METROPOLITAN TRANSIT COMMISSION
TRANSIT OPERATING DIVISION
EMPLOYEES' RETIREMENT PLAN
ACTUARIAL VALUATION
AS OF JANUARY 1, 1976

Prepared and submitted by

George V. Stennes and Associates

Consulting Actuaries

FILE COPY

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August 24, 1976

Retirement Allowance Committee
Metropolitan Transit Commission
Transit Operating Division
Employees' Retirement Plan
3118 Nicollet Avenue
Minneapolis, Minnesota 55408

Gentlemen:

At your request we have made an Actuarial Valuation of the Metropolitan Transit Commission/Transit Operating Division Employees' Retirement Plan as of January 1, 1976. The attached report summarizes the results of this valuation.

It is our opinion that if the current contribution rates of 4.9% for employees and 9.8% for the Company are continued and the total covered payroll remains at the current level, normal costs will be met and the accrued liability will be funded by August 1, 1985. Calculation of this funding period is based on the actuarial assumptions and method outlined in Appendix III and IV and plan benefits outlined in Appendix V.

We certify that all calculations in respect to the valuation were performed on the basis of the assumptions outlined in the report and that the results are correct to the best of our knowledge.

Respectfully submitted,

James R. Bordewick

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Fellow, Society of Actuaries

JRB:hlj

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METROPOLITAN TRANSIT COMMISSION

TRANSIT OPERATING DIVISION

EMPLOYEES' RETIREMENT PLAN

ACTUARIAL VALUATION

AS OF JANUARY 1, 1976

SECTION I

INTRODUCTION

This report contains the results of the actuarial valuation of the Plan performed as of January 1, 1976. The costs shown in this report are based on the plan benefits and provisions as outlined in Appendix V and the actuarial assumptions and method outlined in Appendices III and IV.

The contribution rates for employees and the Company set forth later in Appendix V of the report are expressed in percentages of compensation so it is important to understand that the level of gross payroll of the Company is of great importance in determining the level of contributions required to support the pension benefits.

The following table shows the growth of participation in the Plan over the last five years. Active employees covered has increased by 52%; covered payroll has increased by 109%; and prospective annual pensions have increased by 113% which is a combination of growth in participation and plan changes.

Year	Number of Active Employees	Covered Payroll	Prospective Annual Pension
1-1-76	1,805	$23,647,000	$10,588,000
1-1-75	1,547	18,624,000	8,753,000
1-1-74	1,346	14,975,000	6,763,000
1-1-73	1,275	13,033,000	5,887,000
1-1-72	1,191	11,313,000	4,970,000

The calculations underlying the results set forth below assume a continuation of the covered payroll at its current level. A drop in covered payroll will increase the percentage of pay necessary to fund the pension benefits over a fixed period of time, or will lengthen the period necessary for a fixed contribution rate to fully fund the benefits. An increase in covered payroll will have the opposite effect.

The Plan commenced July 1, 1944 and was amended as of January 1, 1950, as of January 1, 1965, as of January 1, 1972, and as of January 1, 1975. It is supported by joint contributions of employees and the Company. Company contributions according to the Plan are to be two-thirds of the total required contributions. Article Six of the Plan, prior to the 1965 amendments, provided that the contributions to be made in years following 1951 "shall be the annual amounts necessary (a) to fund the cost of current service credit for such year, and (b) to fund the accrued liability over a period of 40 years." The 1965 amendments froze the total contribution rate at 14.7% for a three-year period, and lengthened the funding period to whatever period of years necessary, which as of January 1, 1965 was 35½ years from that date. Minnesota Statute now provides that the accrued liabilities are to be amortized by the end of 1997.

SECTION II

ASSETS OF THE PLAN AS OF JANUARY 1, 1976

The development of the assets of the Plan since the last valuation is shown in Table 1 on the basis of the cost value. An analysis of the Deferred Yield Adjustment Account is in Table 2. The development of Valuation Assets used in the determination of the Unfunded Liability and amortization period is summarized in Table 3.

TABLE 1

DEVELOPMENT OF ASSETS

COST BASIS

1-1-75 to 12-31-75

Trust Assets, 1-1-75 (Includes Accrued Contributions of $227,343.69)		$10,701,482.72
Income		
Company and Employee Contributions	$3,049,386.81	
Company and Employee Contributions (Accrued)	334,607.40	
Interest, Dividends and Other Income	665,807.86	
Loss on Sale and Redemption of Securities	(201,809.16)	
Total Income		3,847,992.91
Sum		$14,549,475.63
Disbursements		
Pensions and Refunds at Death on Retirees	$1,388,099.45	
Refunds of Contributions on Actives	120,162.82	
Trustee's Fees to 12-31-75	21,848.00	
Actuarial Fees	10,835.00	
Auditor's Fees	3,700.00	
Miscellaneous (Postage, Insurance Printing, Administration, etc.)	4,035.61	
Total Disbursements		1,548,680.88
Trust Assets, 12-31-75 (Cost) (Includes Accrued Contributions of $334,607.40)		$13,000,794.75
Trust Assets, 12-31-75 (Market) (Includes Accrued Contributions of $334,607.40)		$11,974,562.99

TABLE 2

ANALYSIS OF DEFERRED YIELD ADJUSTMENT ACCOUNT

Under the terms of Minnesota Statute 356.20, Subdivision 5, a public fund is permitted to establish a Deferred Yield Adjustment Account. This is a reserve fund which will minimize the fluctuation caused by losses or gains resulting from the sale of debt securities in a given year. The Metropolitan Transit Commission/Transit Operating Division Employees' Retirement Plan is a fund that qualifies under this statute for the treatment of gains and losses resulting from the sale of debt securities.

