

**RETIREMENT PLAN FOR THE CITY OF IRVING
SUPPLEMENTAL BENEFIT PLAN
ACTUARIAL VALUATION REPORT
FOR THE YEAR BEGINNING JANUARY 1, 2013**

May 20, 2013

Administrative Board
Supplemental Benefit Plan
City of Irving
825 West Irving Boulevard
Irving, TX 75060

Dear Members of the Board:

Subject: Actuarial Valuation as of January 1, 2013

We take pleasure in presenting you with the report of the actuarial valuation of the City of Irving Supplemental Benefit Plan (the Plan) as of January 1, 2013. The results of this valuation are based upon employee data provided by your data processing staff, financial information provided by your bank trustee, and the actuarial assumptions and methods described in the report.

Assumptions and Methods

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. The demographic assumptions and the rates of salary increase were changed last year to match the assumptions used by the Texas Municipal Retirement System (TMRS) in their valuation of the City of Irving TMRS liabilities. We believe the assumptions are internally consistent and are reasonable, based on past and anticipated future experience of the Plan.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations are intended to provide information for rational decision making. The actuarial assumptions and methods used in this report comply with the parameters for disclosure that appear in GASB 25.

Plan Provisions

The principle benefit provisions of the Plan are amended periodically by the City Council. The provisions have not changed since the prior valuation.

Actuarial Certification

We certify that the information presented in the January 1, 2013 actuarial valuation report of the City of Irving Supplemental Benefit Plan is accurate and fairly portrays the actuarial position of the plan as of January 1, 2013.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Texas state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

The undersigned are independent actuaries and consultants. Mr. Falls is an Enrolled Actuary and Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries. Both are experienced in performing valuations for large public retirement systems.

We would like to thank the members of the City of Irving Staff and the Human Resources Department for their assistance. Without such assistance, this study could not have been completed.

We look forward to presenting the results to you.

Sincerely,



Lewis Ward
Consultant



R. Ryan Falls FSA, EA, MAAA
Senior Consultant

Enclosure

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BACKGROUND

Effective March 1, 1984, the City of Irving established the City of Irving Supplemental Benefit Plan (SBP or “the Plan”) in order to provide death, disability and retirement benefits to its employees in conjunction with the Texas Municipal Retirement System (TMRS). The plan contains substantial death and disability benefits. In addition, there are modest retirement benefits to supplement those of TMRS. The actuarial demographic assumptions (rates of withdrawal, disability, retirement, etc.) reflect the current assumptions used by TMRS.

In establishing this plan, the City Council has set a maximum employer contribution level which could be provided to support the benefits of this plan. Council Resolution #12-16-82-582, enacted December 13, 1982 provides, in part, that the contribution to the Supplemental Benefit Plan shall not exceed the Social Security Tax which would otherwise be payable with respect to covered employees plus 3.69% of the salaries of such employees, less the City's contribution to the Texas Municipal Retirement System. The City contributed 2.17% of the salaries of those covered under the plan since its inception on March 1, 1984 through the 1989 plan year. Beginning in 1990, the City began to annually adjust its contribution rate to correspond to increases in the Texas Municipal Retirement System contribution. With the decrease in the City’s TMRS contribution rate, the City has once again begun contributing to the SBP. The City will make a contribution of 1.49% of pay during the 2013 calendar year. The table below shows the City's contribution rate for each year since 1990.

<u>Year</u>	<u>City's Contribution Rate</u>
1990	1.85%
1991	1.33%
1992	1.26%
1993	1.41%
1994	0.99%
1995-2011	0.00%
2012	1.42%
2013	1.49%

The purpose of this actuarial valuation, performed as of January 1, 2013, is to determine whether or not the current contribution rate (1.49% by the City and 2.50% by the employees) is sufficient to support the benefits of the Plan.

Like most pension plans, the SBP's assets outperformed the Plan's assumed rate of return during 2012. The 2012 performance partially offsets the underperformance of 2011. The SBP recognizes the final portion of the 2008 deferred investment losses with this valuation. As a result, the SPB continues to be in an underfunded position. With the increase in the City's contribution rate to 1.49% of pay beginning January 1, 2013, the combined City and member rate of 3.99% (1.49% City and 2.50% member) is sufficient to pay required to pay the Plan's normal cost and amortize its unfunded liability over a period not greater than 30 years (assuming all actuarial assumptions are met), or 3.97%.

Therefore, we find that the current contribution rate is sufficient to support the benefits promised under the Plan. (Section III will provide more information about the projected funding status of the Plan.) In the remainder of the report, we will provide the actuarial valuation results which support this statement. In addition we will describe the actuarial methods, assumptions and techniques utilized in developing the results of this valuation.

The Governmental Accounting Standards Board (GASB) has issued Statement No. 25 which provides the manner for the disclosure of the actuarial funding condition of a public sector retirement plan. The Supplemental Benefit Plan was required to comply with GASB No. 25 beginning with the January 1, 1997 valuation. Compliance with GASB No. 25 mandated a change in the determination of the actuarial value of assets. Prior to the 1997 valuation, the plan used the book value as the actuarial value of assets. However, under GASB No. 25 the plan is required to use an actuarial value based on the market value of assets. A description of the method for determining the actuarial value of assets may be found in Appendix 1.

The required Schedule of Funding Progress is shown in Table 7a. Table 7b is the Schedule of Employer Contributions required by GASB No. 25. Table 7c provides notes to the Required Supplementary Information.

Assets used for GASB No. 25 disclosure are based on actuarial value. Plan liabilities are based on the funding method used for determining plan liabilities for valuation purposes, as required by GASB No. 25. The valuation determines the GASB No. 25 Annual Required Contribution for the fiscal year that begins nine months after the valuation date. Therefore, this valuation determines the ARC for the fiscal year beginning October 1, 2013.

