Growth	3.00%	2.75%	2.75%
Ultimate Salary Increase Rate	3.25%	3.00%	3.00%
Cost of Living Adjustment	Pre-2005 hires: 3.00% Post-2004 hires: 2.00%	Pre-2005 hires: 3.00% Post-2004 hires: 2.00%	1.00%

DROP Interest Crediting Rate	4.65%	4.65%	4.00%

SYNOPSIS OF PROVISIONS

CSHB 43 would amend and add sections to Title 109, Revised Civil Statutes, Articles 6243e.2(1), 6243g-4, and 6243h to reduce benefits (summarized in tables below), increase employee contributions (summarized in tables below), outline funding policies, codify certain actuarial assumptions and methods for purposes of valuing benefits, and detail an approach to making modifications to the assumptions, methods and benefits under certain economic scenarios with the intent of minimizing the volatility of future contributions requirements for the affected retirement systems. The bill would also require the city to make contributions as outlined by the risk sharing sections.

Risk Sharing Corridor

The bill would set baseline assumptions in statute to implement the risk sharing corridor. The corridor sets a minimum and maximum city contribution rate. In a falling-cost environment, gains are used to accelerate the payoff of unfunded liabilities or reduce the interest rate. In arising-cost environment, adjustments are made to the amortization period,employee contributions, or benefits to reduce the city contribution rate.

Additional Reporting Requirements

The bill would add reporting requirements for the three systems, including the requirement to conduct actuarial experience studies at least once every four years with the first experience study for HFRRF and HPOPS published no later than September 30, 2020, the first study published for HMEPS no later than September 30, 2021. The systems must also contract with an investment consultant to perform an audit on investments at least once every three years.

Delivery of POBs

The bill would allow HPOPS and HMEPS to rescind,prospectively, any or all benefit changes made effective under the bill, or to reestablish the deadline of the delivery of the POB proceeds, if the city fails to deliver the proceeds of pension obligation bonds before January 2, 2018.

Effective Date

Except as otherwise provided by the Act, the Act takes effect July 1, 2017 if it receives a vote of two-thirds of all the members elected to each house, or September 1, 2017.

Summary of Plan Benefit Changes for HFRRF

Employee Contributions

Current	9.00%
Proposed	10.50%

Final Average Salary

Current	Highest 78 pay periods of salary
Proposed	Final 78 pay periods of salary, excluding overtime

Retirement Benefit

Eligibility

Current	20 Years of Service
Proposed	Hired before effective date: 20 Years of Service Hired on or after effective date: Rule of 70

Amount

Current	Final Average Salary x [Years of Service (20 max) x 2.5% Years of Service (>20) x 3.0%; 80% max]
Proposed	Hired before effective date: Accrued benefit as of the effective date Final Average Salary x [Years of Service after effective date (20 max) x 2.75% per year Years of Service after effective date (>20) x 2.0%] Hired on or after effective date: Final Average Salary x [Years of Service (20 max) x 2.25% Years of Service (>20) x 2,0%; 80% max]

Termination Benefit

Current	Terminate with at least 10 years of service but less than 20 years of service, choice of: Refund of employee contributions with 5% interest or Final Average Salary x 1.7% x Years of Service, payable at age 50
Proposed	Members hired before the effective date will not receive interest on employee contributions made after the effective date when requesting a refund of contributions Members hired after the effective date receive a refund of employee contributions without interest only

Cost of Living Adjustment (COLA)

Current	3.0% compounded, beginning at age 48
Proposed	Simple crediting rate of 100% of the 5 year smoothed return minus 5.00%%, not

less than 0% or greater than 4%, beginning at age 55 with a 3 year freeze on COLAs for members under 70 years of age.

