May 2002

Retirement System for Employees of The City of Cincinnati Actuarial Valuation Report as of December 31, 2001

The City of Cincinnati

MERCER
Human Resource Consulting

Contents of Report

Highlights

This report has been prepared by Mercer Human Resource Consulting for the City of Cincinnati to:

- Present the results of a valuation of the Retirement System for Employees of the City of Cincinnati as of December 31, 2001;
- Review experience under the Plan for the year ended December 31, 2001;
- Provide to the plan sponsor the recommended level of contributions under the Plan for the year ending December 31, 2003; and
- Provide reporting and disclosure information for financial statements, governmental agencies and other interested parties.

Comments

Effective with the prior valuation, the funding method was changed to the Individual Entry Age Normal method. This method spreads the total cost of benefits over each individual's working career as a level percent of pay. The current year's cost, or normal cost, is that level percentage times the expected pay for the year. The accrued liability for an active participant is the accumulated value of their past normal costs. The actuarial accrued liability for an inactive participant is just the present value of benefits payable to them.

The recommended employer contribution is calculated as the sum of three numbers:

	Cost	Percentage of Pay
▪ *Amortization of the Surplus built up historically:*	($18,477,356)	(10.44)%
▪ *Normal Cost:* This is the cost of benefits accruing this year plus estimated expenses:	$36,747,574	20.76%
▪ *Less Expected Employee Contributions this year:*	$12,963,164	7.32%
▪ *Net Employer Contribution:*	$5,307,054	3.00%

This method shows both the long-term cost of the plan as well as the short-term cost. The long-term cost is the normal cost rate, which is 13.44% of pay for the employer. The short-term cost is the normal cost rate reduced or increased by the amortization of any surplus or shortfall in the funded status. As of December 31, 2001, a surplus exists that reduces the employer cost to 3.00%. Under the policy adopted by the Board, the net employer contribution rate is applied to the second following year, or 2003 in this case.

Highlights *(continued)*

Gain/Loss and Plan Change Information

The gain/loss analysis is done using the Individual Entry Age Normal funding method which was in effect for both 2000 and 2001. Under this method, we compare actual plan liabilities at December 31, 2001 to the expected liability had all assumptions been exactly realized. The plan suffered net losses of $162,207,000 last year (excluding the impact of employer contributions), due primarily to medical cost increases.

- *Return on invested plan assets:* The actual return on the actuarial value of assets in 2001 was exactly as expected. Since the expected value fell within the 90%-110% corridor around the actual market value of assets, there was no gain or loss.

- *Salary increases:* Overall, this year's salary increases for participants who were active last year and this year was less than expected. This generated a gain of $17,318,000 for the plan.

- *New entrants:* Each year's valuation is based solely on the current participants of the plan, with no provision made for new participants in the future. As a result, every year the normal cost differs from the prior year since there are, in fact, new participants every year. This year, the new participants generated a loss of approximately $1,925,000.

- *Demographic considerations:* The number of active participants decreased by 4.4% from 4,128 to 3,946, and the inactive membership increased by 2.2%. The net changes in status generated a gain of approximately $27,464,000 for the year.

- *Post-retirement medical benefits:* Medical claims for the 2001 calendar year increased by 35-40% from 2000 – significantly more than the 7.0% increase assumed. As a result, a loss of approximately $166,188,000 was generated for the year.

- *All Other Assumption Changes:* Results from the experience study performed last year were used to modify assumed retirement rates, termination rates, and salary increase rates. In addition, medical assumptions were made more sophisticated. The combined effect of all these assumption changes resulted in a loss to the plan of $38,876,000.

SUMMARY OF VALUATION RESULTS

The summary presented on the following page provides a comparison of the principal valuation results for each of the last five plan years. Its purpose is to provide the Board with a concise summary of past plan operations which - when combined with estimates regarding future economic, legislative and financial factors affecting the plan - can give insight into anticipated future contribution requirements under the plan.

RETIREMENT SYSTEM OF THE CITY OF CINCINNATI

SUMMARY OF VALUATION RESULTS

	12/31/97	12/31/98	12/31/99	12/31/2000	12/31/2001	Percentage (Decrease) Increase 2000/2001
Participants						
Active	4,433	4,306	4,221	4,128	3,946	(4.4)%
Inactive	4,236	4,236	4,300	4,334	4,430	2.2%
Total Payroll	$ 170,055,676	$ 170,393,096	$ 172,268,484	$ 171,555,002	$ 169,757,733	(1.0)%
Employer Normal Cost Contribution as a Percent of Payroll	(8.9)%	(7.1)%	(8.3)%	14.4%	13.4%	N/A
Employer Contribution as a Percent of Payroll	(8.9)%	(7.1)%	(8.3)%	(4.8)%	3.0%	N/A
Actual Contribution						
Employer	$ 33,072,461	$ 24,815,296	$ 12,768,885	$ 12,520,902	$ 13,374,661	6.8%
Members	12,869,394	12,881,766	13,163,743	12,991,882	13,571,803	4.5%
Assets						
Market Value	$ 2,161,461,760	$ 2,410,525,750	$ 2,626,392,512	$ 2,560,804,597	$ 2,352,508,062	(8.1)%
Actuarial Value	1,799,236,139	2,036,031,301	2,251,554,942	2,363,697,947	2,475,933,148	4.7%
Return (MV)	19.6%	14.1%	12.1%	0.6%	(4.7)%	
Present Value of Benefits	$ 1,746,520,026	$ 1,971,678,434	$ 2,162,175,783	$ 2,330,890,618	$ 2,524,215,831	8.3%
Actuarial Accrued Liability	$ 1,530,000,000*	$ 1,740,182,139	$ 1,909,684,171	$ 2,071,566,514	$ 2,318,801,723	11.9%
Value of Accrued Benefits						
Vested	$ 1,222,827,241	$ 1,447,409,153	$ 1,580,417,442	$ 1,736,364,291	$ 2,125,485,187	22.4%
Non-Vested	38,950,302	46,761,344	50,344,718	57,466,242	59,841,623	4.1%
Total	1,261,777,543	1,494,170,497	1,630,762,160	1,793,830,533	2,185,326,810	21.8%
Funding Progress (Actuarial Value of Assets/Actuarial Accrued Liability)	117%	117%	118%	114%	107%	(6.1)%