ACTUARIAL BASIS OF THE VALUATION

In developing any actuarial valuation, choices must be made relative to actuarial assumptions and methods used in that valuation. These items, plus the employee information and financial information, constitute the basis underlying the actuarial results which will be discussed further in this report. TMRS adopted new demographic assumptions for the valuation of the City of Irving TMRS benefits effective December 31, 2010. After discussions with its actuary, the Board of Trustees elected to adopt these new demographic assumptions effective with the prior SBP valuation. The Board still sets the investment return assumption based on its the investment return expectation of the Supplemental Benefit Plan asset allocation.

The actuarial valuation method used is known as the Projected Unit Credit Method. This method establishes actuarial accrued liabilities and contribution levels based on benefits earned to date. Simply said, it is assumed under this method that the benefits that people will receive at retirement date are uniformly earned over their working lifetimes. For example, a person who is expected to have 30 years of service at retirement would, under this method, earn 1/30th of his or her ultimate benefit each year.

As a result, the Normal Cost under this method is the contribution that would be sufficient to purchase this year's piece of benefit. The Actuarial Accrued Liability under this method is the Actuarial Present Value of all pieces of benefit earned to date. For example, if that same individual who is expected to have 30 years of service at retirement today has 10 years of service, the Actuarial Accrued Liability would be 10/30ths of the actuarial present value of the benefit expected at retirement. It is expected that sufficient assets will be accumulated over an individual's working lifetime so that the liability for the benefit will be entirely covered by the time the member retires.

The actuarial value of assets is determined using a method that starts with the market value of assets and is modified by the "Excess (Shortfall)" between expected investment return and actual income. Only 20% of this Excess (Shortfall) is recognized in the valuation immediately following the year in which the Excess (Shortfall) occurs. The remaining 80% of the Excess (Shortfall) is deferred until future valuations, with an additional 20% recognized in each subsequent valuation until 100% of the difference is recognized by the fifth year.

RESULTS OF THE ACTUARIAL VALUATION

The purpose of this section is to summarize and interpret the results of this actuarial valuation. Table 1 on Page 6 summarizes these results as of January 1, 2013.

The first major area in this table is a breakdown of the actuarial present values of benefits by the three benefit types.

1. Actuarial present value of all future benefits - this is the value, as of the valuation date, of all benefits estimated to be paid over future years under the Plan to current members of the Plan. Thus, this actuarial present value incorporates projections of pay and service to a retirement date, a date of disability, etc. This value represents the value, with which the fund with interest on those dollars, would pay all estimated benefits. Said another way, if the assets in the fund equal or exceed this value, theoretically, there would never need to be another contribution for current members of the Plan.
2. Actuarial present value of future benefits accrued to date (AAL) - this is the portion of the actuarial present value of all future benefits which is attributed to years of service prior to the valuation date. It is this item which, under the actuarial cost method, equals the Actuarial Accrued Liability (AAL). It is the unfunded portion of this item which is called the Unfunded Actuarial Accrued Liability (UAAL) and which will be amortized over a fixed period of years. From Table 1, it is clear that the actuarial value of assets is less than the AAL. Thus, the Plan is underfunded.

In addition, the actuarial valuations present the funded ratio. It is the ratio of the actuarial value of assets of the fund to the actuarial accrued liability, which is a measure of the funded status. As may be seen in Table 1, the funded ratio is 76.3%. A ratio less than 100% means that the assets in the Plan as of the valuation date (as measured by the value of actuarial assets as opposed to the market value of those assets) are less than the targeted levels based on the benefits earned to the valuation date.

3. Normal cost - this is the amount by which the AAL is expected to increase during the 2013 plan year. In other words, if actual experience in the plan precisely tracks the actuarial assumptions of the plan, the AAL plus the normal cost plus interest on both of those items to the end of 2013 should be equal to the AAL at the end of 2013.

As stated previously, the Plan is underfunded. The total normal cost of the plan (3.11% as shown on Table 3) currently exceeds the 2.50% of pay being contributed by the employees; the City contribution of 1.49% will be used to fund the remaining 0.61% of the normal cost. The excess City contribution of 0.88% (1.49% minus 0.61%) will fund the unfunded liabilities of the Plan over 29.1 years.

For GASB No. 25 purposes, the Annual Required Contribution (ARC) for the Plan cannot use a funding period that exceeds thirty years. If we amortize the unfunded liabilities of the Plan over a 30-year period, the resulting total contribution rate (employee plus employer) for the Plan is 3.97% of pay which is more than the 2.50% being contributed by the employees. The GASB ARC is the difference between the 30-year rate described above and the 2.50% of pay being contributed by the employees, or 1.47%.

The 29.1 year funding period mentioned above is based on the snapshot valuation measurement and assumes that all assumptions will be exactly met, including the 7.0% rate of return on the actuarial value of assets. As shown on Table 9a, the plan currently has approximately \$0.8 million in net deferred investment shortfalls to be recognized in future valuations. When the funding period is determined by the actuarial valuation these deferred net investment shortfalls are ignored. However, when we performed our projection, we assumed that the market value of assets would grow at 7.0% and that any deferred investment excesses or shortfalls would be recognized in future valuations. Since we are assuming a 7.0% return on the market value of assets, the recognition of these deferred net investment shortfalls results in actuarial losses which further increase the projected unfunded liability of the Plan and the ARC.

Table 5 shows a ten-year projection of selected actuarial information for the Plan. As shown on the table, the UAAL of the Plan is expected to increase over the next several years as the deferred shortfall in investment income is recognized. However, it must be remembered that these are estimates. Projections can differ dramatically from actual results if the Plan's experience is significantly different from the actuarial assumptions used in the projection

Although the Plan is underfunded, the 1.49% of pay being contributed by the City together with the 2.50% of pay being contributed by the employees is currently sufficient to cover the on-going costs of the Plan.

