GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

CITY OF MIAMI BEACH EMPLOYEES' RETIREMENT PLAN

TEN YEAR EXPERIENCE STUDY COVERING THE PERIOD OCTOBER 1, 2000 – SEPTEMBER 30, 2010

May 2, 2011

Board of Trustees
City of Miami Beach Employees'
Retirement Plan
Miami Beach, Florida

Re: City of Miami Beach Employees' Retirement Plan
2000-2010 Experience Study

Dear Board Members:

We are pleased to present herein our ten year Experience Study Report. The period covered by this study is October 1, 2000 through September 30, 2010.

The study was performed on the basis of participant data and financial information supplied by the plan sponsor in connection with the valuations performed during the years studied, and has been prepared in accordance with generally accepted actuarial methods and procedures.

As indicated below, the undersigned are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Gabriel, Roeder, Smith & Company will be pleased to answer any questions pertaining to the study and to meet with you to review the Report.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

By _____
J. Stephen Palmquist, ASA, MAAA, FCA
Enrolled Actuary No. 11-1560
Senior Consultant & Actuary

By _____
Melissa R. Algayer, MAAA, FCA
Enrolled Actuary No. 11-6467
Consultant

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INTRODUCTION

INTRODUCTION

Background

This Report presents the results of an actuarial experience study for the period of October 1, 2000 through September 30, 2010. The demographic experience of the Plan including termination rates, disability rates and retirement rates has been compiled. Annual pay increases have also been determined. The investment return assumption has not been studied since the Board has already decided to lower the current rate of 8.25% to 8.15% in 2011 and 8.00% in 2012.

Purpose of the Experience Study

The goal of this Report is to review the recent experience of the Plan in order to serve as a guide in setting actuarial assumptions concerning the future.

The assumptions determined by the Board of Trustees, based on this Report and their long-term perspectives, will be used to determine future plan liabilities and costs and to evaluate proposed changes in benefits, eligibility conditions, and other aspects of the Plan's operation.

Methodology

In this Report we compute the probability of retirements and other terminations based on age or service for active members. To this end, we proceed as follows:

- We count the number of members leaving for each cause during the term of the study. This is the number of decrements.
- We count the number of members who could have left for each cause during the study. This is the exposure.
- We divide the number of decrements by the exposure for an age or service group to determine the probability of leaving due to the cause in question.
- When there are insufficient decrements to compute reliable rates, we compare the total number of actual decrements with the total number of decrements predicted by an actuarial table, and adopt the table that predicts decrements, in total, reasonably close to those observed.
- Actual salary increases for each year in the study period were obtained and compared to our salary increase assumption.

Organization of Report

The cost to the Plan of recommended changes is found in Section II of this Report. This introductory section broadly describes the scope of the experience study.

Section III contains a separate sub-section for each assumption analyzed. Each such sub-section contains data tables showing our findings and other explanatory information, including our recommendation based on the specific data and assumption analyzed.

At the end of the Report is an appendix which describes in very general terms the financial principles/operational techniques of a Retirement System, a description of the actuarial valuation process, and the meaning of unfunded actuarial accrued liabilities.

SECTION II

SUMMARY OF RECOMMENDATIONS

SUMMARY OF RECOMMENDATIONS

The ten year period (October 1, 2000 through September 30, 2010) covered by this experience study provided sufficient data to form a basis for recommending changes in the economic and demographic assumptions used in the actuarial valuation of the Retirement System.

The recommendations resulting from this experience study are summarized below:

- Change the assumption for annual salary increases from 6% per year to rates based on years of service.
- Adopt select (service based for the first five years of service) and ultimate (age based) rates of assumed employment termination.
- Revise probabilities of normal retirement based on actual experience using age and service. Maintain the current early retirement rates (only applies to General Tier B employees).
- Change the mortality table from the 1983 Group Annuity Mortality Table to the RP-2000 Generational Mortality Table.
- Change the assumption for service related deaths from 50% to 25% of all deaths prior to retirement.
- Reduce the age based disability rates to 36% of the current age based disability rates.

There is no requirement to implement these changes all at once. They could be put into place incrementally over a few years.

The estimated cost or savings associated with each of these recommendations is summarized below. For comparison purposes, the required City contribution for the fiscal year ending September 30, 2012 is $17,395,718, or 25.36% of covered payroll and the funded ratio is 75.14% (which incorporates the assumption that 85% of active members are married versus the current assumption of 100%) before adopting any of the assumption changes described below.