The total losses realized from the sale of bonds and other debt securities for the 1975 plan year were $53,581. These losses will be amortized over a 15-year period; therefore, only $3,572 of the loss has been recognized in the valuation assets for 1975. When this balance is added to the Deferred Yield Adjustment Account Balance of $11,777 remaining from 1974, the Deferred Yield Adjustment Account becomes $61,786. A summary follows:

Deferred Yield Adjustment Account, 12-31-74		$17,665.36
Less Four-Year Amortization of 1974 Losses	-	5,888.46
Subtotal		$11,776.90
Plus 1975 Losses on Debt Securities	+	53,581.00
Subtotal		$65,357.90
Less 15-Year Amortization of 1975 Losses	-	3,572.07
Deferred Yield Adjustment Account, 12-31-75		$61,785.83

The valuation assets for the Trust Fund used in determining the plan costs are summarized below:

		Cost		Market
Trust Assets, 12-31-75		$13,000,795		$11,974,563
Deferred Yield Adjustment Account	+	61,786	+	61,786
Valuation Assets, 12-31-75		$13,062,581		$12,036,349

The following table traces the development of the valuation assets from January 1, 1975 to December 31, 1975 which recognizes the Deferred Yield Adjustment Account.

TABLE 3

DEVELOPMENT OF ASSETS

Valuation Assets at Cost, 1-1-75 (Includes Accrued Contributions of $227,344)	$10,719,148
Income	
Contributions	$ 3,383,994
Interest, Dividends, etc.	665,808
Loss on Sale of Non-Debt Securities	(148,228)
Loss on Sale of Debt Securities Recognized in 1975:	
1974 Losses	(5,888)
1975 Losses	(3,572)
Total Income	$ 3,892,114
Disbursements	
Total Disbursements	$ 1,548,681
Valuation Assets at Cost, 12-31-75 (Includes Accrued Contributions of $334,607)	$13,062,581

SECTION III

RESULTS OF VALUATION

This valuation is the fifteenth which has been based on the actual past experience of the Plan, projected for future developments. Since the actuarial factors used in the valuation reflect closely the Plan's recent experience, fluctuations in the funding period due to actuarial gains and losses can be expected from year to year, which will not be cushioned by conservative actuarial assumptions. For example, 1975 again showed higher mortality among retirees than expected and fewer retirements than expected, both of which produce gains.

The report submitted last year indicated that the combined contribution rate of 14.7% of covered payroll would pay the normal annual cost and amortize the unfunded liability over a period of approximately 14.67 years from January 1, 1975 (by September 1, 1989), assuming the covered payroll is unchanged and experience followed the actuarial assumptions. The January 1, 1976 valuation indicates that the unfunded liability will be amortized in approximately 9.58 years from January 1, 1976 (by August 1, 1985). Minnesota Statute 356.21, Subdivision 5, Paragraph (6) provides for amortizing the unfunded liability by the end of the plan's fiscal year in 1997. The current combined rate of 14.7% of covered payroll would meet full funding by August 1, 1985.

TABLE 4

FULL FUNDING DATE

Valuation Date	Estimated "Full Funding" Date
January 1, 1965	July 1, 2000
January 1, 1966	March 1, 2002
January 1, 1967	January 1, 2002
January 1, 1968	July 1, 1998
January 1, 1969	July 1, 1999
January 1, 1970	October 1, 1994
January 1, 1971	July 1, 1992
January 1, 1972	November 1, 1990
January 1, 1973 (Before Changes)	May 1, 1988
January 1, 1973 (After Changes)	October 1, 1991
January 1, 1974	October 1, 1991
January 1, 1975 (Before Changes)	April 1, 1988
January 1, 1975 (After Changes)	September 1, 1989
January 1, 1976	August 1, 1985

These funding periods have been developed using the valuation value for assets. If market value had been utilized, the full funding date would be May 1, 1986.

An analysis of the Unfunded Liability as of January 1, 1976 is shown in Table 5. The development of this Unfunded Liability from last year is described in Table 6. Table 7 shows the total normal cost allocated to the various types of benefits.