SUMMARY OF ACTUARIAL VALUATION RESULTS
As of January 1, 2013

1. Actuarial Present Value of Benefits

Benefit Type (1)	Actuarial Present Values of			
	All Future Benefits (2)	Future Benefits Accrued to Date (AAL) (3)	2013 Portion (Normal Cost) (4)	Normal Cost Rate (5)
Active Members				
Retirement	\$ 50,621,996	\$ 30,311,449	\$ 1,953,110	2.31%
Disability	\$ 3,817,631	\$ 2,239,966	285,868	0.34%
Death	\$ 1,128,232	\$ 675,694	48,040	0.06%
Vesting	\$ 3,121,643	\$ 1,937,242	282,403	0.33%
Refund	\$ 175,923	\$ 84,509	57,170	0.07%
Subtotal	<u>\$ 58,865,425</u>	<u>\$ 35,248,860</u>	<u>\$ 2,626,591</u>	<u>3.11%</u>
Terminated Members	2,828,553	\$ 2,828,553	0	0.00%
Retired Members	19,624,188	19,624,188	0	0.00%
	<u>\$ 81,318,166</u>	<u>\$ 57,701,601</u>	<u>\$ 2,626,591</u>	<u>3.11%</u>
2. Actuarial Value of Assets		\$ 44,045,091		
3. Unfunded Actuarial Accrued Liability (UAAL)		\$ 13,656,510		
4. 30-Year Funding Cost				
- Employee and City		\$ 3,358,422		
30-Year Funding Cost as Percentage of Pay		3.97%		
5. Funded Ratio				
- Current Valuation		76.3%		
- Prior Valuation		78.5%		
6. Funding Period to Amortize UAAL		29.1 years		

COMPARISON OF ACTUARIAL VALUES

	<u>January 1, 2013</u>	<u>January 1, 2012</u>
	(1)	(2)
1. Normal Cost Rate	3.11%	2.96%
2. Present Value of Accrued Benefits (AAL)	\$ 57,701,601	\$ 55,008,784
3. Value of Assets	\$ 44,045,091	\$ 43,157,892
4. Unfunded Actuarial Accrued Liability (UAAL)	\$ 13,656,510	\$ 11,850,892
5. 30-Year Funding Cost (Employee + City)	\$ 3,358,422	\$ 3,189,606
6. 30-Year Funding Cost as a Percentage of Payroll	3.97%	3.84%
7. Funded Ratio	76.3%	78.5%

EVALUATION OF CONTRIBUTION LEVEL
January 1, 2013

1. Actuarially Calculated 30-year Contribution Rate	
a. Normal Cost	3.11%
b. 30-year Amortization of UAAL	<u>0.86%</u>
c. TOTAL	<u><u>3.97%</u></u>
2. Current Contribution Rate	
a. Employee	2.50%
b. Total Employer Contribution Rate	<u>1.49%</u>
c. TOTAL	<u><u>3.99%</u></u>

**ACTUARIAL GAIN OR LOSS
As of December 31, 2012**

1.	Unfunded actuarial accrued liability (UAAL) as of December 31, 2011	\$ 11,850,892
2.	Normal Cost (NC) for year ending December 31, 2011	<u>\$ 2,461,347</u>
3.	Subtotal (1 + 2)	\$ 14,312,239
4.	Interest at prior valuation's rate of 7.0%	\$ 915,710
5.	Contributions during year ending Decemeber 31, 2012	\$ (3,342,519)
6.	Interest on contributions for one-half year	\$ (116,988)
7.	Expected UAAL as of December 31, 2012 (3 + 4 + 5 + 6)	\$ 11,768,442
8.	Actual UAAL as of December 31, 2012	\$ 13,656,510
9.	Actuarial gain/(loss) for the period (7 – 8)	\$ (1,888,068)

SOURCE OF GAINS AND LOSSES

10.	Asset gain/(loss) (See Table 9c)	(2,831,264)
11.	Total liability gain/(loss) (9 – 10)	943,196
12.	Gain/(loss) due to benefit enhancements	0
13.	Gain/(loss) due to retiree ad hoc increases	0
14.	Gain/(loss) due to assumption changes	0
15.	Liability Experience gain/(loss) (11 – 12 – 13 – 14)	943,196
16.	Liability Experience gain/(loss) by source	
	a) Salary increases	1,041,767
	b) New Hires	86,219
	c) Retirements	(481,093)
	d) Withdrawals	271,309
	e) Active mortality	(19,095)
	f) Disabilities	319,655
	g) Retiree mortality	(176,626)
	i) Other (data)	(98,940)

PROJECTION RESULTS
As of January 1, 2013

Valuation as of January 1,	Compensation	30 - Year Employer Contribution Rate	Funding Period*	UAAL	Funded Ratio
(1)	(2)	(3)	(4)	(5)	(6)
2013	\$ 84,495,156	1.47%	29.1 years	\$13,656,510	76.3%
2014	86,532,367	1.50%	30.6 years	13,823,571	77.7%
2015	88,807,835	1.55%	34.0 years	14,496,773	78.2%
2016	91,212,003	1.60%	38.6 years	15,403,195	78.4%
2017	93,695,897	1.61%	39.3 years	15,564,609	79.5%
2018	96,254,611	1.62%	40.6 years	15,897,201	80.3%
2019	98,869,179	1.63%	41.6 years	16,248,268	81.1%
2020	101,497,058	1.64%	42.5 years	16,615,464	81.7%
2021	104,236,348	1.64%	43.0 years	16,998,460	82.2%
2022	107,104,186	1.64%	43.0 years	17,394,689	82.7%
2023	110,083,378	1.64%	43.0 years	17,800,300	83.1%
2024	113,241,732	1.63%	42.7 years	18,214,774	83.5%
2025	116,566,812	1.63%	41.8 years	18,636,219	83.8%
2026	120,005,423	1.62%	40.6 years	19,059,587	84.1%

* Based on the City of Irving contributing 1.49% of pay beginning January 1, 2013 and each year thereafter.

Note: The projection assumes that market value of assets will return the assumed 7% investment return assumption and that all other actuarial assumptions are exactly met. The projection also assumes that the active member population will remain constant, i.e. one new hire for each active member that terminates, dies, retires, or becomes disabled. Finally, the projection assumes that there will be no change in the City or employee contribution rates to the Plan (except as noted above).