Actuarial Assumption	Current	Proposed	Increase/(Decrease) in Contributions		Change in Funded Ratio
			$ in 000's	% of Payroll	
Salary Scale	6% per year	Rates based on years of service ranging from 5.5% to 8.0%	$197	0.19 %	0.37 %
Termination Rates	Rates based on age	Select rates based on service (5 years) and ultimate rates based on age	(221)	(0.32)	0.17
Retirement Rates	Rates based on age	Rates based on age and service	(765)	(1.11)	0.05
Mortality Rates	1983 Group Annuity Mortality	RP-2000 Generational Mortality	2,768	4.04	(2.69)
Percentage of Deaths that are Service Connected	50%	25%	(12)	(0.01)	(0.01)
Disability Rates	Rates based on age	36% of current rates	(462)	(0.67)	0.04
Combined Effect of Recommendations			**1,856**	**2.60**	**(2.20)**
Combined Effect of Recommendations Except that RP-2000 Mortality Rates only Include Mortality Improvements through 2010			**187**	**0.18**	**(0.78)**
Combined Effect of Recommendations Using Level Percentage of Payoll Funding of UAL			**(850)**	**(1.33)**	**(2.20)**
Combined Effect of Recommendations Except that RP-2000 Mortality Rates only Include Mortality Improvements through 2010 And Level Percentage of Payroll Funding of UAL			**(2,296)**	**(3.43)**	**(0.78)**

For detailed discussions of each of these assumptions, see the complete analysis in the balance of this Report.

SECTION III

STUDY CATEGORIES

INVESTMENT RATE OF RETURN

It must be recognized that the investment return assumption is of a long-term nature. Short-term periods should not overly influence its level. The current assumed rate of return is 8.25% net of investment related fees. This rate will be reduced to 8.15% as of October 1, 2011 and 8.00% as of October 1, 2012. Investment related expenses are approximately 0.2% of assets which means that the expected gross return is approximately 8.45% this year.

If investment returns fall short of the assumption for an extended number of years, losses will tend to push up the required contribution. Based on this, it may be more realistic to lower the assumed rate for purposes of the actuarial valuation. A lower rate will result in a higher probability of meeting the assumption and smaller actuarial losses when the assumption is not realized.

Actuarial Standards of Practice (ASOP) No. 27 defines a range of reasonableness as lying between a 25th percentile and a 75th percentile of expected returns. We would not be able to use an assumed return outside of this range and adhere to the current ASOP governing this assumption.

RECOMMENDATION

Continue the present course of reducing the assumed rate of return ultimately to 8.00%.

RATES OF SALARY INCREASE

Actual salary increases varied from those expected during the study period. The annual salary increase has been assumed to be 6% per year. This increase includes inflation, merit, promotion and productivity. As can be seen from the below tables, the actual salary increases have generally been greater than those assumed.

The current agreement between the City and various the unions temporarily freezes cost-of- living increases for the 2010 and 2011 fiscal years. Additionally, the current agreement temporarily freezes merit/step increases.

We would typically use the information from the prior ten years in addition to any insight into how future pay increases will be granted in determining our proposed salary increase assumption. Since there is such uncertainty regarding the pay plan after 2011 for most groups of employees, it is difficult to develop an assumption that will accurately forecast future pay increases. At this point, we would recommend changing the flat 6% salary increase assumption to a rate based on years of service to reflect past experience but we would certainly welcome input from the Board of Trustees.

The table below is based on participants in each year from 2000 to 2010 who were active in both the current and prior plan year, and shows actual experience as compared to the assumption.

Salary Increases During 2000 - 2010
for Members Active Both at Beginning and End of Year

Service	Number of Employees	Actual Salary Increase (A)	Expected Salary Increase (E)*	Proposed Salary Increase
<1	1,073	8.1 %	6.0 %	8.0 %
1	642	7.0	6.0	7.9
2	532	6.7	6.0	7.8
3	459	7.7	6.0	7.7
4	452	7.7	6.0	7.6
5	404	7.7	6.0	7.5
6	355	6.4	6.0	7.0
7	341	6.8	6.0	6.9
8	322	6.1	6.0	6.8
9	311	6.9	6.0	6.7
10	302	6.7	6.0	6.6
11	296	6.1	6.0	6.5
12	294	6.4	6.0	6.4
13	266	6.5	6.0	6.3
14	239	5.6	6.0	6.2
15	199	6.3	6.0	6.1
16	176	4.1	6.0	6.0
17	171	6.2	6.0	5.9
18	171	5.4	6.0	5.8
19	165	6.3	6.0	5.7
20+	616	5.4	6.0	5.5
Total	**7,786**	**6.6**	**6.0**	

* Based on present assumption.

RECOMMENDATION

In the absence of any changes deemed appropriate by the Board, we recommend replacing the flat 6.0% per year assumption to increases that vary based on service in accordance with the table above. We also recommend that this assumption be reviewed again after the next collective bargaining agreements are settled. Changing to recommended salary increases that vary based on service would increase the required contribution by approximately $197,000, or 0.19% of payroll in the first year.

RATES OF EMPLOYMENT TERMINATION

The actual number of members terminating employment for reasons other than retirement, disability or death was less than the total number expected as can be seen below. However, termination behavior frequently differs depending on longevity. For instance, due to the five year vesting requirement for current members, there was a significant drop in the actual rates of termination as members approached vesting eligibility. This can be seen from the table on the following page. The table below shows the actual versus expected experience based on the present termination rates.