* Estimated

Summary of Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Changes in plan provisions and actuarial funding methods between the two valuations are described on the following page. Changes in actuarial assumptions are described in this report.

Summary of Costs	**Actuarial Valuation as of**	
	December 31, 2001	**December 31, 2000**
Employer Normal Cost *(Beginning of Year)*	$ 22,734,095	$ 24,623,422
Employer Normal Cost *(Payable throughout the year)*	$ 23,784,410	$ 25,761,024
As a percentage of expected payroll	13.44%	14.43%
Employer Contribution *(Payable throughout the year)*	$ 5,307,054	$ (8,591,217)
As a percentage of expected payroll	3.00%	(4.81)%

Assets and Actuarial Present Values		
Market Value of Assets	$ 2,352,508,062	$ 2,560,804,597
Actuarial Value of Assets	$ 2,475,933,148	$ 2,363,697,947
Entry Age Actuarial Accrued Liability	$ 2,318,801,723	$ 2,071,566,514
Unfunded Actuarial Accrued Liability	$ (157,131,425)	$ (292,131,433)
Actuarial Present Value of Accumulated Plan Benefits	$ 2,185,326,810	$ 1,793,830,533
Vested Present Value of Accumulated Plan Benefits	$ 2,125,485,187	$ 1,736,364,291

Summary of Data		
Number of Participants in Valuation		
Active Participants - Full Time	3,946	4,128
Active Participants - Part Time	1,597	1,433
Participants with Deferred Benefits	85	116
Participants Receiving Benefits	4,345	4,218
Total	**9,973**	**9,895**

Active Participant Statistics		
Total Compensation *	$ 169,757,733	$ 171,555,002
Average Compensation *	$ 43,020	$ 41,559
Average Age	45.4	44.7

* Full-time employees

Certification

We have prepared an actuarial valuation of the Retirement System for Employees of the City of Cincinnati as of December 31, 2001. The results of the valuation are set forth in this report, which reflects the provisions of the Plan as amended through 2001.

The following changes to plan provisions and actuarial methods were made:

Assumptions

- Changes in assumed retirement rates, termination rates, and salary increases, as modified by a study of plan experience through calendar year 2000.
- More detailed medical assumptions, including decreasing medical trends, cost increases with age, and differential treatment of plan participants based on likely Medicare Part A eligibility.

The valuation is based on employee and financial data which were provided by the System and which are summarized in this report.

All costs, liabilities and other factors under the Plan were determined in accordance with generally accepted actuarial principles and procedures, in accordance with the provisions of current federal statutes and regulations issued thereunder, using an actuarial cost method which we believe is appropriate. In our opinion, the actuarial assumptions are reasonable and represent our best estimate of the anticipated experience under the Plan. This report fully and fairly discloses the actuarial position of the Plan on an ongoing basis.

We are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate. We are both employed as consultants for Mercer Human Resource Consulting. We are both members of the American Academy of Actuaries and/or the Society of Actuaries and meet the Qualifications Standards of the American Academy of Actuaries to reach the actuarial opinions contained herein.

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Section 1.1

Present Value of Benefits and Actuarial Accrued Liability

The Present Value of Benefits is the present value of all benefits current employees are expected to receive. The Actuarial Accrued Liability is the portion of those benefits that have already been earned by virtue of past service. The normal cost is the portion of those benefits that is expected to be earned during the current year. The remaining benefits are expected to be earned by virtue of future service that current employees will provide. For inactive members, all benefits are already earned, so the Present Value of Benefits and the Actuarial Accrued Liability are equal.

