December 2003

THE CONTRIBUTORY PENSION PLAN FOR SALARIED EMPLOYEES OF McMASTER UNIVERSITY INCLUDING McMASTER DIVINITY COLLEGE 2000

Report on the Actuarial Valuation for
Funding Purposes as at July 1, 2003

MERCER
Human Resource Consulting

MMC Marsh & McLennan Companies

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Summary of Results ($000)

Going-Concern Financial Position	**01.07.03**	**01.07.02**
Actuarial value of assets	$837,755	$992,660
Actuarial liability	$780,399	$722,873
Funding excess (unfunded liability)	$57,356	$269,787

Wind-Up Financial Position	**01.07.03**	**01.07.02**
Market value of assets (net of termination expenses)	$719,015	$915,859
Total wind-up liabilities	$830,129	$786,830
Wind-up excess (deficiency)	$(111,114)	$129,029

Solvency Financial Position	**01.07.03**	**01.07.02**
Adjusted solvency assets	$825,206	$915,859
Adjusted solvency liability	$726,032	$695,566
Solvency excess (deficiency)	$99,174	$220,293
Transfer ratio	0.95	1.16

Funding Requirements (annualised)	**2003/2004**	**2002/2003**
Total current service cost	$25,892	$23,808
Estimated members' required contributions	$6,183	$5,955
Estimated employer's current service cost	$19,709	$17,853
Employer's current service cost as a percentage of members' required contributions	319%	300%
Minimum special payments	$0	$0
Estimated minimum employer contribution for year	$0	$0
Estimated maximum employer contribution for year	$130,823	$0

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Introduction

Report on the Actuarial Valuation as at July 1, 2003

To McMaster University

At your request, we have conducted an actuarial valuation of The Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College 2000 (the "Plan") as at July 1, 2003. We are pleased to present the results of the valuation.

Effective July 1, 2000, McMaster University (the "University") and a committee representing members and former members of The Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College ("the Prior Plan") entered into a formal surplus sharing agreement to distribute surplus assets of the Prior Plan.

This Plan was established to facilitate the surplus distribution. All members, former members and other individuals entitled to benefits under the Prior Plan who were eligible, and did consent to the Surplus Sharing Agreement and all persons in receipt of a pension from the Prior Plan as at July 1, 2000 who neither consented nor objected to the Surplus Sharing Agreement were transferred to the Plan (the "Surplus Sharing Group"). All other members, former members and individuals beneficiaries remained in the Prior Plan.

On January 14, 2003 this surplus distribution was approved by the Financial Services of Ontario. Approximately $148,849,000 of surplus has subsequently been distributed to the University and the Surplus Sharing Group.

New entrants who joined the Prior Plan between December 31, 2000 and January 14, 2003 will remain in the Prior Plan for now. It is the University's intention to transfer the

liabilities and proportionate assets of those new entrants who joined the Prior Plan between January 1, 2001 and January 14, 2003 (the "New Entrants") to the Plan.

The purpose of this valuation is to determine:

- the funded status of the Plan as at July 1, 2003 on going-concern and solvency bases, and
- the minimum funding requirements for the years 2003/2004 to 2005/2006.

The next actuarial valuation of the Plan will be required as at a date not later than July 1, 2006 or as at the date of an earlier amendment to the Plan, in accordance with the minimum requirements of the *Pension Benefits Act of Ontario*.

There is a going-concern funding excess of $57,356,000 and no special payments are required for solvency purposes, as at July 1, 2003, on the basis of the assumptions and methods described in this report. Thus, from an actuarial perspective, the employer need not contribute to the Plan in order to maintain its fully funded status, until after the entire funding excess has been applied towards the employer's current service cost.

Once the entire funding excess has been so applied, monthly employer contributions must resume. We recommend such employer contributions to be 319% of members' required contributions.