Termination of Employment for Reasons Other Than Retirement, Disability or Death for Ten Years Ending October 1, 2010

Ages	Actual Number (A)	Expected Number (E)*	A / E
20 - 24	22	30	0.73
25 - 29	47	65	0.72
30 - 34	65	61	1.07
35 - 39	59	61	0.97
40 - 44	52	65	0.80
45 - 49	62	46	1.35
50 - 54	29	11	2.64
55 +	4	2	2.00
Total	340	341	1.00

* Based on present assumption.

Recommended Termination Rates

These rates are based on service for the first five years of employment, thereafter based on age.

Years of Service	Actual Rates for Last 10 Years	Recommended Rates	Expected Number of Terminations over Last 10 Years Based on Recommended Rates
0 - 1	9.8 %	9.8 %	38
1 - 2	7.7	7.7	60
2 - 3	5.9	6.2	42
3 - 4	6.2	5.0	28
4 - 5	4.0	4.0	19
Ages for Those with at Least 5 Years of Service			
20 - 24	0.0 %	7.0 %	0
25 - 29	6.4	6.4	6
30 - 34	6.0	6.0	20
35 - 39	4.2	4.8	35
40 - 44	2.8	3.8	42
45 - 49	3.4	3.2	40
50 +	4.3	2.6	13
Expected Number of Terminations			343
Actual Number of Terminations			340
Actual / Expected			0.99

RECOMMENDATION

We are recommending new decrement tables for terminations from employment. One table will apply to members in their first five years of employment, based on service. A separate table will apply to members with at least five years of service and will be based on age. The proposed rates of termination, as compared to the actual rates, are shown above.

This change would decrease the required annual contribution amount by approximately $221,000, or 0.32% of covered payroll in the first year.

RETIREMENT EXPERIENCE

For each year in our ten year study, we determined which participants were eligible to retire based on the plan provision and compared that number to the number of participants who actually retired. The current Plan provisions are:

Normal Retirement Date (NRD):
Age 50 and completion of 5 years of service for Tier A members or
Age 55 and completion of 5 years of service for Tier B members

Normal Retirement

The table below shows actual experience for normal retirements and DROP entry as compared to the assumption.

Retirement Experience For Ten Years Ending October 1, 2010*

Years of Service	Age	Actual Number (A)	Expected Number (E)**	A / E	Recommended Rates	Expected Number of Retirements over Last 10 Years Based on Recommended
5-9						
	50-54	1	5	0.200	0.050	2
	55-59	5	42	0.119	0.050	5
	60-64	6	63	0.095	0.100	8
	65-69	3	19	0.158	0.200	4
	70-74	0	2	0.000	1.000	2
	75+	1	2	0.500	1.000	2
10-14						
	50-54	9	15	0.600	0.050	6
	55-59	9	64	0.141	0.050	10
	60-64	15	81	0.185	0.100	13
	65-69	3	42	0.071	0.100	4
	70-74	1	21	0.048	1.000	21
	75+	0	1	0.000	1.000	1
15-19						
	50-54	20	22	0.909	0.150	23
	55-59	18	28	0.643	0.150	20
	60-64	14	23	0.609	0.200	16
	65-69	11	40	0.275	0.250	10
	70-74	2	13	0.154	1.000	13
	75+	0	2	0.000	1.000	2
20-24						
	50-54	46	24	1.917	0.250	42
	55-59	21	18	1.167	0.250	25
	60-64	18	7	2.571	0.350	18
	65-69	5	10	0.500	0.500	5
	70-74	1	4	0.250	1.000	4
	75+	2	2	1.000	1.000	2
25-29						
	50-54	35	9	3.889	0.700	36
	55-59	8	3	2.667	0.400	8
	60-64	4	1	4.000	0.500	4
	65-69	2	6	0.333	0.500	3
	70-74	2	2	1.000	1.000	2
	75+	0	0	0.000	1.000	0
30+						
	50-54	0	0	0.000	1.000	0
	55-59	2	1	2.000	1.000	4
	60-64	0	0	0.000	1.000	0
	65-69	1	1	1.000	1.000	1
	70-74	0	2	0.000	1.000	2
	75+	2	4	0.500	1.000	4
Total		267	579	0.461		322
Actual / Expected						0.829

* Retirement experience for Tier B members studied only from 2006 through 2010

** Based on present assumption.

RECOMMENDATION

We recommend adopting the table of retirement rates for normal retirement shown above, and maintaining the 5% rate for each year of early retirement eligibility. This change would decrease the required contribution amount by approximately $765,000, or 1.11% of payroll in the first year.