Present Value of Benefits - Inactive Members	**December 31, 2001**	**December 31, 2000**
Retirees and Beneficiaries	$866,727,495	$802,537,827
Deferred Vested Participants and Survivors	8,354,664	9,274,147
Survivor Benefits	8,659,293	8,526,218
Total Non-medical Care Benefits	**883,741,452**	**820,338,192**
Medical Care Benefits	484,869,165	323,845,108
Dental Benefits	26,941,258	22,727,429
Vision Benefits	3,780,109	3,653,809
Total Medical Care Benefits	**515,590,532**	**350,226,346**
Total for Inactive Members	**1,399,331,984**	**1,170,564,538**
Present Value of Benefits - Active Members		
Retirement Benefits	632,966,411	701,081,474
Vesting Benefits	10,803,025	3,547,208
Survivor's Benefits	7,363,221	13,186,070
Disability Benefits	36,346,441	48,630,783
Return of Contributions	37,512,824	20,379,571
Total Non-medical Care Benefits	**724,991,922**	**786,825,106**
Medical Care Benefits	384,170,583	358,861,190
Dental Benefits	14,090,248	12,997,010
Vision Benefits	1,631,094	1,642,774
Total Medical Care Benefits	**399,891,925**	**373,500,974**
Total for Active Members	**1,124,883,847**	**1,160,326,080**
Total for All Members	**$2,524,215,831**	**$2,330,890,618**

Section 1.1

Present Value of Benefits and Actuarial Accrued Liability

Actuarial Accrued Liability - Inactive Members	December 31, 2001	December 31, 2000
Retirees and Beneficiaries	$866,727,495	$802,537,827
Deferred Vested Participants and Survivors	8,354,664	9,274,147
Survivor Benefits	8,659,293	8,526,218
Total Non-medical Care Benefits	**883,741,452**	**820,338,192**
Medical Care Benefits	484,869,165	323,845,108
Dental Benefits	26,941,258	22,727,429
Vision Benefits	3,780,109	3,653,809
Total Medical Care Benefits	**515,590,532**	**350,226,346**
Total for Inactive Members	**1,399,331,984**	**1,170,564,538**
Actuarial Accrued Liability - Active Members		
Retirement Benefits	542,156,289	576,577,778
Vesting Benefits	7,427,190	2,033,961
Survivor's Benefits	5,167,040	9,569,815
Disability Benefits	23,949,377	32,467,902
Return of Contributions	14,436,880	(1,807,225)
Total Non-medical Care Benefits	**593,136,776**	**618,842,231**
Medical Care Benefits	313,401,198	270,479,858
Dental Benefits	11,589,619	10,355,661
Vision Benefits	1,342,146	1,324,226
Total Medical Care Benefits	**326,332,963**	**282,159,745**
Total for Active Members	**919,469,739**	**901,001,976**
Total for All Members	**$2,318,801,723**	**$2,071,566,514**

Section 1.2

Normal Cost

The normal cost is annual cost assigned, under the Individual Entry Age Normal Cost Method, to benefits earned during the current year. The components are shown below as of the beginning of the year:

Normal Cost (Individual Entry Age Normal)	December 31, 2001	December 31, 2000
Retirement Benefits	12,115,909	13,912,834
Vesting Benefits	424,321	165,829
Survivor's Benefits	297,018	406,875
Disability Benefits	1,579,154	1,743,312
Return of Contributions	2,992,696	2,397,296
Total Non-medical Care Benefits	**17,409,098**	**18,626,146**
Medical Care Benefits	9,219,624	9,514,430
Dental Benefits	352,719	333,842
Vision Benefits	43,367	41,761
Total Medical Care Benefits	**9,615,710**	**9,890,033**
Expected Expenses	**8,100,000**	**8,600,000**
Total Normal Cost	**$35,124,808**	**$37,116,179**
Expected Employee Contributions	**12,390,713**	**12,492,757**
Employer Normal Cost	**$22,734,095**	**$24,623,422**

Section 1.3

Determination of Contribution

	December 31, 2001	December 31, 2000
1. Present Value of Projected Benefits:		
(a.) Active Participants	$ 1,124,883,847	$ 1,160,326,080
(b.) Participants with Deferred Benefits	24,677,288	21,095,541
(c.) Participants Receiving Benefits	1,374,654,696	1,149,468,997
(d.) Total	2,524,215,831	2,330,890,618
2. Present Value of Future Employee Contributions	95,003,353	113,558,750
3. Present Value of Future Normal Costs	$ 110,410,755	$ 145,765,354
4. Entry Age Accrued Liability (1)(d) – (2) – (3)	2,318,801,723	2,071,566,514
5. Actuarial Value of Assets	2,475,933,148	2,363,697,947
6. Unfunded/(Surplus) (4) – (5)	(157,131,425)	(292,131,433)
7. Amortization of Unfunded/(Surplus) Over 15 Years (at the beginning of the year)	(17,661,399)	(32,835,252)
8. Amortization of Unfunded/(Surplus) Over 15 Years (assuming monthly payments)	(18,477,356)	(34,352,241)
9. Total Normal Cost, including Expenses (at the beginning of the year)	35,124,808	37,116,179
10. Total Normal Cost, including Expenses (assuming monthly payments)	$ 36,747,574	$ 38,830,946
11. Employees' Expected Contributions to Normal Cost (assuming monthly payments)	12,963,164	13,069,922
12. Employer Normal Cost (10) – (11)	23,784,410	25,761,024
13. Employer Total Cost *(8) + (12)*	5,307,054	(8,591,217)

Section 1.4

Actuarial (Gain) / Loss

The actuarial (gain)/loss is the amount by which the surplus exceeds or falls short of expectations. It is developed below.