TABLE 5

ANALYSIS OF UNFUNDED LIABILITY

AS OF JANUARY 1, 1976

(1)	Present Value of Future Benefits:	
	For Active Participants -	
	Regular Retirement Allowances	$24,300,281
	Disability	2,350,834
	Death Benefits Before Retirement	677,513
	Withdrawal Benefits	1,060,015
	Total Active	$28,388,643
	For Participants Terminated with a Vested Interest and Miscellaneous Refunds Due	$ 148,038
	Present Value of Retirement Allowances Payable to Currently Retired Participants	
	Regular Retirements	$10,002,938
	Disability Retirements	1,246,316
	Total Retired	$11,249,254
	Total Present Value of Benefits	$39,785,935
(2)	Present Value of Future Normal Costs	10,183,728
(3)	Accrued Liability (1) minus (2)	29,602,207
(4)	Valuation Assets	13,062,581
(5)	Unfunded Liability (3) minus (4)	$16,539,626

TABLE 6

DEVELOPMENT OF UNFUNDED LIABILITY

The unfunded liability decreased by $1,303,657 from January 1, 1975 to January 1, 1976. An analysis of this decrease is shown below:

Unfunded Liability, 1-1-75		$17,843,283
plus		
Interest Requirements at 5%	+	877,513
plus		
Actuarial Loss for Year Ended 12-31-75	+	131,759
less		
Amount by which Contributions were Greater than Cost for 1975	-	2,312,929
Unfunded Liability, 1-1-76		$16,539,626

The actuarial loss for the year reflects the full impact of all realized losses on the sale of non-debt securities. Recognition of only a portion of the realized losses on debt instruments is included in the decrease in unfunded liability due to the Deferred Yield Adjustment Account. Major actuarial losses resulted from the realized losses on the sale of securities, new entrants, salaries, terminations and deaths for active participants. These losses were partially offset by gains from mortality on retired lives.

TABLE 7

NORMAL COST

JANUARY 1, 1976

The normal cost for total estimated future benefits is allocated as follows:

Regular Retirement Allowances	$ 775,927
Disability Retirement Allowances	67,546
Death Benefits Before Retirement	143,973
Withdrawal Benefits	375,609
Total Normal Cost	$1,363,055

The normal cost is 5.76% of current covered annual payroll.

The estimated total (Employees and Company) contributions to the Plan in 1976 are $3,476,141. After deducting the normal cost of $1,363,055, this leaves $2,113,086 as available as an amortization payment toward the unfunded accrued liability. (This compares with $1,666,674 available for the payment toward the unfunded liability in 1975.)

Amortization payments at this level would be required for approximately 9.58 years from January 1, 1976 to completely fund the accrued liability. Thus, the date on which the Plan could become fully funded is estimated to be approximately August 1, 1985.

In our opinion, the current contribution rate of 14.7% will support the Plan on the basis outlined above, assuming the covered payroll does not decrease. However, any changes which would materially increase the unfunded liability, decrease the income of the fund, or a substantial decrease in covered payroll, would require an increase in the contribution rate in order to remain within the prescribed amortization period.

The total number of retirees decreased by one from the previous year. There was an increase of two in the total non-disability retirements, and a decrease of three in the total number of disability retirements. During 1975, there were fourteen non-disability retirees who elected optional forms of retirement income.

VESTED BENEFIT LIABILITIES

The table below summarizes the value of the vested benefits as of January 1, 1976. By comparison with the market value of the assets as of January 1, 1976,of $11,974,563, a vested benefit security ratio of 52.1% is obtained. If the accrued contributions of $334,607 are eliminated from the market value of the assets, the vested benefit security ratio becomes 50.7%.

TABLE 8

ACTUARIALLY COMPUTED VALUE OF VESTED BENEFITS

AS OF JANUARY 1, 1976

	Number	Amount
Retired Participants	677	$11,249,254
Working Beyond Age 65	3	133,758
Terminated with a Vested Interest	6	121,261
Active Participants Eligible for Vested Benefits	446	9,159,309
Estimated Accumulated Contributions for Non-Vested Employees and Miscellaneous Refunds Pending	-	2,298,252
Total		$22,961,834

APPENDIX

APPENDIX I

MEMBERSHIP OF PLAN

The following tables show summaries of the active and retired participants in the plan in addition to a summary of annual payroll.

The total annual compensation shown is the approximate annual rate in effect on December 31, 1975 rather than the amount actually paid in 1975.

The total prospective annual pension is the pension which will be accrued by the group based on the assumption that compensation remains constant.

EXHIBIT A

SUMMARY OF ANNUAL PAYROLL

	Number	Annual Payroll
Active Participants, 12-31-74	1,547	$18,576,075
Withdrawals due to Terminations, Deaths	85	847,452
Withdrawals with a Vested Interest	0	0
Reaching Age 65 and Retired during 1975	52	622,746
Active Participants, 12-31-74, Still Remaining as of 12-31-75	1,410	$17,105,877
Increases in 1974 Payroll for 1,410 Participants to 12-31-75 Payroll		2,665,218
New Entrants	395	3,832,656
Total Active Participants, 12-31-75	1,805	$23,603,751*
Employees Over Age 65		43,464**
Total Active Participants, 12-31-75		$23,647,215

* The annual payroll shown is for employees who have not reached their normal retirement dates.

** Additional annual payroll for employees who may continue to earn pension credits after age 65.

These figures represent the approximate annual rate in effect as of 12-31-75 rather than the amount actually paid in 1975.