RATES OF MORTALITY
AMONG ACTIVE AND INACTIVE MEMBERS

The number of deaths during the study period was not large enough to be statistically significant for purposes of establishing a mortality table. Unless there is solid evidence to the contrary, a generally accepted mortality table should be used.

The mortality table currently being used for actuarial valuation purposes is the 1983 Group Annuity Mortality Table (set forward ten years for disabled lives). We recommend use of a more current mortality table, the RP-2000 Generational Mortality Table. This mortality table is more up to date and also projects how mortality rates will decrease in future years. The RP-2000 Generational Mortality Table will reflect that someone who is age 55 in the year 2021 will be expected to live longer than someone who is age 55 in 2011. The overall trend is that people are living longer, and this will cause an increase in cost.

Below is a comparison of life expectancies under the 1983 Group Annuity Mortality Table and the RP-2000 Generational Mortality Table:

1983 Group Annuity Mortality Table

Sample Ages	Life Expectancy	
	Male	Female
50	29.18	34.92
55	24.82	30.24
60	20.64	25.67
65	16.69	21.29
70	13.18	17.13

RP-2000 Generational Mortality Table

Sample Ages	Life Expectancy							
	2007		2012		2017		2022	
	Male	Female	Male	Female	Male	Female	Male	Female
50	33.58	35.23	34.04	35.48	34.49	35.73	34.92	35.98
55	28.47	30.28	28.92	30.52	29.36	30.76	29.78	31.00
60	23.58	25.52	24.00	25.75	24.42	25.98	24.82	26.21
65	19.02	21.05	19.41	21.27	19.79	21.49	20.16	21.71
70	14.90	16.95	15.24	17.16	15.57	17.36	15.89	17.57

RECOMMENDATION

We recommend adopting the RP-2000 Generational Mortality Table, set forward five years for disabled lives. This change would increase the required contribution amount by approximately $2,768,000, or 4.04% of payroll in the first year. We also recommend lowering the assumption for the percentage of deaths that are service related from 50% to 25%. This change would reduce the required contribution amount by approximately $12,000, or 0.01% of payroll in the first year.

RATES OF DISABILITY

Over the previous ten years there were 10 employees who began receiving disability benefits. The current assumption forecasted that there would have been 28 employees who would become disabled over this period.

RECOMMENDATION

We recommend changing the disability rates to 36% of the current rates. This change would reduce the annual contribution requirement by about $462,000, or 0.67% of payroll in the first year.

AMORTIZATION OF UNFUNDED ACCRUED LIABILITY (UAL)

The unfunded accrued liability is currently being amortized as a level dollar amount. This means that as payroll increases, the amortization payments gradually decrease as a percentage of payroll.

The UAL may be amortized as a level percent of payroll using a payroll growth assumption. This results in generally lower payments in the early years and higher payments in later years as payroll increases. According to the Florida Administrative Code, the payroll growth assumption used to amortize the UAL may not exceed the average growth over the last ten years. The lower the payroll growth assumption is, the higher the amortization payments will be in the early years.

The following table and graphs show a 30-year projection of the amortization payments and the UAL using level dollar amortization compared to level percent of pay amortization.