1. Unfunded Actuarial Accrued Liability as of December 31, 2000	**$(292,131,433)**
2. Normal Cost for 2001, including expenses (at beginning of year)	37,116,179
3. Contributions	(26,946,464)
4. Interest	(23,479,365)
5. Expected Unfunded Actuarial Accrued Liability as of December 31, 2001 (1) + (2) + (3) + (4)	**(305,441,083)**
6. Assumption Changes	38,876,000
7. (Gain)/Loss	109,433,658
8. Actual Unfunded Actuarial Accrued Liability as of December 31, 2001 (5) + (6) + (7)	(157,131,425)

The actuarial (gain)/loss affects the plan surplus, which, amortized over 15 years, helps to reduce the contribution rate. Contribution rates are shown before taking into account expected employee contributions.

The actuarial gain (loss) and loss due to assumptions changes is broken down into its component parts below.

Component	**Total (Gain)/Loss**	**Change in Normal Cost Rate**	**Change in Contribution Rate**
Asset Experience	$0	0.00%	0.00%
Employer Contribution	(13,897,000)	0.00%	(0.95)%
Salary Experience	(17,318,000)	0.12%	(1.19)%
New Entrants	1,925,000	(0.11)%	0.50%
Participant Demographics	(27,464,000)	(0.09)%	(3.67)%
Medical Experience	166,188,000	1.38%	12.83%
Other Assumption Changes	38,876,000	(2.30)%	0.29%
Total	**$148,310,000**	**(1.00)%**	**7.81%**

Section 2

Accounting Information

A. Actuarial Present Value of Accumulated Plan Benefits

The actuarial present value of vested and nonvested accumulated plan benefits was computed on an ongoing plan basis in order to provide required accounting information. In this calculation, a determination is made of all benefits earned by current participants as of the valuation date, and the actuarial present value is then computed using demographic assumptions and an assumed interest rate. Assumptions with respect to future salary increases and accrual of future benefit service are not necessary for this purpose.

Accumulated Benefits	December 31, 2001	Number of Vested Participants
Vested Benefits		
Participants Currently Receiving Payments	$ 1,374,654,696	4,345
Participants with Deferred Benefits	24,677,288	85
Active Participants	726,153,203	3,352
Nonvested Benefits	$ 59,841,623	2,191 *
Total Actuarial Present Value of Accumulated Plan Benefits	**$ 2,185,326,810**	
Market Value of Assets	$ 2,352,508,062	

* Includes 1,597 part-time employees, and medical benefits for participants with between 5 and 15 years of service.

Section 2

B. Statement of Changes in Accumulated Plan Benefits

A statement of changes in the actuarial present value of accumulated plan benefits follows. This statement shows the effect of certain events on the actuarial present value shown on the previous page.

Actuarial Present Value of Accumulated Plan Benefits as of December 31, 2000	**$ 1,793,830,533**
Increase (decrease) during the year attributable to:	
Plan amendment	$ 0
Change in Actuarial Assumptions	217,477,814
Benefits Accumulated and Gains and Losses	131,359,241
Increase for interest due to the decrease in the discount period	151,787,926
Benefits Paid and Transfers to other Systems	(109,128,704)
Net increase (decrease)	$ 391,496,277
Actuarial Present Value of Accumulated Plan Benefits as of December 31, 2001	**$ 2,185,326,810**

The benefits valued include all benefits – retirement, preretirement death, and vested termination and medical benefits – payable from the Plan for employee service prior to the valuation date. Benefits are assumed to accrue (accumulate) in accordance with the plan provisions.

The actuarial present value of accumulated plan benefits shown in this report is calculated using the same actuarial assumptions used for funding purposes.

Section 3.1

Summary of Assets

	December 31, 2001
Market Value	
Cash, Cash Equivalents, Accounts Receivable and Accounts Payable	$ (65,165,043)
Corporate Bonds	244,339,617
Commercial Paper	7,244,925
Venture Capital	16,991,170
U.S. Government Bonds	548,479,660
Asset Backed Securities	118,875,965
Common Stock	1,458,089,574
Loans to Members	20,882,243
Accrued Interest on Investments and Dividends Receivable	9,770,594
Equipment	1,082,833
Total Assets	**$ 2,360,591,538**
Accrued Contributions	525,489
Less: Advanced Contribution	2,002
Less: Accrued Liabilities	8,606,963
Assets for Valuation	**$ 2,352,508,062**

Section 3.2

Reconciliation of Assets

	Market Value
Assets as of 12/31/2000	$2,560,804,597
Receipts	
Investment income	78,448,913
Employer contributions	13,374,661
Employee contributions	13,571,803
Net appreciation	(196,543,878)
Disbursements	
Benefit payments	109,128,704
Transfers to other systems	0
Expenses	8,019,330
Assets as of 12/31/2001	**$2,352,508,062**

Section 3.3

Development of Actuarial Value of Assets

1. Actuarial Value of Assets 12/31/2000	**$2,363,697,947**
2. Contributions during 2001	26,946,464
3. Benefit Payments and transfers out during 2001	(109,128,704)
4. Expenses during 2001	(8,019,330)
5. Expected Return on Assets	202,436,771
6. Expected Actuarial Value of Assets 12/31/2001	2,475,933,148
7. Market Value of Assets 12/31/2001	2,352,508,062
8. Corridor Around Market Value (a.) 90% of Market Value (b.) 110% of Market Value	 2,117,257,256 2,587,758,868
9. Distance from Corridor	0
10. 50% of Distance	0
11. Actuarial Value of Assets 12/31/2001 ***(6. + 10.)***	**$2,475,933,148**