EXHIBIT B

SUMMARY OF EMPLOYEE PARTICIPANTS

	Male	Female	Total
Active Participants, 12-31-74	1,466	81	1,547
New Entrants	331	64	395
Withdrawals due to Terminations, Deaths	78	7	85
Withdrawals with a Vested Interest	0	0	0
Retired during 1975	51	1	52
Active Participants, 12-31-75	1,668	137	1,805
Terminated with a Vested Interest	6	0	6
Retired Participants			
Non-Disability	536	34	570
Disability	99	8	107
Total Participants, 12-31-75	2,309	179	2,488

EXHIBIT C

SUMMARY OF RETIRED PARTICIPANTS

NON-DISABILITY RETIREDS

	Male	Female	Total
Total Retireds, 12-31-74	535	33	568
New Retirees			
From Active Participants	45	1	46
From Terminated with a Vested Interest	0	0	0
Retired Deaths	44	0	44
Total Non-Disability Retireds, 12-31-75	536	34	570

DISABILITY RETIREDS

	Male	Female	Total
Total Retireds, 12-31-74	103	7	110
New Retirees - From Active Participants	5	1	6
Retired Deaths	9	0	9
Total Disability Retireds, 12-31-75	99	8	107
Total Retirees, 12-31-75 (Non-Disability plus Disability)	635	42	677

Form of Annuity	Number of Retirees
Life Annuity Pensions	649
Five Years Certain & Life	15
Ten Years Certain & Life	7
Fifteen Years Certain & Life	1
Joint and ½ to Joint Annuitant	5
Total	677

EXHIBIT D

MTC-TOD EMPLOYEES RETIREMENT PLAN - HOURLY

AGE BRACKET	AVG ATT AGE	NUMBER OF EMPLOYEES [1]	TOTAL EARNINGS [2]	AVG EARNINGS	AVG PAST SERV	AVERAGE ACCR CR	AVERAGE PROS PEN NRD [3]
15-19	19.00	5	41086.00	8217.20	23	3.79	556.05
20-24	22.76	168	1906308.00	11347.07	1.19	18.13	581.12
25-29	26.98	332	4095651.00	12336.90	2.43	33.13	577.45
30-34	31.81	226	2900283.00	12833.11	3.31	43.22	552.41
35-39	36.88	186	2426507.00	13045.74	4.75	57.33	505.81
40-44	41.64	137	1871648.00	13661.66	4.98	62.48	457.28
45-49	46.90	105	1460547.00	13909.97	6.68	73.31	391.38
50-54	51.97	146	2076519.00	14222.73	15.38	130.63	378.72
55-59	57.16	149	2132531.00	14312.29	22.69	176.55	367.03
60-64	61.44	95	1333114.00	14032.78	29.39	208.73	376.16
65 - OVER	65.00	1	14887.00	14887.00	22.17	197.94	241.00
TOTALS	38.43	1,550	20259281.00	13070.50	8.04	74.94	490.81

1. Does not include 2 hourly employees over 65 with annual earnings of $30,960.

2. This is the approximate annual salary rate in effect as of 12-31-75 for employees who have not attained age 65.

3. This is the average prospective monthly pension at normal retirement date based on a continuation of the salary rates in effect as of 12-31-75.

EXHIBIT E

MTC-TOD EMPLOYEES RETIREMENT PLAN - SALARIED

AGE BRACKET	AVG ATT AGE	NUMBER OF EMPLOYEES [1]	TOTAL EARNINGS [2]	AVG EARNINGS	AVG PAST SERV	AVERAGE ACCR CR	AVERAGE PROS PEN ARD [3]
15-19	18.50	2	19690.00	9845.00	80	10.78	579.10
20-24	22.46	26	257882.00	9918.54	1.29	16.61	560.29
25-29	27.08	36	430881.00	11968.92	3.24	41.14	575.67
30-34	32.03	36	469046.00	13029.06	3.79	51.52	548.99
35-39	36.71	24	347103.00	14462.63	6.22	72.17	566.40
40-44	41.88	26	346876.00	13341.38	5.89	68.99	451.34
45-49	47.33	21	295299.00	14061.86	13.29	109.44	439.09
50-54	52.13	38	543179.00	14294.18	15.36	136.64	373.25
55-59	57.23	26	389099.00	14965.35	23.38	178.67	370.37
60-64	61.18	17	245415.00	14436.18	25.52	180.10	345.84
65 - OVER							
TOTALS	40.56	252	3344470.00	13271.71	9.90	89.34	478.00

1. Does not include 1 salaried employee over 65 with annual earnings of $12,504.

2. This is the approximate annual salary rate in effect as of 12-31-75 for employees who have not attained age 65.

3. This is the average prospective monthly pension at normal retirement date based on a continuation of the salary rates in effect as of 12-31-75.

EXHIBIT F

RETIRED

Disability Retirements

Age Group	12-31-73 No.	12-31-73 Pension*	12-31-74 No.	12-31-74 Pension*	12-31-75 No.	12-31-75 Pension*
Under 50	1	$ 1,284	0	$ 0	1	$ 1,539
50 - 54	10	18,617	11	22,735	7	14,742
55 - 59	11	22,024	10	23,031	12	27,597
60 - 64	20	33,259	19	38,581	20	48,540
65 - 69	17	30,455	17	36,061	21	43,959
70 - 74	18	24,948	13	22,465	9	15,311
75 - 79	20	27,000	17	29,706	8	14,517
80 - 84	20	27,606	17	28,865	22	37,765
85 - 89	7	9,509	6	10,589	7	12,209
90 & Over	0	0	0	0	0	0
Total	124	$194,702	110	$212,033	107	$216,179
Average Annual Pension		$ 1,570		$ 1,928		$ 2,020

ALL RETIREMENTS

December 31:	1973	1974	1975
Total Retired	723	678	677
Total Pensions	$1,241,923	$1,399,553	$1,509,574

*All pensions shown are on an annual basis.