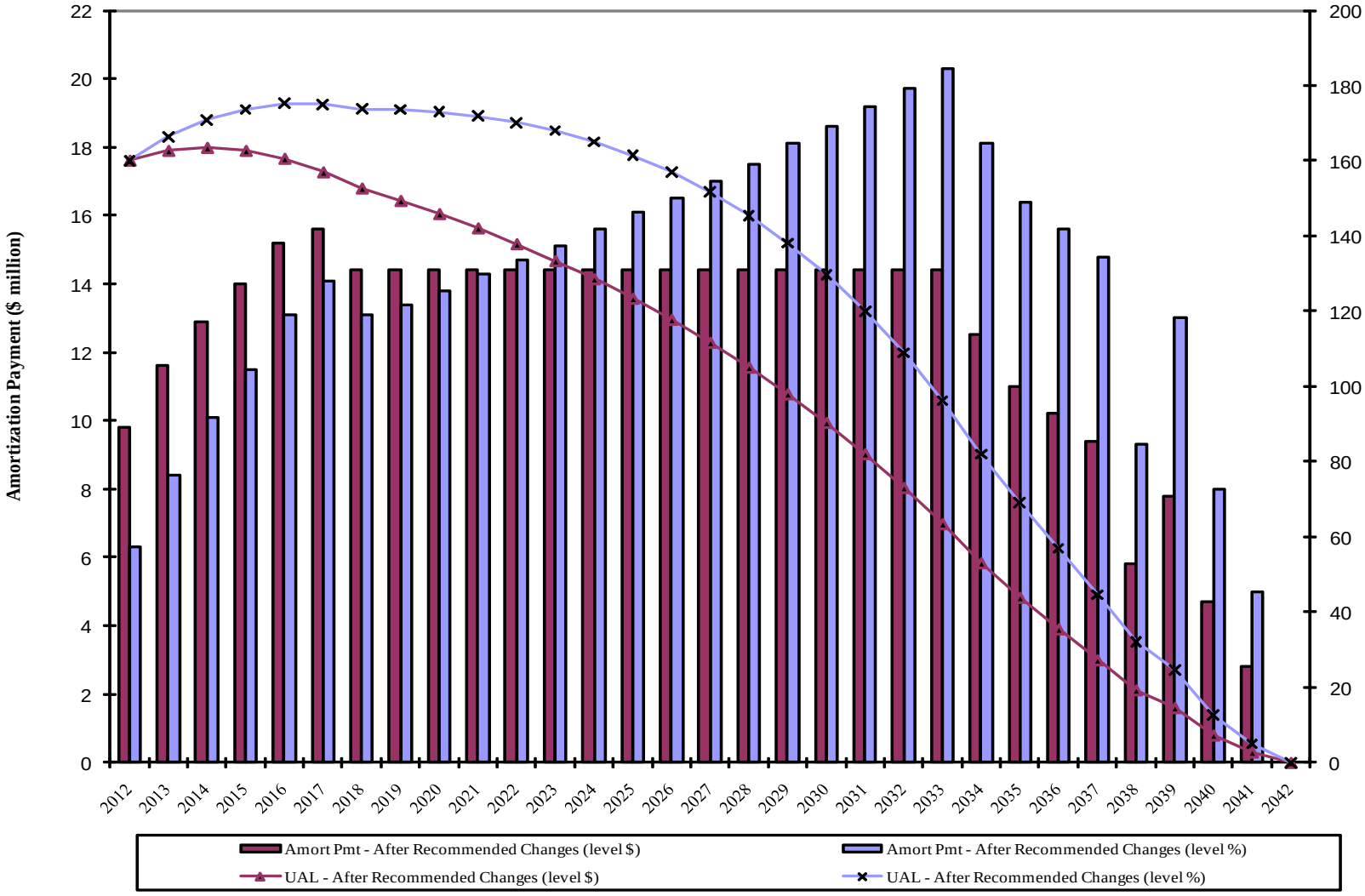
City of Miami Beach Employees' Retirement Plan
30-Year Projection of UAL Payment

	Amortize UAL As Level Dollar			Amortize UAL as Level Percentage of Pay*	
	Before Changes	After Recommended Changes	After Recommended Changes Except Mortality Rates only Include Mortality Improvements Through 2010	After Recommended Changes	After Recommended Changes Except Mortality Rates only Include Mortality Improvements Through 2010
Fiscal Year Ending	Amortization Payment	Amortization Payment	Amortization Payment	Amortization Payment	Amortization Payment
9/30/2012	8,304,902	9,761,824	8,809,653	6,347,762	5,638,365
9/30/2013	10,118,705	11,563,677	10,619,316	8,406,348	7,682,836
9/30/2014	11,456,902	12,884,348	11,951,441	10,056,953	9,322,469
9/30/2015	12,566,064	13,993,510	13,060,603	11,536,859	10,780,341
9/30/2016	13,725,174	15,152,620	14,219,713	13,133,912	12,354,698
9/30/2017	14,212,585	15,640,031	14,707,124	14,062,533	13,259,943
9/30/2018	12,927,964	14,355,410	13,422,503	13,051,999	12,225,331
9/30/2019	12,927,964	14,355,410	13,422,503	13,443,559	12,592,091
9/30/2020	12,927,964	14,355,410	13,422,503	13,846,866	12,969,853
9/30/2021	12,927,964	14,355,410	13,422,503	14,262,272	13,358,949
9/30/2022	12,927,964	14,355,410	13,422,503	14,690,140	13,759,717
9/30/2023	12,927,964	14,355,410	13,422,503	15,130,844	14,172,509
9/30/2024	12,927,964	14,355,410	13,422,503	15,584,769	14,597,684
9/30/2025	12,927,964	14,355,410	13,422,503	16,052,312	15,035,615
9/30/2026	12,927,964	14,355,410	13,422,503	16,533,882	15,486,683
9/30/2027	12,927,964	14,355,410	13,422,503	17,029,898	15,951,284
9/30/2028	12,927,964	14,355,410	13,422,503	17,540,795	16,429,822
9/30/2029	12,927,964	14,355,410	13,422,503	18,067,019	16,922,717
9/30/2030	12,927,964	14,355,410	13,422,503	18,609,030	17,430,399
9/30/2031	12,927,964	14,355,410	13,422,503	19,167,301	17,953,311
9/30/2032	12,927,964	14,355,410	13,422,503	19,742,320	18,491,910
9/30/2033	12,927,964	14,355,410	13,422,503	20,334,590	19,046,668
9/30/2034	11,027,535	12,454,980	11,522,073	18,075,573	16,749,014
9/30/2035	9,561,391	10,988,837	10,055,930	16,356,905	14,990,548
9/30/2036	8,756,988	10,184,434	9,251,527	15,580,200	14,172,853
9/30/2037	8,011,129	9,438,575	8,505,668	14,846,618	13,397,051
9/30/2038	4,354,788	5,782,234	4,849,327	9,273,761	7,780,706
9/30/2039	6,408,373	7,835,819	6,902,912	13,008,023	11,470,176
9/30/2040	3,283,815	4,711,261	3,778,354	8,020,534	6,436,553
9/30/2041	1,413,651	2,841,097	1,908,190	4,968,615	3,337,114
9/30/2042	-	-	-	-	-
Total	330,049,432	372,919,810	344,901,883	426,762,192	393,797,210

The above calculations assume no gains or losses after 10/1/2010.