SUMMARY OF CHARACTERISTICS OF COVERED GROUP

	<u>January 1, 2013</u>	<u>January 1, 2012</u>
	(1)	(2)
<u>1. Active Members</u>		
a. Vested Members	1,040	998
b. Non-vested Members	<u>314</u>	<u>339</u>
c. Total	1,354	1,337
d. Average Age	43.97	43.70
e. Average Service	12.25	12.03
f. Payroll	\$ 84,495,156	\$ 83,161,981
g. Average Annual Pay	\$ 62,404	\$ 62,200
<u>2. Benefit Recipients</u>		
a. Number	322	306
b. Total Annual Benefit	\$ 2,081,071	\$ 1,968,234
c. Average Annual Benefit	\$ 6,463	\$ 6,432

SCHEDULE OF FUNDING PROGRESS
(As required by GASB #25)

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (2) - (3)	Funded Ratio	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)	Funding Period
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-1-2000	\$30,445	\$23,676	(\$6,769)	128.60%	\$57,757	-11.7%	Forever*
1-1-2001	\$32,430	\$26,926	(\$5,503)	120.40%	\$62,184	-8.8%	63.0 years*
1-1-2002	\$34,603	\$30,751	(\$3,852)	112.50%	\$70,372	-5.5%	19.0 years*
1-1-2003	\$35,555	\$33,012	(\$2,543)	107.70%	\$69,893	-3.6%	10.0 years*
1-1-2004	\$36,344	\$34,231	(\$2,112)	106.20%	\$69,688	-3.0%	6.5 years*
1-1-2005	\$37,725	\$36,052	(\$1,673)	104.60%	\$70,840	-2.4%	4.3 years*
1-1-2006	\$39,672	\$37,486	(\$2,186)	105.83%	\$72,941	-3.0%	6.1 years*
1-1-2007	\$41,806	\$39,488	(\$2,318)	105.87%	\$74,353	-3.1%	6.3 years*
1-1-2008	\$44,705	\$41,138	(\$3,567)	108.67%	\$75,386	-4.7%	12.0 years*
1-1-2009	\$41,318	\$44,271	\$2,953	93.33%	\$79,727	3.7%	Infinite
1-1-2010	\$44,825	\$47,654	\$2,828	94.07%	\$81,662	3.5%	Infinite
1-1-2011**	\$44,288	\$52,195	\$7,907	84.85%	\$83,666	9.5%	Infinite
1-1-2012	\$43,158	\$55,009	\$11,851	78.46%	\$83,162	14.3%	25.3 years
1-1-2013	\$44,045	\$57,702	\$13,657	76.33%	\$84,495	16.2%	29.1 years

Note: Dollar amounts in thousands.

*Plan was fully funded. Funding period shown is the number of years to reduce surplus to zero.

**Change in actuarial assumptions effective January 1, 2011

SCHEDULE OF EMPLOYER CONTRIBUTIONS
 (as required by GASB #25)

Fiscal Year	Annual Required Contribution*	Percentage Contributed
(1)	(2)	(3)
2000	0.00%	100.00%
2001	0.00%	100.00%
2002	0.00%	100.00%
2003	0.00%	100.00%
2004	0.00%	100.00%
2005	0.00%	100.00%
2006	0.00%	100.00%
2007	0.00%	100.00%
2008	0.00%	100.00%
2009	0.00%	100.00%
2010	0.58%	0.00%
2011	0.59%	0.00%
2012	0.95%	0.00%
2013	1.34%	100.00%
2014	1.47%	N/A

* As a percentage of payroll.

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	January 1, 2013
Actuarial cost method	Projected Unit Credit
Amortization method	Level Percent of Pay, open
Payroll growth rate for amortization	3.00%
Remaining amortization period	30 years*
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return	7.00%
Projected salary increases	3.5%-12.0%
Includes inflation at	3.00%
Cost-of-living adjustments	none

* The Annual Required Contribution (ARC) is determined using a 30-year amortization period. Current contributions amortize the unfunded actuarial accrued liabilities of the Plan over 20 years.

SUMMARY OF FINANCIAL ACTIVITY

Type of Asset Value (1)	December 31, 2012 Market Value (2)	December 31, 2011 Market Value (2)
1. Assets at Beginning of Year	\$ 39,051,052	\$ 41,195,102
2. Contributions		
a. Employer Contributions	1,211,032	0
b. Employee Contributions	2,131,487	2,118,999
c. Total Contributions	3,342,519	2,118,999
3. Net Investment Return*	3,595,336	(882,770)
4. Disbursements		
a. Refunds and Lump Sums	(650,187)	(1,318,612)
b. Retiree Annuity Payments	(2,012,832)	(1,941,961)
c. Administrative Expenses	(92,710)	(119,706)
d. Total Disbursements	(2,755,729)	(3,380,279)
5. Assets at End of Year	\$ 43,233,178	\$ 39,051,052

* Net of investment expenses

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

Item (1)	Valuation as of January 1, 2013 (2)
1. Excess (shortfall) of investment income for current year and previous four years (see Table 9b):	
a. Current year	\$ 751,141
b. Current year - 1	(3,840,514)
c. Current year - 2	1,037,013
d. Current year - 3	2,383,392
e. Current year - 4	(13,049,968)
2. Deferral of excess (shortfall) of investment income for:	
a. Current year (80% deferral)	\$ 600,912
b. Current year - 1 (60% deferral)	(2,304,308)
c. Current year - 2 (40% deferral)	414,805
d. Current year - 3 (20% deferral)	476,678
e. Current year - 4 (0% deferral)	0
f. Total deferred for year	\$ (811,913)
3. Market value of plan assets, end of year	\$ 43,233,178
4. Preliminary actuarial value of plan assets, end of year (Item 3 - Item 2.f.)	\$ 44,045,091
5. Actuarial value of assets corridor	
a. 80% of market value of assets, end of year	\$ 34,586,542
b. 120% of market value of assets, end of year	\$ 51,879,814
6. Final actuarial value of plan assets, end of year (Item 4, but not less than Item 5.a., or greater than Item 5.b.)	\$ 44,045,091