EXHIBIT G

RETIRED

Non-Disability Retirements

Age Group	12-31-73 No.	12-31-73 Pension*	12-31-74 No.	12-31-74 Pension*	12-31-75 No.	12-31-75 Pension*
Under 50	0	$ 0	1	$ 4,590	0	$ 0
50 - 54	0	0	0	0	0	0
55 - 59	7	8,137	7	8,703	5	5,824
60 - 64	21	54,416	22	57,872	39	149,424
65 - 69	119	278,820	109	292,756	115	344,097
70 - 74	125	195,320	110	219,963	104	213,089
75 - 79	141	227,347	135	256,408	132	246,155
80 - 84	103	157,241	94	179,333	86	167,247
85 - 89	63	97,119	69	130,340	64	120,515
90 & Over	20	28,821	21	37,555	25	47,044
Total	599	$1,047,221	568	$1,187,520	570	$1,293,395
Average Annual Pension		$ 1,748		$ 2,091		$ 2,269

*All pensions shown are on an annual basis.

EXHIBIT H

TERMINATED WITH A VESTED INTEREST

Age Group	12-31-73 No.	12-31-73 Annual Pension at 65	12-31-74 No.	12-31-74 Annual Pension at 65 (Before Changes)	12-31-74 Annual Pension at 65 (After Changes)	12-31-75 No.	12-31-75 Annual Pension at 65
Under 50	1	$ 3,311	0	$ 0	$ 0	0	$ 0
50 - 54	3	7,330	3	8,585	9,437	3	9,392
55 - 59	3	6,544	4	9,525	12,817	2	5,616
60 - 64	0	0	0	0	0	1	4,753
65 & Over	1	2,120	1	2,120	2,688	0	0
Total	8	$19,305	8	$20,230	$24,942	6	$19,761
Average Annual Pension		$ 2,413		$ 2,529	$ 3,118		$ 3,294

APPENDIX II

INTEREST EARNINGS

The rate of earnings on the assets of the pension fund are of great importance in the ultimate determination of the cost of a pension plan.

The net yield (after subtraction of Trustee's fees) realized on approximate average assets each year is shown below on a cash basis, both including and excluding realized capital gains and losses.

Year	Total	Excluding Realized Capital Gains and Losses
1961	3.71%	3.77%
1962	4.59	3.83
1963	3.88	3.94
1964	4.05	4.05
1965	4.42	4.07
1966	4.27	4.24
1967	4.38	4.28
1968	5.08	4.33
1969	4.98	4.20
1970	3.20	4.91
1971	6.57	4.66
1972	6.61	4.87
1973	4.15	4.80
1974	1.10	6.18
1975	3.80	5.59

In 1975, there was a realized loss of $201,809 on a cost basis and $157,688 on a valuation asset basis.

It should be noted that interest earnings in excess of the rate of 5.00% as of 1-1-76 assumed in the calculations will result in an actuarial gain to the trust fund, and help to reduce the unfunded liability. The equivalent annual net yield for the period, 1971 - 1975, was approximately 4.5% in total and 5.2% if realized gains and losses were excluded.

APPENDIX III

ACTUARIAL ASSUMPTIONS

Interest:	5% per annum, net after investment expenses.
Death Rates:	
Non-Disabled Lives: Male:	A modification of the 1937 Standard Annuity Table set back one year for males and five years for females.
Disabled Lives:	A modification of the Society of Actuaries 1952 Study of Disability Benefits - Benefit 1, Total and Permanent Disability.
Withdrawal Rates:	A special table constructed from the Plan's experience from July 1, 1955 to June 30, 1960, with some margin added.
Disablement Rates:	140% of the UAW - 1955 Table.
Retirement Rates:	Average Retirement Age: 65 for employee under 65; employees 65 and over are assumed to retire in one year but not beyond age 70.
Future Salary Increases:	3½% compounded annually.
Provision for Early Retirement Benefits:	4½% Loading of Age Retirement Normal Cost plus 3½% Loadings on Age Retirement Present Value of Future Benefits and Accrued Liability.
Accidental Death Benefit:	One-year term cost equal to .015% of present value of Accrued Credits added to the Normal Cost.
Provision for Future Non-Investment Expenses:	None.

APPENDIX IV

ACTUARIAL FUNDING METHOD

The liabilities and costs of the System have been determined by using the Entry Age Normal Funding Method.

This actuarial funding method is one of the family of projected benefit cost methods. An estimate of the projected monthly benefit payable at retirement is initially required to determine costs and liabilities under this method.

The normal cost is the annual contribution required from a member's entry date to retirement date so that the accumulated contributions at retirement will equal the liability for the projected benefit. The normal cost is developed as a level percentage of salary.