* Under the assumption that covered payroll will increase by 3% per year.

City of Miami Beach Employees' Retirement Plan
30-Year Projection of UAL Payment



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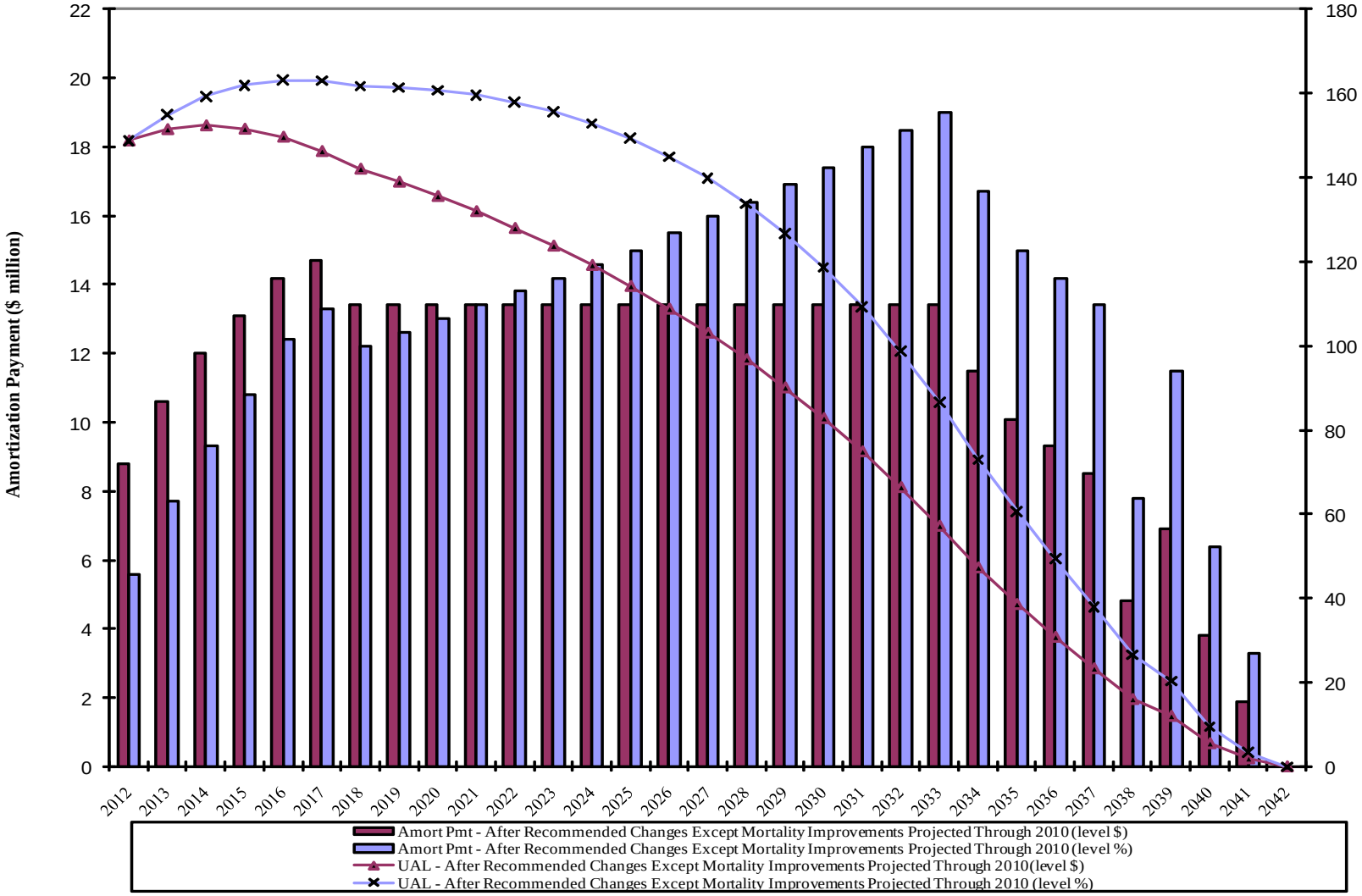
City of Miami Beach Employees' Retirement Plan
30-Year Projection of UAL Payment



SECTION IV

APPENDICES

APPENDIX A

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

Promises Made, and Eventually Paid. As each year is completed, in effect an "IOU" is handed to each participant then acquiring a year of service credit -- the "IOU" says: "The Retirement System owes you certain retirement benefits, payments in cash commencing when you qualify for retirement."