Deferred Retirement Option Plan (DROP)

Current

Eligibility is 20 Years of Service

Interest credited is 100% of the 5 year average investment return, not less than 5.0% or greater than 10.0%

COLA credited to account

Member contributions credited to account for 10 years

Participation limited to 13 years (RHI actuarial analysis does not mention this maximum participation period, but assumes DROP participation of no more than 9 years, so the maximum has no effect)

Retirement annuity is increased upon exit by 2% per year of DROP participation up to a maximum of 20%

Proposed

Must be hired prior to effective date

Eligibility is 20 years of Service or age 55 and 10 years of Service

Interest credited is 65% of the 5 year compounded average investment return, no less than 2.5%

COLA and member contributions not credited to account after effective date

Participation limited to 13 years (The actuarial analysis does not mention this maximum participation period, but assumed DROP participation of no more than 9 years, so the maximum has no effect.)

Retirement annuity is increased upon exit by 2% per year of DROP participation up to a maximum of 20% as long as accrued at least 20 years of service as of the effective date (The RHI actuarial analysis assumes members must be current DROP participants to receive this increase.)

Post Retirement Option Plan (PROP)

Current	Up to 100% of DROP account, $5,000 Lump Sum payment, and/or a portion of monthly annuity may be deposited and earn the same interest credit as DROP accounts
Proposed	No new funds may be added to PROP accounts

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Summary of Plan Benefit Changes for HPOPS

Employee Contributions

Current	If sworn prior to October 9, 2004	9.00%
	If sworn after October 9, 2004	10.20%
Proposed	All	10.50%

Retirement Benefit

Eligibility (if sworn after October 9, 2004)

Current	Age 55 with 10 Years of Service
Proposed	Rule of 70

Termination Benefit (if sworn after October 9, 2004) (The actuarial analysis does not include this change.)

Eligibility

Current	None
Proposed	10 Years of Service, payable at Normal Retirement Age

Amount

Current	None, refund of employee contributions (without interest) only
Proposed	Monthly annuity payable at age 60 equal to Years of Service x 2.25% x Final Average Salary or refund of employee contributions (without interest)

Cost of Living Adjustment (COLA)

Current	Simple crediting rate of 80% increase in CPI-U, not less than 2.4% or greater than 8.0%
Proposed	Simple crediting rate of 100% of the 5 year smoothed return minus 5.00%, not less than 0% or greater than 4%

Must be 70 years of age or older as of April 1 of the fiscal years ending June 30, 2018, 2019 and 2020 and 55 years of age or older for fiscal years ending on or

after June 30, 2021

Deferred Retirement Option Plan (DROP) (if sworn prior to October 9, 2004)

Current	Eligibility is 20 Years of Service
	Interest credited is 100% of the 5 year average investment return, not less than 3.0% or greater than 7.0%
	COLA credited to account
	8.75% of member contributions are credited to account
	No maximum participation period
	Retirement annuity is recalculated upon exit as the greater of annuity credited to DROP immediately prior to DROP exit (i.e. including COLA) or using service at DROP entry and Final Average salary at DROP exit
Proposed	No entry after June 30, 2027
	Interest credited is 65% of the 5 year compounded average investment return, no less than 2.5%
	COLAs occurring after effective date not credited to account
	Member contributions not credited to account
	Participation limited to 20 years
	No recalculation of annuity at DROP exit

Post Retirement Option Plan (PROP) (if sworn prior to October 9, 2004)

Current	Up to 100% of DROP account, $5,000 Lump Sum payment, and/or a portion of monthly annuity may be deposited and earn the same interest credit as DROP

accounts

Proposed No new funds may be added to PROP accounts

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Summary of Plan Benefit Changes for HMEPS

Employee Contributions

Current Group A: 5.00%

Group B: 0.00%

Group D: 0.00%

Proposed Group A: 7.00% for FYE 2018; 8.00% thereafter

Group B: 2.00% for FYE 2018; 4.00% thereafter

Group D: 3.00% (2.00% for service benefit; 1.00% for cash balance benefit)

Post-Retirement Survivor Benefit (Groups A &B)

Proposed Group D: Cash Balance Benefit equal to 1.00% employee contributions credited with the DROP interest crediting rate.