The present value of future benefits is equal to the value of the projected benefit payable at retirement discounted back to the member's current age. Discounts include such items as interest, mortality, etc. The present value of future normal cost contributions is equal to the discounted value of the normal costs payable from the member's current age to retirement age. Discounts include such items as interest, mortality, etc.

The difference between the present value of future benefits and the present value of future normal cost contributions represents the accrued liability at the member's current age.

When assets are subtracted from the accrued liability, the remainder represents the unfunded accrued liability. Actuarial gains and losses are reflected through an adjustment in the unfunded accrued liability.

APPENDIX V

METROPOLITAN TRANSIT COMMISSION/TRANSIT OPERATING DIVISION

EMPLOYEE RETIREMENT PLAN

PLAN OUTLINE

Effective Date of Plan:	July 1, 1944, restated in its entirety on January 1, 1950.
Date of Last Amendment:	January 1, 1975.
Plan Year:	January 1 through December 31.

Major Plan Provisions

1. Employees Covered:	All regular full-time employees of Twin Cities Area Metropolitan Transit Commission, Transit Operating Division (MTC/TOD). In addition, officers of Local Division 1005, Amalgamated Transit Union, AFL-CIO, who are on leave-of-absence from MTC/TOD are covered employees.
2. Participation Requirements:	Covered employees are eligible to participate on their date of hire providing they make the required contributions.
3. Continuous Service:	Full-time service from employment date. Absences under certain circumstances are not considered a break-in-service providing they do not exceed three consecutive years. The time of absence in certain circumstances in excess of three consecutive years is deducted from Continuous Service.
4. Past Service:	Continuous service prior to January 1, 1950. If service prior to this date was broken and the period of the break did not exceed five years, post and pre-break service are aggregated.

5. Compensation:

Total earnings paid during a plan year with adjusted definitions applied to full-time and part-time officers of Local Division 1005, Amalgamated Transit Union, AFL-CIO.

Past service commission is defined as $3,120, $3,480, or total earnings paid in the best year out of the last five years of employment prior to January 1, 1950 depending on occupational group.

6. Timing for Benefit Payments:

First day of the month following satisfaction of requirements for payment.

7. Retirement Dates:

Normal Retirement: Age 65.

Deferred Retirement: Allowed with approval of MTD/TOD but not beyond age 70.

Early Retirement: Age 55.

Disability Retirement: Totally and permanently disabled for any type of work or is unable to return to work after receiving 26 weeks of benefits under any MTC/TOD accident and sickness plan or under Workman's Compensation, with at least 10 years of continuous service. Only 5 years of continuous service is required if the disability resulted from a work-related accident.

8. Monthly Retirement Amounts:

Normal Retirement:

Past Service:	1% of past service compensation for each year of past service;
Future Service:	1.25% of compensation for service between January 1, 1950 and December 31, 1964;
Future Service:	1.5% of compensation for service January 1, 1965 and after;

or, if greater, the following dollar per year of service benefit:

8. Monthly Retirement Amounts:

Normal Retirement: (continued)

Monthly Retirement Benefit per Year of Continuous Service

Continuous Service	Retiring 1-1-75 to 6-30-76	Retiring 7-1-76 to 12-31-77
1st 15 Years	$ 9.50	$10.00
Next 15 Years	11.50	12.00
Excess over 30 Years	12.50	13.00

In either case, the benefit is minimized at $150 per month for a participant with 20 years of continuous service proportionately reduced for less than 20 years of continuous service. The normal retirement benefit is maximized at $625 per month.

The accrued normal retirement benefit referred to hereafter is equal to the normal retirement benefit based on service and compensation to date of occurrence.

Deferred Retirement:

Same as normal retirement benefit with continued accrual of service and benefits after age 65 to date of retirement.

Early Retirement:

Age 55 with less than 35 years of continuous service: Greater of accrued normal retirement benefit or minimum normal retirement benefit reduced 5% for each year that payment date precedes age 65.

Age 55 with 35 or more years of continuous service: Greater of accrued normal retirement benefit or minimum normal retirement benefit reduced by 2½% for each year that payment date precedes the following ages:

Retirement In:	Reduction from Age:
1975	65
1976	63
1977	62

Age 60 with 30 or more years of continuous service: Greater of accrued normal retirement benefit or minimum normal retirement benefit without percentage reduction.

8. Monthly Retirement Amounts:

Disability Retirement:

Greater of the accrued normal retirement benefit or the following minimums:

Retirement In:	Monthly Benefit
1975	$125
1976	130
1977	135

The disability benefit will be reduced by benefits payable from any sickness and accident plan of MTC/TOD.

The maximum disability benefit payable is such that the disability benefit plus any earnings from employment cannot be greater than 85% of the current 40 hours-per-week earnings (based on top rate in job class participant held at time of disability).

9. Vesting:

Qualification:

10 years of continuous service and does not withdraw his own contributions.

Amount:

Equal to the accrued normal retirement benefit without regard to the minimum. This benefit is payable at age 65 or on a reduced basis if payments commence at age 55 or later.

In any event, the participant is vested in his accumulated contributions with interest at 2% to December 31, 1974 and 3½% thereafter less any benefits received.

10. Death Benefits:

Before Retirement:

Return of participant's contributions with interest at 2% to December 31, 1974 and 3½% thereafter less any benefits received.