CALCULATION OF EXCESS INVESTMENT INCOME FOR ACTUARIAL VALUE OF ASSETS

Item (1)	Plan Year Ending December 31,				
	2012 (2)	2011 (3)	2010 (4)	2009 (5)	2008 (6)
Net Investment Income (Table 8 Item 3 + Table 8 Item 4c)	3,502,626	(1,002,476)	3,705,050	4,777,419	(9,927,813)
Market value of assets, beginning of year	39,051,052	41,195,102	38,885,321	34,431,502	44,967,378
Contributions during year	3,342,519	2,118,999	2,217,705	2,329,772	2,150,164
Monthly benefits paid during year	(2,012,832)	(1,941,961)	(1,748,728)	(1,663,516)	(1,467,127)
Refunds and lump sums paid during year	(650,187)	(1,318,612)	(1,864,246)	(989,856)	(1,291,100)
Expected net investment income at 7%					
a. Market value of assets, beginning	2,733,574	2,883,657	2,721,972	2,410,205	3,147,716
b. Contributions	116,988	74,165	77,620	81,542	75,256
c. Benefits	(76,320)	(73,633)	(66,306)	(63,075)	(55,629)
d. Refunds	(22,757)	(46,151)	(65,249)	(34,645)	(45,189)
e. Total	2,751,485	2,838,038	2,668,037	2,394,027	3,122,155
Excess investment income for year (Item 1 - Item 6.e.)	\$ 751,141	\$(3,840,514)	\$ 1,037,013	\$ 2,383,392	\$ (13,049,968)

GAIN/(LOSS) ON ACTUARIAL VALUE OF ASSETS

Item (1)	Plan Year Ending	
	December 31, 2012 (2)	December 31, 2011 (2)
1. Actuarial assets, beginning of year	\$ 43,157,892	\$ 44,288,082
2. Contributions during year	\$ 3,342,519	\$ 2,118,999
3. Annuity benefits paid during year	\$ (2,012,832)	\$ (1,941,961)
4. Refunds and lump sums paid during year	\$ (650,187)	\$ (1,318,612)
5. Assumed net investment income at	7.00%	7.00%
a. Beginning of year assets	\$ 3,021,052	\$ 3,100,166
b. Contributions	116,988	74,165
c. Annuity benefits	(76,320)	(73,633)
d. Refunds and lump sums	(22,757)	(46,151)
e. Other	<u>0</u>	<u>0</u>
f. Total	\$ 3,038,963	\$ 3,054,547
6. Expected actuarial assets, end of year (Sum of Items 1 through 5)	\$ 46,876,355	\$ 46,201,055
7. Actuarial assets, end of year	\$ 44,045,091	\$ 43,157,892
8. Asset gain/(loss) (Item 7 - Item 6)	\$ (2,831,264)	\$ (3,043,163)

ESTIMATE OF YIELDS ON ASSETS

	Period Ending December 31, 2012	
	<u>Market Value</u>	<u>Actuarial Value</u>
	(1)	(2)
1. Assets in plan at beginning of year (A)	\$ 39,051,052	\$ 43,157,892
2. Employer contributions	1,211,032	1,211,032
3. Employee contributions	2,131,487	2,131,487
4. Annuity benefit payments made	(2,012,832)	(2,012,832)
5. Refunds of contributions and lump sums	(650,187)	(650,187)
6. Administrative expenses paid from trust	(\$92,710.38)	(\$92,710)
7. Investment return net of investment expenses	3,595,336	300,409
8. Other	<u>0</u>	<u>0</u>
9. Assets in plan at end of year (B) (1 + 2 + 3 + 4 + 5 + 6 + 7)	\$ 43,233,178	\$ 44,045,091
10. Approximate rate of return on average invested assets		
a. Net investment income (I) (6 + 7)	\$ 3,502,626	\$ 207,699
b. Estimated yield based on $(2I)/(A + B - I)$	8.89%	0.48%

HISTORICAL INVESTMENT RETURNS

<u>Calendar Year</u>	<u>On Market Value</u>	<u>On Actuarial Value</u>
1997	10.12%	8.30%
1998	6.85%	7.68%
1999	6.85%	8.64%
2000	0.23%	5.61%
2001	2.91%	5.01%
2002	-6.77%	1.68%
2003	11.57%	2.13%
2004	12.44%	3.86%
2005	5.23%	4.88%
2006	10.14%	6.63%
2007	5.46%	8.71%
2008	-22.23%	-3.27%
2009	13.94%	9.31%
2010	9.70%	1.94%
2011	-2.47%	0.03%
2012	8.89%	0.48%
Five-year Average Return	0.64%	1.61%
Ten-year Average Return	4.70%	3.40%

AGE AND SERVICE DISTRIBUTION
Distribution of Active Members by Age Groups and Service Groups as of January 1, 2013