Post-Retirement Survivor Benefit (Groups A &B)

Current 100% Joint & Survivor, no actuarial reduction

Proposed 80% Joint & Survivor, no actuarial reduction

Cost of Living Adjustment (COLA)

Current Group A/B: 3.0% not compounded, if hired before 2005; 2.0% not compounded, if hired after 2004.

Group D: 0%

Proposed 50% of the rolling 5 year net investment return minus 2.00% less than the assumed rate of return (currently 5.00%), not less than 0.00% or greater than 2.00%

Deferred Retirement Option Plan (DROP) (Groups A & B)

Current Interest credited is 50% of the prior year investment return, not less than 2.5% or greater than 7.5%

COLA credited to account

Proposed Interest credited is 50% of the rolling 5 year net investment return, not less than 2.5% or greater than 7.5%

COLA credited on or after 62 years of age

FINDINGS AND CONCLUSIONS

Given that the bill provisions for the three retirement systems would strengthen the funding policy and reduce current liabilities, it would increase the long-term funding security for all members of the affected retirement systems. The bill would impact all current and future active members because it would increase the employee contributions for all three affected systems. In addition, certain classes of active and inactive members would be impacted by changes in plan provisions.

The PRB actuarial review states that each of the affected retirement systems use different actuarial methods and assumptions to determine the annual required contribution. The bill mandates the use of the Ultimate Entry Age Normal cost method and a 7.00% assumed rate of investment return for purposes of determining the annual required contributions. The baseline scenarios in all 3 analyses use an assumed rate of return on assets of 7.00%. The baseline scenario of the HFRRF analysis and the HPOPS analysis use the Individual Entry Age Normal cost method, while HMEPS uses the Ultimate Entry Age Normal cost method.

The bill also requires the starting Actuarial Value of Assets be marked-to-market and recognize the discounted value of the proceeds for the anticipated POBs. The analyses use the market value of assets. In addition, the analysis for HPOPS includes the discounted value of the POBs in the baseline scenario, while the HMEPS analysis does not. No POB proceeds are anticipated for HFRRF.

There are additional considerations to note for the HFRRF actuarial analysis. The HFRRF analysis prepared by RHI relies on grouped census data for retirees, disabled members, beneficiaries, and members with deferred benefits, as well as aggregate DROP balances for inactive members as of from the July 1, 2015, provided by the HFRRF actuary. RHI also did not receive a formal actuarial communication from the HFRRF actuary to confirm the plan provisions or actuarial assumptions and methods being used. Given these issues,the actual costs and savings could be materially different from the results provided in the actuarial analysis provided by the City.

Based on the benefit provisions as provided in the three analyses, the establishment of the Baseline scenarios, and assuming the issues raised specifically with the HFRRF analysis prepared by RHI would not result in a material difference in results, the actuarial analyses prepared by GRS and RHI provide a reasonable estimate of the changes due to the bill.

GASB EFFECTS

All three actuarial analyses include data showing impact on accounting information. The passage of CSHB 43 with the assumption and benefit changes (lower discount rate, strengthened funding policy, employee contribution increases, and benefit reductions) is likely to have a positive impact on the retirement systems and the City under the Governmental Accounting Standards Board (GASB) reporting standards (GASB 67 & 68).

Houston Firefighters' Relief & Retirement Fund **(Prepared by RHI at the Request of the City)**	**Baseline**	**If Bill Enacted**

($ amount in 000s)		
Total Pension Liability (TPL)	$5,317,821	$4,164,952
Plan Fiduciary Net Position (FNP)	$3,729,670	$3,729,670
Net Pension Liability (NPL)	$1,588,151	$435,282

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Houston Police Officer's Pension System **($ amount in 000s)**	**Baseline**	**If Bill Enacted**
Total Pension Liability (TPL)	$7,400,000	$6,394,000
Plan Fiduciary Net Position (FNP)	$4,080,000	$4,080,000
Net Pension Liability (NPL)	$3,320,000	$2,314,000

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Houston Municipal Employees Pension System **($ amount in 000s)**	**Baseline**	**If Bill Enacted**
Total Pension Liability (TPL)	$5,584,635	$4,859,952
Plan Fiduciary Net Position (FNP)	$2,400,023	$2,400,023
Net Pension Liability (NPL)	$3,184,612	$2,459,929