If death occurs from a work-related accident, the spouse will receive a monthly benefit payable until death or remarriage based on the accrued normal retirement benefits, actuarially reduced for a joint and 50% to contingent option. This benefit is in lieu of the return of participant's contributions.

10. Death Benefits:

Before Retirement: (continued)

If death occurs after normal retirement age but before actual retirement age and the participant was actively at work, the spouse will receive a monthly benefit payable until death or remarriage based on the accrued normal retirement benefit actuarially reduced for a joint and 50% contingent option. This benefit is in lieu of return of participant's contributions.

After Retirement:

Return of participant's contributions with interest to retirement less benefits received. Interest credits follow those for death and vesting.

11. Form of Retirement Payment:

Retirement benefits are payable for the life of the participant unless option elected.

Options are available for normal, deferred, and early retirement and must be elected at least one year in advance of retirement. Options are:

1) Five, ten, or fifteen years certain and life annuity.

2) Joint and 50% contingent annuity.

The benefits under the options are determined on an actuarial equivalent basis.

12. Retired Participants:

Monthly benefits for participants receiving benefits on 12-31-74 have been increased as follows:

Retired	Date of Increase	Monthly Increase
By 12-31-71:	1-1-75	$15.00*
	1-1-76	7.50
	1-1-77	7.50
1-1-72 to 6-30-73:	1-1-76	7.50
	1-1-77	7.50
7-1-73 to 12-31-74:	1-1-77	7.50

12. Retired Participants: (continued)

* The minimum increase is such to bring the normal monthly retirement benefit to at least $120 per month for a retired participant with 20 years of service or for any disabled participant.

If any actuarial adjustment (including early reduction, Option A or Option B) has been selected, the increases are reduced to the actuarial equivalent of the normal form of payment.

13. Contribution Rate:

Since amendment of the Plan as of January 1, 1960, employees contribute one-third and the Company two-thirds of the amounts necessary to fund current service as it accrues and to fund past service over a period of years.

Contribution rates expressed as a percentage of compensation have been as follows:

Fiscal Year Ending June 30	Company	Employee
1950	4.50%	2.25%
1951	5.00	2.50
1952 to 1955	8.50	4.25
1956 to 1960	11.00	5.50
6 Months Ending 12-31-60	11.00	5.50
1-1-61 to 1976	9.80	4.90

MTC / TRANSIT OPERATING DIVISION
3118 NICOLLET AVENUE • MINNEAPOLIS, MINN. 55408

August 30, 1976

Please note that the name of the Plan has been changed from

TWIN CITY LINES EMPLOYES RETIREMENT PLAN

to

MTC/TRANSIT OPERATING DIVISION EMPLOYEES RETIREMENT PLAN

GVS Minnesota Memorandum No. 76-6
September 16, 1976

TWIN CITY LINES VALUATION AS OF JANUARY 1, 1976

The purpose of this memorandum is to discuss the valuation report of the Twin City Lines Employees' Retirement Plan as of January 1, 1976. The valuation was made on the basis of the entry age normal cost method and assuming 5% interest. The current valuation was prepared by James R. Bordewick of George V. Stennes and Associates.

This memorandum contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Supplemental Experience Study
4. Conclusion

1. Statistical and Valuation Data

Results of the valuation reports as of January 1, 1975 and January 1, 1976 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

	As of January 1, 1975	As of January 1, 1976
(1) Membership		
Active Members	1,547	1,805
Retired Members	568	570
Disabled Members	110	107
Deferred Annuitants	8	6
(2) Payroll and Annuities Payable	(Thousands of Dollars)	
Covered Payroll	$ 18,624	$ 23,647
Annuities (Annual)	1,400	1,510
(3) Valuation Balance Sheet	(Thousands of Dollars)	
Accrued Liability	$ 28,562	$ 29,602
Assets	10,719	13,062
Unfunded Accrued Liability (Deficit)	$ 17,843	$ 16,540
Funding Ratio (Assets/Accrued Liability)	37.5%	44.1%

	As of January 1, 1975	As of January 1, 1976
(4) Normal Costs and Funding Costs	Percent of Payroll	
Normal Cost	5.75%	5.76%
Expenses	.05	.08
	5.80%	5.84%
Normal Cost Plus Expenses	5.80%	5.84%
Interest on Deficit	4.79	3.50
Minimum Contribution	10.59%	9.34%
Normal Cost Plus Expenses	5.80%	5.84%
Amortization by 1997	6.93	5.20
Total Contribution	12.73%	11.04%
(5) Current Contributions		
Employee	4.9%	4.9%
Employer	9.8	9.8
Total	14.7%	14.7%
(6) Estimated Investment Yield *	6.17%	5.57%

* Ratio of reported investment income (net after Trustee's fee) to estimated mean assets for fiscal year.

2. Discussion of Valuation Results

The benefits and contributions under this plan are subject to bargaining but with the restriction that adequate financing must be maintained. The agreements provide for an employer contribution double that of the employee but without any allocation of specific portions between normal cost and amortization of the deficit. Thus, at the time of a valuation, the amortization period is the unknown quantity to be determined.