Section 4.1

Plan Participants

A. Reconciliation of Participants From December 31, 2000 to December 31,2001

	Active Participants	Inactive Participants		Total
		With Deferred Benefits	Receiving Benefits	
Beginning of Year	**4,128**	**116**	**4,218**	**8,462**
Nonvested Terminations	(140)			(140)
Vested Terminations	(9)	9		0
Age Retirements	(179)	(7)	186	0
Disablements	(13)		13	0
. Deaths	(8)	(1)	(179)	(188)
Survivors			68	68
New Entrants	151			151
Contribution Refund Cashouts				
Rehires	15	(1)	(1)	13
Net Part Time Change	1			1
Data Corrections	0	(31)*	40*	9
Net Change	(182)	(31)	127	(86)
End of Year	**3,946**	**85**	**4,345**	**8,376**

*31 beneficiaries in pay status were misclassified last year as deferred beneficiaries.

Section 4.1

B. Count of Active Full-Time Participants

	Years of Service								
Age	**0 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35+**	**Total**
Under 25	51	3							**54**
25 - 29	106	27	2						**135**
30 - 34	124	80	95	2					**301**
35 - 39	95	97	268	57	3				**520**
40 - 44	86	76	266	163	119	2			**712**
45 - 49	57	75	178	135	188	205	11		**849**
50 - 54	45	55	141	79	112	273	71	4	**780**
55 - 59	21	22	94	31	49	125	60	9	**411**
60 - 64	7	17	22	9	18	35	22	10	**140**
65 – 69	2	4	7	3	4	7	3	3	**33**
70 – 74			1			3	1	1	**6**
75+			2				2	1	**5**
Total	**594**	**456**	**1,076**	**479**	**493**	**650**	**170**	**28**	**3,946**

Note: There are also 1,597 active Part-Time Participants.

Section 4.1

C. Average Compensation for Full-Time Participants

	Years of Service								
Age	**0 - 4**	**5 - 9**	**10 - 14**	**15 - 19**	**20 - 24**	**25 - 29**	**30 - 34**	**35+**	**Total**
Under 25	30,816	25,345							**30,512**
25 - 29	32,853	33,720	28,436						**32,961**
30 - 34	35,895	37,466	37,651	34,468					**36,857**
35 - 39	38,211	40,081	41,577	42,229	40,244				**40,747**
40 - 44	36,755	39,339	41,277	44,057	43,785	47,603			**41,598**
45 - 49	39,938	37,859	40,887	45,014	49,348	46,285	47,619		**44,476**
50 - 54	40,833	46,546	43,041	42,528	45,455	49,464	48,712	68,927	**46,353**
55 - 59	47,069	49,609	40,097	41,018	51,116	52,115	52,190	55,599	**48,105**
60 - 64	42,945	46,194	44,720	46,928	43,041	43,322	45,623	51,771	**45,032**
65 – 69	82,187	31,734	32,631	33,689	52,898	43,861	42,215	40,705	**42,066**
70-74			23,290			31,228	38,535	40,395	**32,651**
75+			29,989				46,480	32,213	**37,031**
Total	**36,807**	**40,054**	**41,048**	**43,609**	**47,040**	**48,490**	**49,268**	**53,162**	**43,020**

Compensation shown above is 2001 compensation.

Section 4.1

D. Inactive Participants

Age	Participants With Deferred Benefits		Participants Receiving Benefits	
	Count	Total Monthly Benefits	Count	Total Monthly Benefits
Under 40	4	3,985	27	12,279
40–44	6	6,382	21	13,201
45–49	24	29,336	69	105,852
50–54	32	50,443	277	571,089
55–59	17	20,684	369	773,245
60–64	2	805	550	1,072,542
65–69	-	-	692	1,179,628
70–74	-	-	651	1,054,179
75–79	-	-	684	927,161
80–84	-	-	542	623,818
85–89	-	-	310	289,022
90–94	-	-	120	111,421
95–104	-	-	33	23,606
Total	**85**	**$ 111,635**	**4,345**	**$ 6,757,043**

Section 4.2

Actuarial Basis

A. Individual Entry Age Normal Cost Method

Liabilities and contributions shown in this report are computed using the individual entry age normal method of funding. The objective under this method is to fund each participant's benefits under the plan as payments which are level as a percentage of salary, starting at original participation date (or employment date), and continuing until the assumed retirement, termination, disability or death.

At the time the funding method is introduced, there will be a liability which represents the contributions which would have been accumulated if this method of funding had always been used. The difference between this liability and the assets (if any) which are held in the fund is the unfunded liability, which is typically funded over a chosen period in accordance with an amortization schedule.

A detailed description of the calculation follows:

- The **normal cost** for each active participant under the assumed retirement age is determined by applying to compensation the level percentage of salary which, if contributed each year from date of entry into the plan until the assumed retirement (termination, disability or death) date, is sufficient to provide the full value of the benefits expected to be payable.
- The **present value of future normal costs** is the total of the discounted values of all active participants' normal costs, assuming these to be paid in each case from the valuation date until retirement (termination, disability or death) date.
- The **present value of projected benefits** is calculated as the value of all benefit payments expected to be paid to the plan's current participants, including active and retired members, beneficiaries, and terminated members with vested rights.
- The **accrued liability** is the excess of the present value of projected benefits over the present value of future normal costs.
- The **unfunded liability** is the excess of the accrued liability over the actuarial asset value of the fund, and represents that part of the accrued liability which has not been funded by accumulated past contributions.
- The **past service cost** is the level annual payment over a stipulated number of years which is required to amortize the unfunded liability.