Age Group	Completed Years of Service												Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.	No. & Avg. Comp.		
Under 25	16	10	4	5		1								36
	\$ 32,381	\$ 38,888	\$ 40,570	\$ 35,465		\$ 37,290								\$ 35,663
25 - 29	23	9	11	14	21	28	1							107
	\$ 42,546	\$ 48,312	\$ 50,432	\$ 49,008	\$ 64,290	\$ 52,446	\$ 49,268							\$ 51,608
30 - 34	13	10	7	9	21	67	34							161
	\$ 47,741	\$ 59,557	\$ 53,245	\$ 47,689	\$ 61,602	\$ 61,221	\$ 57,781							\$ 58,249
35 - 39	10	1	8	7	15	57	48	17						163
	\$ 51,412	\$ 31,558	\$ 60,158	\$ 49,411	\$ 61,898	\$ 59,542	\$ 64,982	\$ 64,656						\$ 60,819
40 - 44	7	3	2	6	13	46	76	38	22					213
	\$ 37,368	\$ 45,914	\$ 60,916	\$ 40,044	\$ 61,003	\$ 57,292	\$ 62,052	\$ 71,900	\$ 74,149					\$ 62,297
45 - 49	5		3	4	8	32	55	41	58	28				234
	\$ 43,598		\$ 31,255	\$ 40,016	\$ 57,983	\$ 64,999	\$ 61,726	\$ 72,188	\$ 85,086	\$ 77,052				\$ 70,353
50 - 54	9	3	2	4	7	33	40	24	34	43	18			217
	\$ 45,561	\$ 41,799	\$ 41,436	\$ 71,670	\$ 44,212	\$ 55,272	\$ 60,006	\$ 68,388	\$ 74,077	\$ 77,958	\$ 76,837			\$ 66,055
55 - 59	5	1		8	2	19	18	30	20	22	6	1		132
	\$ 53,118	\$ 40,633		\$ 48,393	\$ 62,186	\$ 51,001	\$ 57,682	\$ 67,155	\$ 67,041	\$ 69,596	\$ 79,758	\$ 61,230		\$ 62,511
60 - 64		1	1		2	16	14	6	9	9	3	1		62
		\$ 70,308	\$ 35,784		\$ 151,170	\$ 52,367	\$ 56,526	\$ 59,912	\$ 61,094	\$ 77,041	\$ 108,675	\$ 71,159		\$ 65,122
65 & Up	1			1	2	2	7	7	3	4	2			29
	\$ 167,508			\$ 56,045	\$ 79,644	\$ 58,542	\$ 57,706	\$ 71,582	\$ 84,142	\$ 67,934	\$ 56,806			\$ 70,438
Total	89	38	38	58	91	301	293	163	146	106	29	2		1,354
	\$ 44,428	\$ 48,024	\$ 50,138	\$ 47,737	\$ 62,908	\$ 58,023	\$ 61,016	\$ 69,372	\$ 76,904	\$ 75,527	\$ 79,353	\$ 66,194		\$ 62,404
	Average:	Age	43.97		Number of	Fully vested		1,040		Males	923			
		Service	12.25			Partially vested		0		Females	431			

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

I. Actuarial Assumptions

A. Assumed Rate of Investment Return – 7.0%, comprised of a 3.0% inflation rate and a 4.0% real return assumption (net of administrative and investment expenses).

B. Individual Salary Increases –

Salary increases are assumed to occur once a year, on January 1. Therefore, the pay used for the period year following the valuation date is equal to the reported pay for the prior year, increased by the salary increase assumption.

Years of Service	% Increase in Salary at Sample Ages		
	Service Based Rates	Sample Ages	Age Based Rates
0	12.00%	20	5.25%
1	9.00	25	5.25
2	7.00	30	5.25
3	7.00	35	5.00
4	6.00	40	4.50
5	6.00	45	4.50
6	5.50	50	4.00
7	5.50	55	4.00
8	5.50	60	3.75
9	5.50	65 & over	3.50

C. Mortality:

Pre-Retirement: Sample rates shown below:

Age	Deaths per Thousand	
	Males	Females
20	0.254	0.162
30	0.365	0.198
40	0.761	0.459
50	1.450	1.071
60	3.421	2.652

Post-Retirement (Healthy): RP-2000 Mortality Tables projected to 2003 for male and female employees. Sample rates shown below:

Age	Deaths per Thousand	
	Males	Females
40	1.05	0.68
50	2.03	1.59
60	6.43	4.98
70	21.22	16.49
80	62.46	44.92
90	181.22	130.50

Post-Retirement (Disabled): RP-2000 Mortality Tables for disabled annuitants for male and female annuitants multiplied by 80%. Sample rates shown below:

Age	Deaths per Thousand	
	Males	Females
40	18.06	5.96
50	23.18	9.23
60	33.63	17.47
70	50.07	30.11
80	87.50	57.85

The mortality assumptions are those used in the valuation of TMRS. To account for future mortality improvement, the healthy mortality rates were chosen so that the assumed mortality rates are smaller than the rates observed in the most recent experience study of TMRS (dated 5-20-2011). The margin at the time of the study for core ages was 10%-13% for non-disabled annuitants. No future mortality improvement after the measurement date is assumed except as described above.

**City of Irving Supplemental Benefit Plan
Actuarial Valuation - January 1, 2013**

**APPENDIX 1
STATEMENT OF ACTUARIAL
ASSUMPTIONS AND METHODS**

D. Disability – Sample rates follow:

Age	Disablements per Thousand	
	Males	Females
30	0.095	0.043
40	0.673	0.359
50	2.082	1.333
60	3.842	2.990

E. Retirement – Sample rates follow:

Age	Male Entry Age Groups			Female Entry Age Groups		
	Ages 32 & Under	Ages 33 - 47	Ages 48 & Over	Ages 32 & Under	Ages 33 - 47	Ages 48 & Over
40-49	0.06	-	-	0.06	-	-
50-52	0.08	-	-	0.08	-	-
53	0.08	0.10	-	0.08	0.10	-
54	0.08	0.10	-	0.11	0.10	-
55-59	0.14	0.10	-	0.11	0.10	-
60	0.20	0.15	0.10	0.14	0.15	0.10
61	0.25	0.30	0.20	0.28	0.26	0.20
62	0.32	0.25	0.12	0.28	0.17	0.12
63	0.32	0.23	0.12	0.28	0.17	0.12
64	0.32	0.35	0.20	0.28	0.22	0.20
65	0.32	0.32	0.20	0.28	0.27	0.20
66-69	0.22	0.22	0.17	0.22	0.22	0.17
70-74	0.20	0.22	0.25	0.22	0.22	0.25
75 and over	1.00	1.00	1.00	1.00	1.00	1.00

F. Termination Rates

1. For the first 10 years of service, the base table rates vary by gender, entry age, and length of service. The base table is multiplied by a factor of 77% (based on the experience of the City). A further multiplier is applied depending on an employee’s classification.