In recent years, the contribution rates have been 4.9% of pay by the employees and 9.8% by the employer. The results of the 1976 valuation indicate that the deficit will be retired by August 1, 1985. This compares with a date of September 1, 1989 indicated by the 1975 valuation.

This advance in the projected date for full funding is consistent with the results shown in the summary of funding costs given above which is presented in the same format as that used for the other funds. The decrease in the unfunded liability coupled with a 27% growth in the total payroll causes a marked reduction in the amount necessary to amortize the deficit by 1997 when this amount is expressed as a percentage of payroll.

The unfunded accrued liability decreased from $17,843,283 to $16,539,626, a decrease of $1,303,657. The Actuary for the Fund presented the following analysis of this decrease:

Decreases:		
Mortality Gain - Retireds	$ 394,661	
Excess Interest	39,799	
Amortization Contribution	1,416,845	
Total Decreases		$ 1,851,305
Increases:		
Realized Capital Losses	$ 157,688	
New Entrants Accrued Liability	178,505	
Salary Increases	100,000	
Other Actuarial Losses	111,455	
Total Increases		$ 547,648
Net Decrease		$ 1,303,657

3. Supplemental Experience Study

The law requires that an experience study covering the four-year period from January 1, 1972 to December 31, 1975 be submitted with the 1975 valuation. It was reported that a separate document containing the results of this study is being prepared and will be sent in the near future. When this is received, a supplemental memorandum will be presented.

4. Conclusion

As stated above, the bargaining agreement stipulates benefits and contribution rates, and the purpose of a valuation is to determine the period required to amortize the unfunded accrued liability. However, the information is presented in such a manner that it can easily be translated into the form of other reports to the Commission.

As indicated above, the present level of total support is more than adequate to provide the normal cost and to amortize the deficit before 1997 (14.70% vs. 11.04%).

Franklin C. Smith
Associate, Society of Actuaries
GEORGE V. STENNES & ASSOCIATES
Commission Actuaries

FCS:ml

TWIN CITY LINES

SUPPLEMENTAL EXPERIENCE STUDY

In Section 3 of GVS Minnesota Memorandum No. 76-6, it was reported that a separate document on the experience study was being prepared. This report has now been received, and it contains results not only for the period under study but also for earlier periods as well.

The following table summarizes the experience relative to deaths and non-vested terminations among active lives:

Period	Deaths & Terminations		
	Expected	Actual	A/E
1973-75	679.9	490	72.1%
1970-72	393.6	764	194.1
1967-69	340.4	958	281.4
1964-66	385.9	698	180.9

Since the ratio turned unfavorable for the first time in the latest study, the actuary recommended that no change be made now but that a change be made after the next study if the above trend continues.

The pattern of disablements has been as follows:

Period	Disablements		
	Expected	Actual	A/E
1973-75	13.5	16	118.5%
1970-72	14.5	18	124.1
1967-69	14.3	26	181.8
1964-66	14.8	25	168.9

Although the experience for the 1973-75 period is unfavorable, the magnitude of the loss appears to be decreasing. If this trend continues, the next study should reveal experience right in line with the assumption.

The plan provides for retirement at ages 60 and over without actuarial reduction in the amount of the benefit provided the employee has at least 30 years of service. For retirements between ages 55 and 60 with 35 years of service, the reduction is less than that produced by actuarial formulas. These two provisions have caused a trend toward earlier retirement ages. The following chart shows not only the average age at retirement but also the percentage retiring at various ages:

Period	Age at Retirement 60-61	62-64	65	Over 65	Average Age
1973-75	7%	51%	35%	7%	63.8
1970-72	-	22	54	24	65.0
1967-69	-	28	47	25	64.8
1964-66	-	28	47	25	64.8

In the basic cost calculations, an assumed retirement age of 65 is used. However, the resulting normal cost for the retirement benefit is loaded 4 1/2% and the corresponding accrued liability 3 1/2% on account of the early retirement provisions. The adequacy of these loadings was not investigated in the current review but this will be included in the next study.

Since the mortality experience among disabled retirements is expected to be quite different from that among age retirements, different mortality assumptions are used, and therefore separate studies are required. The results follow:

Period	Age Retirements Expected	Actual	A/E	Disabled Retirements Expected	Actual	A/E
1973-75	125.0	121	96.8%	42.2	38	90.0%
1970-72	132.2	136	102.9	45.1	31	68.7
1967-69	126.8	119	93.8	43.7	29	66.4

For the age retirements, the experience is running close to the assumption. For the disabled lives, the earlier periods show a large deviation, but the most recent period displays a marked increase in the ratio. This fact suggests waiting to see whether this is a trend or only an accidental fluctuation. In addition, the number of disabled retirees is too small to produce reliable results.

Attention is directed to the fact that this experience study covers the three-year period ending on December 31, 1975 rather than the four-year period ending on the same date. However, the experience for the year 1972 was included in the prior study covering the three-year period ending December 31, 1972, and information from this prior study is included in this report.

Experience studies covering three-year periods were recommended in 1961 and have been made regularly at three-year intervals since that time. It appears to be the intent to continue this practice. Since this provides a review of the experience more frequently than is required by statute, we recommend that these reports covering three-year intervals be accepted as complying with the law.

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