Section 4.2

B. Asset Valuation Method

Prior to 1995, the actuarial value of assets was equal to historical cost value. Effective December 31, 1995, the actuarial value of assets is based on the expected actuarial value of assets. The prior year's actuarial value of assets is adjusted for employer and employee contributions, expenses (starting in 1996), benefit payments, transfers to and from the plan and expected investment return during the year to determine the expected actuarial value of assets.

If the ratio of the expected actuarial value of assets to the market value of assets is less than 90% or greater than 110%, then the expected actuarial value of assets is adjusted by 50% of the difference between the 90%/110% corridor around market value and the expected actuarial value of assets.

C. Valuation Procedures

The limitations of Internal Revenue code Section 415(b) have been incorporated into our calculations.

The plan was amended July 1, 1991 to include part-time employees who were previously excluded. These participants do not exhibit the same turnover pattern as full-time employees. Consequently, the liabilities and costs in this valuation are based upon full-time participants only, except to include the accumulated contributions for part-time employees. The city is contributing at a rate of 3.00% of pay based on the 1995 analysis of experience.

For participants who terminate prior to retirement with less than 15 years of service, the liability held is the value of employee contributions with interest. Seventy-five percent of participants who terminate prior to retirement with 15 years of service or more are assumed to elect a return of employee contributions with interest, while 25% are assumed to elect annuity benefits.

Section 4.2

D. Actuarial Assumptions

(1) The actuarial assumptions used to determine employer contributions to the plan are as follows:

Investment Return:

8-3/4% per year, prior to expenses, compounded annually.

Mortality:

Non-disabled lives: Uninsured Pensioner 1994 Mortality Table projected to 2009.

Disabled retirees: Pension Benefit Guarantee Corporation Disabled Mortality Table.

Turnover:

Current Table: 2000 City of Cincinnati Rate of Termination Experience Table.

Prior Year Table: 1995 City of Cincinnati Rate of Termination Experience Table.

The turnover assumption during the first three years of service is as follows:

Years of Service	Current Rate	Prior Year Rate
1	.10	.15
2	.10	.09
3	.07	.06

Specimen rates after the first three years of service are as follows:

Attained Age	Current Rate	Prior Year Rate
25	.0675	.054
30	.055	.052
40	.030	.037
50	.035	.011
60	.040	.000

Section 4.2

D. Actuarial Assumptions (Continued)

Disability: The 1995 City of Cincinnati Disability Retirement Experience Table. Specimen rates are as follows:

Attained Age	Rate per 1,000 Lives
25	1.2
30	1.4
40	2.8
50	6.6
60	0.0

Salary:

Current Year: Salary increases are assumed to vary by service. Specimen rates are as follows:

Service	Annual Increase
0	.080
5	.055
10	.040
20	.040
30	.045

Prior Year: Salary increases are assumed to be 4.50%. Additionally, for the first three years of service, the following rates are used in place of the 4.50% described above:

Years of Service	Salary Increase
1	9.50%
2	7.00%
3	5.50%

Other Salary Assumptions: For those participants who had not elected the 2.50% formula an additional 10% increase in average salary is used to reflect final lump sum payments.

Salary for valuation purposes is total pay for year multiplied by:

(1) 1.0027 if year has 26 pay periods
(2) 0.9656 if year has 27 pay periods.

Section 4.2

D. Actuarial Assumptions (Continued)

Retirement Age: Rates of retirement are assumed to be in accordance with the following table for participants who are age 60 with 5 years of service or are any age with 30 years of service (those eligible for unreduced benefits):

Age	Current Rate	Prior Year Rate
47-50	25%	10%
51-53	30%	10%
54	35%	10%
55-56	35%	15%
57-59	30%	15%
60	30%	20%
61-64	25%	20%
65	30%	50%
66-69	30%	33%
70 and above	100%	100%

Early Retirement:
- Current Year: 12 percent of those eligible for reduced early retirement are assumed to retire.
- Prior Year: None assumed.

Expenses: Expenses will be paid by the system assets.
- Current Year: The investment return is net of expenses, so no explicit expense is assumed. (Expenses estimated at 0.31% of assets.)
- Prior Year: Expenses are assumed to be the prior year's expenses rounded to the next $100,000.

Medical Benefits Other than Hospital And Surgical: Medicare Part B: Medicare Part B premiums are assumed to increase in accordance with estimates from the 2001 (2000 last year) Annual Report of the Board of Trustees (previously the Congressional Budget Office) until the year 2008 and then increase at 7% per year thereafter.

Dental: Premiums are assumed to increase at a decreasing rate, starting at 7% for 2001, then decreasing by 0.5% per year to 4.5% and remaining there for 15 years, then decreasing gradually over 12 years to zero. This takes the $1,000 fixed cap on annual dental costs into account.

Vision: The vision premium is fixed at $75 per year. We anticipate a 0.5% annual increase in costs to take increases in administrative costs into account.