METHODOLOGY AND STANDARDS

According to the PRB actuaries, to the best of their knowledge, no material biases exist with respect to the data, methods or assumptions used to develop the analyses other than those specifically identified above and in the actuarial review. The PRB did not audit the information provided but has reviewed the information for reasonableness and consistency with other information provided by or for the affected retirement systems. The PRB is not responsible for the accuracy or completeness of the information provided to the agency. All actuarial projections have a degree of uncertainty because they are based on the probability of occurrence of future contingent events. Accordingly, actual results will be different from the results contained in the analysis to the extent actual future experience varies from the experience implied by the assumptions. This analysis is based on the assumption that no other legislative changes affecting the funding or benefits of HFRRF, HPOPS, or HMEPS will be adopted. It should be noted that when several proposals are adopted, the effect of each may be compounded, resulting in a cost that is greater (or less) than the sum of each proposal considered independently.

SOURCES

City of Houston Cost Analysis for HFRRF by David A Sawyer, FSA, EA, MAAA; and Carly A. Nichols, FSA, EA, MAAA, Retirement Horizons Incorporated, March 15, 2017.

HPOPS Actuarial Analysis by Mark R. Randall, FCA, MAAA, EA; and Joseph P. Newton, FSA, EA, MAAA,

Gabriel Roeder Smith & Company, April 4, 2017.

HMEPS Actuarial Analysis by Lewis Ward; and Joseph P.Newton, FSA, EA, MAAA, Gabriel Roeder Smith & Company, February 17, 2017.

Actuarial Review by Robert M. May, FSA, EA, MAAA, Board Actuary; and Kenneth J. Herbold, ASA, EA, MAAA, Staff Actuary, Pension Review Board, April 7, 2017.

GLOSSARY

Actuarial Accrued Liability(AAL) -The portion of the PVFB that is attributed to past service.

Actuarial Value of Assets (AVA)- The smoothed value of system's assets.

Amortization Payments - The yearly payments made to reduce the Unfunded Actuarial Accrued Liability (UAAL).

Amortization Period - The number of years required to pay off the unfunded actuarial accrued liability. The State Pension Review Board recommends that funding should be adequate to amortize the UAAL over a period which should not exceed 40 years, with 15-25 years being a more preferable target. An amortization period of 0-15 years is also a more preferable target.

Actuarial Cost Method - A method used by actuaries to divide the Present Value of Future Benefits (PVFB) into the Actuarial Accrued Liability (AAL), the Present Value of Future Normal Costs (PVFNC), and the Normal Cost (NC).

Funded Ratio (FR) - The ratio of actuarial assets to the actuarial accrued liabilities.

Net Pension Liability (NPL) - The liability of employers and non-employer contributing entities for pension benefits shown on the entity's balance sheet for FYE 6/30/2015 and later. The NPL equals the TPL minus the market value of plan assets. (If plan assets exceed the TPL, there is a Net Pension Asset.)

Total Pension Liability (TPL) - The portion of the actuarial present value of projected benefit payments attributed to past periods of employee service under the Entry Age Normal valuation method.

Discount Rate - A single rate used to discount and calculate the TPL which is equivalent to discounting future payments reflected in the TPL at the long-term expected rate of return until plan assets are projected to be exhausted, and discounting at the municipal bond rate for subsequent payments reflected in the TPL.

Market Value of Assets (MVA) -The fair market value of the system's assets.

Normal Cost (NC) - The portion of the PVFB that is attributed to the current year of service.

Present Value of Future Benefits (PVFB) - The present value of all benefits expected to be paid from the plan to current plan participants.

Present Value of Future Normal Costs (PVFNC) - The portion of the PVFB that will be attributed to future years of service.

Unfunded Actuarial Accrued Liability (UAAL) - The Actuarial Accrued Liability (AAL) less the Actuarial Value of Assets (AVA).

Source Agencies: 338 Pension Review Board

LBB Staff: UP, KFa