Category	Select Period	Ultimate Period
Police	92%	80%
General	105%	109%

A sample of the base rates follows:

Males

Age	Service									
	0	1	2	3	4	5	6	7	8	9
20	0.3298	0.2707	0.2229	0.1876	0.1620	0.1426	0.1249	0.1094	0.0979	0.0867
25	0.3123	0.2485	0.2020	0.1701	0.1479	0.1308	0.1152	0.1013	0.0906	0.0810
30	0.2930	0.2235	0.1775	0.1490	0.1305	0.1163	0.1033	0.0914	0.0818	0.0744
35	0.2778	0.2089	0.1632	0.1356	0.1186	0.1059	0.0946	0.0842	0.0757	0.0696
40	0.2641	0.1987	0.1538	0.1264	0.1099	0.0980	0.0880	0.0789	0.0713	0.0661
45	0.2506	0.1900	0.1470	0.1199	0.1035	0.0922	0.0832	0.0752	0.0685	0.0635
50	0.2364	0.1811	0.1410	0.1149	0.0987	0.0880	0.0799	0.0730	0.0669	0.0616
55	0.2215	0.1718	0.1356	0.1110	0.0950	0.0854	0.0781	0.0720	0.0662	0.0601
60	0.2057	0.1623	0.1307	0.1082	0.0926	0.0844	0.0777	0.0723	0.0666	0.0591
65	0.1899	0.1530	0.1262	0.1058	0.0905	0.0839	0.0778	0.0731	0.0674	0.0584
70	0.1725	0.1427	0.1211	0.1031	0.0881	0.0832	0.0778	0.0739	0.0681	0.0575

Females

Age	Service									
	0	1	2	3	4	5	6	7	8	9
20	0.3289	0.2849	0.2465	0.2162	0.1941	0.1780	0.1621	0.1446	0.1274	0.1114
25	0.3079	0.2623	0.2252	0.1972	0.1774	0.1633	0.1496	0.1346	0.1191	0.1037
30	0.2837	0.2343	0.1976	0.1718	0.1549	0.1434	0.1330	0.1214	0.1084	0.0938
35	0.2664	0.2138	0.1761	0.1512	0.1360	0.1264	0.1185	0.1094	0.0984	0.0851
40	0.2532	0.1977	0.1585	0.1335	0.1192	0.1110	0.1048	0.0978	0.0887	0.0770
45	0.2427	0.1856	0.1449	0.1194	0.1051	0.0973	0.0921	0.0865	0.0792	0.0696
50	0.2337	0.1765	0.1352	0.1088	0.0936	0.0854	0.0802	0.0755	0.0698	0.0629
55	0.2250	0.1699	0.1294	0.1020	0.0849	0.0753	0.0692	0.0647	0.0606	0.0569
60	0.2166	0.1659	0.1277	0.0992	0.0793	0.0671	0.0590	0.0541	0.0515	0.0516
65	0.2082	0.1629	0.1275	0.0979	0.0749	0.0596	0.0493	0.0437	0.0426	0.0467
70	0.1990	0.1593	0.1270	0.0962	0.0697	0.0512	0.0384	0.0322	0.0327	0.0412

2. After 10 years of service, base termination rates vary by gender and by the number of years remaining until first retirement eligibility. The base table is multiplied by 77%. A further multiplier is applied depending on an employee's classification as shown above.

Base rates:

Years from Retirement	Male	Female
1	1.71%	2.19%
2	2.44%	3.07%
3	3.00%	3.74%
4	3.48%	4.31%
5	3.90%	4.80%
6	4.29%	5.25%
7	4.64%	5.66%
8	4.97%	6.04%
9	5.28%	6.40%
10	5.57%	6.74%
11	5.85%	7.06%
12	6.12%	7.37%
13	6.37%	7.66%
14	6.62%	7.94%
15	6.86%	8.22%

G. Percent Married – 80%.

H. Payroll Growth Rate – 3.5%. Payroll is assumed to increase 3.0% due to inflation and 0.5% due to wage growth above inflation.

II. Actuarial Cost Method – Projected Unit Credit

An Actuarial Cost Method is a technique by which actuaries develop contribution rates for defined benefit retirement plans. There are a number of Actuarial Cost Methods in current use which would be appropriate for use with a plan such as the SBP.

We have recommended the Projected Unit Credit Method for use with the SBP because this method is appropriate and because it is currently being used to develop contribution requirements for the other plan providing retirement benefits to these employees (TMRS).

In the Projected Unit Credit Method, the benefit ultimately expected to be received by each individual is allocated uniformly across years of service.

Thus, the Actuarial Accrued Liability (AAL) at a valuation date is the value of benefits attributable to service prior to that date. The Normal Cost is the value at the valuation date of the expected change in AAL over the year beginning on the valuation date. In other words, the Normal Cost is the actuarial present value of the portion of the total benefit expected to be paid which is attributed to this year.

The total contribution rate under this method is the Normal Cost plus an amount to amortize the unfunded portion of the AAL.

The current contribution rate is appropriate if such rate results in a reasonable amortization period for the UAAL.

III. Actuarial Value of Assets

The actuarial value of assets is equal to the market value of assets less a five-year phase in of the Excess (Shortfall) between expected investment return and actual income with the resulting value not being less than 80% or more than 120% of the market value of assets.

IV. Change in Assumptions Since Prior Valuation

There have been no changes to the actuarial methods and assumptions since the previous valuation.

SUMMARY OF PRINCIPAL PROVISIONS OF THE PLAN

- I. Eligibility for Participation – All full time regular employees of the City who are eligible to participate in TMRS are eligible to participate in the plan as of the later of the employee's date of hire and the date the employee becomes full-time and eligible to participate in TMRS. Fire Civil Services Employees are excluded.
- II. Participant Contributions – All participants make contributions of 2.5% of Annual Earnings.

- III. Earnings Recognized

Annual Earnings – Total cash remuneration as included on the employee's W-2 form for the year plus any reductions in salary under a plan described in the IRS Code.

Final Average Earnings – Average earnings in the three consecutive calendar years of service producing the highest such average.

- IV. Service Recognized

Service – 1/12 of a year of service for each month for which participant has been employed by the employer.