Section 4.2

D. Actuarial Assumptions (Continued)

Hospital and Surgical Benefits: Adjusted premiums are based on experience for recent years adjusted to current year by assumed annual increase in premium costs.

Current Year: Group 1 refers to current inactive participants and active participants hired prior to 1997. Group 2 refers to active participants hired in 1997 or later.

Assumed premium increase specimens are shown in the table below:

Year	Group 1	Group 1 Medicare	Group 2	Group 2 Medicare
2002	12.1%	11.9%	12.5%	12.5%
2005	10.8%	10.4%	11.1%	11.5%
2010	8.4%	7.8%	8.8%	9.5%
Ultimate trend	5.3%	4.9%	5.2%	5.6%

Aging: Claim costs are assumed to increase with age.

Participation: 100% for Group 1. Group 2 actives have to pay some portion of their medical costs, so assumed participation rates are reduced by rate of cost sharing.

Retiree Contribution Percentage	Assumed Participation Rate
25%	90%
50%	70%
75%	40%

Prior Year: Adjusted premium costs are projected to increase 7% per year.

Option Elections: 75% of male participants and 25% of female participants will have a spouse who is covered under the medical benefits portion of the plan. Of these participants with a covered spouse, 85% will elect a Joint & Survivor option.

(2) For computing the value of vested and non-vested benefits, the following modifications were made to the above assumptions:

No future increases in salaries were assumed. Accumulated plan benefits were calculated using estimated Average Monthly Earnings in effect on the valuation date.

Section 4.3

Summary of Plan Provisions

Average Compensation:

The average compensation used in the calculation of benefits depends on whether the participant elects the 2.50% formula which uses the average highest base compensation or the 2.22% formula which uses the average highest total compensation.

Average Highest Base Compensation:

The term "average highest base compensation" means the average annual compensation earned by a member during his most highly compensated period of three consecutive years of service. It excludes overtime pay, payment for compensatory time, earnings from any additional part-time employment in City service, and lump sum terminal leave pay.

Average Highest Total Compensation:

The term "average highest total compensation" means the average annual compensation earned by a member during his most highly compensated period of three consecutive years of service. It includes that portion of lump sum terminal leave pay which could be accumulated in the final three years of active service, except that the payment for unused sick leave shall not exceed an amount equal to the compensation at the hourly rate last earned by a member for 312 hours.

Service Retirement Allowance:

Condition for Allowance: Any member in service may retire upon:

a. attaining age 60, regardless of length of creditable service if he was enrolled prior to January 1, 1969, or with at least 5 years of creditable service if he was enrolled January 1, 1969 or later, or
b. completing 30 or more years of creditable service at any age, with a retirement allowance commencing immediately; or
c. completing 5 years of creditable service before age 60 and then may retire with a retirement allowance commencing at age 60, provided, however, at the time of election of the deferred annuity there is no loan outstanding against his contributions.

Amount of Allowance: The annual retirement allowance consists of:

a. An annuity provided by the number equal in value to his contributions with interest at the time of his retirement; and

b. A pension which together with his annuity produces a total annual retirement allowance equal to 2.50% of his average highest base compensation or 2.22% of his average highest total compensation multiplied by the number of years of his membership service, whichever is applicable.

c. For members with credit for service rendered prior to the establishment of the System, an additional pension of 2.50% of his average highest base compensation or 2.22% of his average highest total compensation multiplied by the number of years of such prior service, whichever is applicable.

d. Annual increases of 3% compounded annually commencing 1 year after retirement.

In no event shall the retirement allowance be less than $4.00 per month multiplied by his years of credited service not in excess of 25 years.

In no event shall the retirement allowance be greater than that permitted by Section 415 of the Internal Revenue Code.

Advanced Service Retirement Allowance:

Condition for Allowance: Any member who has attained age 55 and has 25 but less than 30 years of membership service may retire on an advanced service retirement allowance.

Amount of Allowance: The annual retirement allowance consists of:

a. An annuity provided by the number equal in value to his contributions with interest at the time of his retirement.

b. A pension which shall be the actuarial equivalent at his age at the date of retirement, of the pension which would have been payable had he attained the age of sixty on said date.

Disability Retirement Allowance:

Condition for Allowance: Any member in service who (1) is disabled as the result of an accident which occurs in the performance of his duties as an employee regardless of age or length of service, or (2) having completed five years of service, is disabled by reason of either accidental or non-accidental cause, may be retired on a disability retirement allowance, provided he is found to be permanently incapacitated, either mentally or physically, for the further performance of duty.

Amount of Allowance: Upon disability retirement a member receives a service retirement allowance if he has attained age 60 or any age with 30 years of creditable service, otherwise he receives a disability retirement annual allowance which consists of:

a. An annuity provided by the number equal in value to his contributions with interest at the time of his retirement.

b. A pension which together with his annuity produces a total annual retirement allowance equal to 90% of the sum of 2.50% of his average highest base compensation or 2.22% of his average highest total compensation, whichever is applicable, multiplied by the number of years of his creditable service, except that such allowance shall not be less than smaller of:

(1) 25% of his average highest compensation; or

(2) 90% of the service retirement allowance to which he would have become entitled had he continued in service to age 60 without further change in average highest compensation but in any event not less than $43.20 for each year of his service not in excess of 25.

c. Annual increases of 3% compounded annually commencing 1 year after retirement.