The related key financial question is when are contributions made to cover the IOU?

As benefits accrue?

Or when benefits are payable?

The principal of advance funding is to collect funds as benefits accrue. By following this principle, the employer contribution rate will remain approximately level from generation to generation -- our children and our grandchildren will contribute the same percent of active payroll we contribute now. There are systems which have a design for deferring contributions to the future, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time.

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. Invested assets are a by-product and not the objective. Investment income becomes in effect another contributor for benefits to employees, and is directly related to the contribution amount required from the employer.

In actuarial terminology, the minimum level percent of payroll contribution rate consists of:

Normal Cost (the cost of members' service being rendered this year)

plus

Amortization of Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between actuarial liabilities for members' service already rendered and the accrued assets).

Computing Contributions To Support Funded Benefits. From a given schedule of benefits and from the participant and financial data provided, the actuary determines the contribution rates to support the benefits, by means of an actuarial valuation and a funding method.

An actuarial valuation has a number of components such as: the rate of investment income which plan assets will earn; the rates of termination of active members who leave covered employment before or after qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of salary increases; and the assumed age or ages at actual retirement.

In an actuarial valuation, assumptions are made as to what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the many calculations made.

The Retirement System copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continuing adjustments in financial position.

APPENDIX B

THE ACTUARIAL VALUATION PROCESS

The financing principles discussed in Appendix B show the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) and is thus an increasing contribution method; and the level contribution method, which equalizes contributions between generations.

An actuarial valuation is the mathematical process by which actuarial present values and contribution rates are determined. The flow of activity constituting the valuation may be summarized as follows:

A. Participant Data, furnished by plan administrator, including:

Retired lives now receiving benefits

Former employees with vested benefits not yet payable

Active employees

B. + Benefit Provisions governing future payments from the Retirement System.

C. + Asset data (cash & investments), furnished by plan administrator.

D. + Assumptions concerning future experiences in various risk areas, which assumptions are established by the Board of Trustees after consulting with the actuary.

E. + The Planning method for employer contributions (the long-term planned pattern for employer contributions).

F. + Mathematically combining the assumptions, the Planning method, and the data.

G. = Determination of:

Plan financial position and/or

New employer contribution rate.

Items A, B and C constitute the current "knowns" about the plan. A good deal of plan activity which will result in benefit payments has yet to occur. Accordingly, certain estimates must be made about future plan activity. These estimates (Item D) may be classified as demographic or economic. Demographic estimates include future mortality rates, disability rates, rates of pre-retirement withdrawal from employment, and retirement ages. Economic estimates consist of future salary increases and rates of investment return.

Demographic estimates are generally selected on the basis of the plan's historical activity, modified for expected future differences. Past activity of plans which are similar in nature to the plan being valued may be utilized if plan data or activities are insufficient to be reliable.

Economic estimates, on the other hand, do not lend themselves to prediction on the basis of historical activity -- the reason being that both salary increases and investment return are impacted by inflation. Inflation defies reliable prediction. Economic estimates are generally selected on the basis of what would be expected to occur in an inflation-free environment and then both are increased by some provision for long-term inflation.

This is a case where two wrongs may make a right. If inflation is higher than expected it will probably result in actual rates of salary increase and investment return which exceed the estimated rates. Salaries increasing faster than expected result in unexpected costs. Investment returns exceeding the estimated rate result in unanticipated assets. To a large degree the additional assets will offset the additional costs over the long-term.

Once items A, B, C and D are available, the actuarial valuation process begins. The first step is to determine the plan's total actuarial present value for individuals in each of the three covered person categories.

Retired persons now receiving monthly payments;

Vested terminated employees not yet at retirement age;

Active employees.

The actuarial present value is the value today, after taking into account the probabilities of payment and the effect of time, of plan promises to pay benefits in the future on the basis of both service already completed and projected future service.

The total actuarial present value is allocated between projected future service and completed service by the actuarial cost method (Item E) -- different actuarial cost methods generate different allocations of the same total actuarial present value.

At this stage determination has been made of:

1. The total actuarial present value;

2. The actuarial present value of future normal cost; and

3. The unfunded actuarial accrued liability.

The next step in the valuation process is a determination of the contribution rate (Item G) required to support plan benefits in accordance with the plan's funding objective.