Benefit Service – 1/12 of a year of service for each month for which the participant has made a contribution to the plan. In addition, beginning January 1, 1993, service for each month of employment prior to March 1, 1984 is included for benefit purposes.

- V. Normal Retirement

Eligibility – Retirement at or after attainment of age 65 and completion of 5 years of service.

Benefit – A monthly income equal to 1/12 of 0.6% of Final Average Earnings for each year of Benefit Service.

Forms of Benefit – Normal form is an income payable for the lifetime of the retiree. Options are available on an actuarial equivalent basis.

VI. Early Retirement

Eligibility – Retirement after satisfying any of the following:

- a. Attainment of age 60 and completion of 5 years of service,
- b. Completion of 20 years of service at any age.

Benefit – A monthly income calculated as described above under Normal Retirement, reduced by 1/180 for each of the first 60 months and 1/360 for each month in excess of 60 by which Early Retirement Date precedes the Normal Retirement Date.

Options – Same as for Normal Retirement.

VII. Disability

Eligibility – A participant is disabled under Section 8.01 of the plan as defined below:

- a. For the first 18 months the participant must be unable to perform the duties of his/her occupation,
- b. For the next 24 months the participant must be unable to perform the duties of any occupation,
- c. For the period following the first 42 months, the participant must be unable to engage in any substantial gainful employment.

Benefit – A monthly income equal to 1/12 of 70% annualized pay rate at date of disablement, reduced by disability income from:

- a. TMRS,
- b. Social Security (including dependent benefits),
- c. Workers' compensation.

VIII. Survivor Benefits

Eligibility – Death from any cause while an employee.

Benefit

- a. Dependent Children – An eligible child shall receive a monthly benefit equal to all or a portion of 1/12 of 100% of the deceased employee's retirement benefit based on pay history to date of death and service projected to Normal Retirement Date. If there is only one eligible child, the child shall receive the entire benefit. If there is more than one eligible child, then the benefit shall be divided equally among all eligible children. The benefit is payable until attainment of age 25 or earlier death (minimum benefit duration - 30 months).
- b. Surviving Spouse – If a Dependent Children benefit is not payable and there is a surviving spouse, then a surviving spouse benefit will be payable. The benefit will be equal to a single sum benefit equal to the larger of 96 payments of 25% of the deceased employee's projected monthly Normal Retirement Benefit (as described above), and the total contributions made by the participant to the plan (accumulated without interest). If the employee was eligible for retirement upon his or her death, then the surviving spouse shall have the option to elect to receive the annuity that would have been payable if the employee had retired the day before his or her death and had elected the Joint and 100% Contingent form of payment.

IX. Termination Benefit

Eligibility – Termination of employment for reasons other than retirement, disability or death.

Benefit

- a. With less than 5 years of service – Refund, in a lump-sum, of all contributions made by the participant to the plan, without interest.
- b. With 5 or more years of service – Participant may select either a refund of his/her contributions (as described above) or a monthly income payable at age 65 equal to the retirement benefit earned to date of termination. If eligible, early commencement and optional forms are available.

X. Plan Amendments

- a. Effective January 1, 1993 – Benefit service includes service back to date of employment. Benefit service was previously limited to the later of March 1, 1984 and the date of employment.
- b. Effective January 1, 1993 – Members receiving a benefit shall receive an increase based on the greater of 1 and 2 below:
 1. Recalculation of their benefit using service back to date of employment.
 2. A compound cost of living adjustment of 70% of the CPI from their date of retirement to January 1, 1993.
- c. Effective January 1, 1997 – Members receiving a benefit shall receive an increase based on the greater of 1 and 2 below:
 1. A compound cost of living adjustment of 70% of the CPI from the later of their date of retirement or January 1, 1993 to January 1, 1997.
 2. A compound cost of living adjustment of 3.0%.
- d. Effective January 1, 1998 – - The gross monthly disability benefit was increased to 70% of pay. The maximum monthly benefit cap of \$3,000 was eliminated.
- e. Effective January 1, 1999 – Members (not disabled) and beneficiaries receiving a benefit shall receive a 20% increase.
- f. Effective January 1, 1999 – The multiplier in the plan formula has been increased from 0.5% to 0.6%.
- g. Effective January 1, 1999 – The single sum value payable to the spouse of a deceased member is increased from 125% of the deceased employee’s projected monthly Normal Retirement Benefit to 200% of such amount.
- h. Effective January 1, 1999 – Retirees who retired prior to January 1, 1999, who elected a joint lives optional form of payment, and whose joint annuitant is still alive as of January 1, 1999 shall be treated as if they had elected a “pop-up” option.

- i. Effective January 1, 2001 – If an employee who is eligible for retirement dies while in active service and a surviving spouse benefit is payable, then the surviving spouse shall have the option to elect to receive an annuity equal to the amount that would have been payable if the employee had retired the day prior to his or her date of death and had elected the Joint and 100% Contingent optional form of payment.
- j. Effective January 1, 2001 – An optional form of payment has been added to permit a retiree to take an actuarially equivalent lump-sum payment.
- k. Effective January 1, 2003 – Members receiving a benefit who retired on or before January 1, 2002, shall receive an increase equal to 70% of the compound cost of living adjustment of the CPI from the later of 1) the members date of retirement or 2) January 1, 1997, to January 1, 2003.
- l. Effective January 1, 2006 – The service requirement for plan vesting changed from 10 years to 5 years of Credited Service. This also changes the eligibility for Early Retirement to a minimum age of 60 with 5 years of Credited Service. Similarly, the Early Retirement eligibility at 25 years of credited service at any age was changed to 20 years of credited service.
- m. Effective November 2, 2006 – Revised Article 8 on Disability Retirement to require that disability must be supported by Objective Medical Evidence; clarify the requirements for approval at the each of the three levels of disability retirement benefit; establish a deadline for submitting application; and set consequences for not submitting required documentation for ongoing review within a reasonable timeline. The revision also includes the requirement that disability retirement benefit shall be discontinued for noncompliance with attending physician's prescribed medical treatment or rehabilitative treatment