Ordinary Death Benefit:

Condition for Benefit: Upon the death of a member in service, a benefit is paid to the designated beneficiary, if living, otherwise to the surviving spouse, children or certain other dependents.

Amount of Benefit: In the event of death, all contributions made by the member with interest are returned to the estate or designated beneficiary. In addition, a lump sum payment is made from the contributions of the City equal to 50% of the compensation received by the member during the year immediately preceding his death provided the member had at least eighteen months of service.

Section 4.3

Survivor Death Benefits:

Condition for Benefit: Upon the death of a member in service with survivors, including a member on leave of absence without pay for a period of not more than one year, with eighteen months or more of service, a monthly benefit is paid unless the member is in the building crafts. Building crafts participants are not entitled to Survivor Death Benefits.

Amount of Monthly Benefit:	2002	2001
Unmarried widow (or widower) and one child under 18	$491.73	$477.41
Unmarried widow (or widower) and two or more unmarried children under 18	$666.56	$647.15
Widow (or widower) at age 50 (if spouse had 15 or more years of service)	$245.86	$238.70
Widow (or widower) at age 62 (if spouse had less than 15 years of service)	$245.86	$238.70
One unmarried orphan under 18	$245.86	$238.70
Two unmarried orphans under 18	$491.73	$477.41
Three or more unmarried orphans under 18	$666.56	$647.15
One dependent parent	$174.83 Min. $245.86 Max.	$169.74 Min. $238.70 Max.
Two dependent parents	$245.86 Min. $491.73 Max.	$238.70 Min. $477.41 Max.

Beginning in 2000 the survivor benefits are indexed annually by cost of living, not to exceed 3% per year. The increase for 2001 was 3.0%.

Section 4.3

Retirement Death Benefit:

Upon the death of a retired member, a lump sum benefit of $7,500 is paid to the designated beneficiary, if living, otherwise to the surviving spouse, children or certain other dependents.

In addition, all contributions made by the member together with interest prior to retirement, in excess of retirement allowance payments received prior to death, are paid to such beneficiary, provided, however, the member has not elected an optional retirement allowance as hereinafter described.

Return of Contribution:

Upon the withdrawal of a member prior to retirement, the entire amount of the contributions with interest at 2% per annum is returned to him.

Special Privileges:

Upon retirement a member may elect to receive the actuarial equivalent of the retirement allowance in any one of the optional forms described below. Effective December 22, 1971 members over age 60 and members who have completed 20 years of service, including members on deferred retirement, may elect, prior to retirement, any one of the optional forms. In the event of death before retirement the person designated shall receive the same benefit as would have been received if the member had retired the day before death. However, in event of such death, the optionee will not be entitled to an optional allowance until the date the deceased member would have reached age 55 with 25 years of service or age 60 with 20 years of service.

> **Option 1**: Reduced retirement allowance payment with the provisions that, at death, the amount of the allowance shall be continued throughout the life of the designated beneficiary at the time of this election of the option.
>
> **Option 2**: Reduced retirement allowance payments with the provision that, at death, one-half of the amount of the allowance shall be continued throughout the life of the designated beneficiary at the time of the election of this option.
>
> **Option 3**: Reduced retirement allowance payments with the provision that, at the first death of the member or the designated beneficiary at the time of the election of this option, two-thirds of the amount of the allowance shall be continued throughout the life of the survivor.
>
> **Option 4**: Reduced retirement allowance payments with the provisions that, at the first death of the member or designated beneficiary at the time of the election of this option, 80% of the amount of the allowance shall be continued throughout the life of the survivor.

In the event of the death of a member in service who was eligible to retire and who is survived by a spouse who was designated as sole primary beneficiary, such spouse may elect to receive the Option 1 allowance described above.

Section 4.3

Hospital and Surgical Insurance, including Dental and Vision Benefits:

All retired members and those who are receiving survivor benefits are entitled to have their Anthem Blue Cross-Blue Shield premiums, including dental and vision coverage paid by the System. Upon the death of a retired member for whom an option 1, 2, 3, or 4 is in effect, the designated beneficiary shall continue to be covered for such hospital and surgical benefits. Dental and Vision benefits are subject to a cap of $1,000 per year for dental benefits and $100 per year for vision.

Moreover, when benefits under this coverage would be reduced by reason of the retired member's eligibility for hospital and medical benefits under federal Social Security laws, the System will pay whatever additional fees are required for the federal Medicare coverage.

To be eligible for these benefits, the member must have earned 15 years credited service at the time of termination, or terminate after age 60 with 5 years credited service.

For members who are hired after January 8, 1997, the plan will provide medical benefits in accordance with the following schedule:

- 100% of full cost if age plus service at termination exceeds 90
- 75% of full cost if age plus service at termination exceeds 80 but is less than 90
- 50% of full cost if age plus service at termination exceeds 70 but is less than 80
- 25% of full cost if age plus service at termination exceeds 60 but is less than 70
- 0% of full cost if age plus service at termination is less than 60

Contributions:

By Member: Each member, commencing January 1, 1978, contributes at a rate of 7% of the salary used to compute retirement benefits until his retirement.

By Employers: The sponsoring employer makes annual contributions based on member's salaries so that, when members become eligible for benefits, reserves will have been accumulated adequate to provide the pension and other benefits payable by the plan on account of creditable service.

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