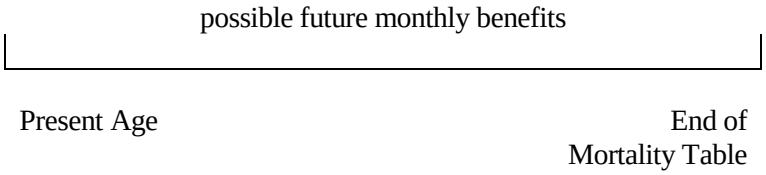
The contribution rate is determined in two basic components:

1. The normal cost component; and

2. The component which will finance (pay off) the unfunded actuarial accrued liability over the periods established.

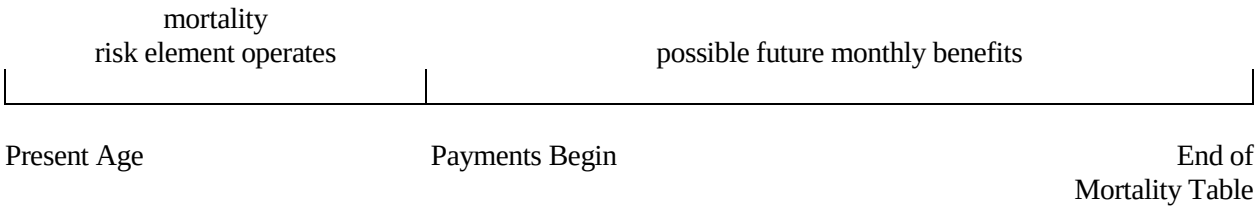
Additional information follows about the calculation of actuarial present values.

Retired Person



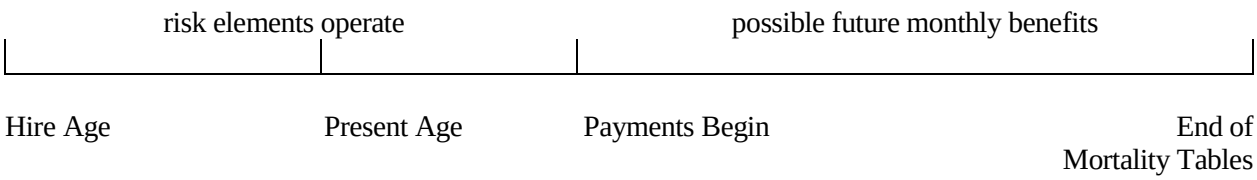
Using the mortality table, the probability of paying each possible future benefit installment to the individual is calculated (the further in the future, the less likely the payment). In addition, each possible future payment is discounted back to the present using the projected investment return rate (the further in the future, the smaller the present value). Combining the two elements produces the actuarial present value of future monthly payments to an individual --- and also the actuarial accrued liability since no further active service is contemplated.

Vested Terminated Employee



The computation of actuarial liability for a vested terminated employee is the same as for a retired person except that there is a further discount computed, allowing for the possibility of the person dying before payments begin.

Active Employee



Additional estimates of future activities (risk elements) are considered in computing the actuarial present value applicable to an active employee. These include:

> Actual ages at which employees retire (the older the retirement age, the less the present value since payments will be made for a shorter time and investment earnings will cover a larger proportion of each payment)

Disability retirement

Pay increases to retirement (the more working pay, the more retirement pay)

Termination before eligibility for a plan benefit.

Forfeiture of a plan benefit after becoming eligible.

APPENDIX C

MEANING OF "UNFUNDED ACTUARIAL ACCRUED LIABILITIES"

"Actuarial accrued liabilities" are the portion of the present value of plan promises to pay benefits in the future not covered by future normal cost contributions --- a liability has been established ("accrued") because the service has been rendered but the resulting monthly cash benefit may not be payable until years in the future. Actuarial accrued liabilities are the result of complex mathematical calculations, which are made annually by the plan's actuary.

If "actuarial accrued liabilities" at any time exceed the plan's accrued assets (cash & investments), the difference is "unfunded actuarial accrued liabilities". This is the common condition. If the plan's assets equaled the plan's "actuarial accrued liabilities", the plan would be termed "fully funded".

Each time a plan adds a new benefit which applies to service already rendered, an "actuarial accrued liability" is created, which is also an "unfunded actuarial accrued liability" because the plan can't print instant cash to cover the value of the new benefit promises. Payment for such unfunded actuarial accrued liabilities is spread over a period of years, commonly in the 20-30 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual financial experience is less favorable than assumed financial experience, the difference is added to unfunded actuarial accrued liabilities. In plans where benefits are directly related to an employee's pay near time of retirement, unfunded actuarial accrued liabilities increase when unexpected rates of pay increase create additional actuarial accrued liabilities which are not offset by higher than assumed investment income. Most unexpected pay increases are the direct result of inflation, which is a very destructive force on financial stability.

The existence of unfunded actuarial accrued liabilities is not bad, but the changes from year to year in the amount of unfunded actuarial accrued liabilities are important and should be monitored.

Unfunded actuarial accrued liabilities are not a bill payable immediately but it is important that policy-makers prevent the amount from becoming unreasonably high and it is vital for plans to have a sound method for making payments toward them so that they are controlled.