This valuation reflects the provisions of the Plan as at July 1, 2003. The provisions of the Plan affecting the Plan's financial position have not been amended since the date of the previous valuation. A summary of the Plan provisions is provided in Appendix D.

We have used the same going-concern valuation assumptions and methods as were used for the valuation as at July 1, 2002 except for the following:

- the maximum pension limits under the *Income Tax Act* introduced by the Federal Budget in February 2003 have been reflected.

This change has increased the going-concern actuarial liabilities by $15,270,000. The assumptions used for purposes of this valuation are described in detail in Appendix B.

After checking with representatives of the University, to the best of our knowledge there have been no events subsequent to the valuation date which, in our opinion, would have a material impact on the results of the valuation.

This report will be filed with the Financial Services Commission of Ontario and with the Canada Customs and Revenue Agency.

Respectfully submitted,

John M. Higgins
Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries

March 29/04
Date

Wendy Mizuno
Fellow of the Society of Actuaries
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March 26/04
Date

The Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College 2000
Registration number with the Financial Services Commission of Ontario and with the Canada Customs and Revenue Agency: 1079920

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Financial Position of the Plan

Valuation Results — Going-Concern Basis

When conducting a valuation on a going-concern basis, we determine the relationship between the respective values of assets and accumulated benefits, assuming the plan will be maintained indefinitely.

Financial Position

The results of the valuation as at July 1, 2003, in comparison with those of the previous valuation as at July 1, 2002, are summarised as follows:

Financial Position — Going-Concern Basis ($000)

	01.07.03	01.07.02
Actuarial value of assets (adjusted for in-transit items)	$837,755	$992,660
Actuarial liability		
Present value of accrued benefits for:		
▪ active members	$427,316	$390,894
▪ pensioners and survivors	$331,611	$312,940
▪ deferred pensioners	$2,259	$2,558
▪ additional voluntary contributions	$76	$103
▪ inactive-status undecided	$19,137	$16,378
Total liability	$780,399	$722,873
Funding excess (unfunded liability)	$57,356	$269,787

Reconciliation of Financial Position

The Plan's financial position, a funding excess of $57,356,000 as at July 1, 2003, is reconciled with its previous position, a funding excess of $269,787,000 as at July 1, 2002, as follows:

Reconciliation of Financial Position ($000)

Funding excess (deficiency) as at July 1, 2002	$269,787
Interest on July 1, 2002 funding excess at 6.5% for 1 year	$17,536
Investment income less than expected	$(40,884)
University contributions less than current service cost	$(16,971)
Member contributions paid from funding excess	$(3,394)
Actual retirement experience different from assumed	$(4,272)
Actual salary & YMPE increases different from assumed	$(1,717)
Active termination and mortality different from assumed	$1,545
Pensioner mortality different from assumed	$(2,316)
New ITA maximum pension	$(15,270)
Surplus distribution	$(148,850)
Other miscellaneous items and approximations	$2,162
Funding excess (deficiency) as at July 1, 2003	$57,356

Valuation Results — Solvency Basis

When conducting a solvency valuation, we determine the relationship between the respective values of the plan's assets and its liabilities on a solvency basis, determined in accordance with the *Pension Benefits Act of Ontario*. The values of the plan's assets and liabilities on a solvency basis are related to the corresponding values calculated as though the plan were wound up and settled on the valuation date.

Financial Position on a Solvency Basis

The Plan's solvency position as at July 1, 2003, in comparison with that of the previous valuation as at July 1, 2002, is determined as follows:

Solvency Position ($000)

	01.07.03	01.07.02
Market value of assets (adjusted for in-transit items)	$719,900	$916,744
Termination expenses	$(885)	$(885)
Solvency assets	$719,015	$915,859
▪ averaging method adjustment	$106,191	$0
▪ present value of unfunded liability special payments for the prescribed period	$0	$0
Adjusted solvency assets	$825,206	$915,859
Present value of accrued benefits for:		
▪ active members	$426,084	$392,910
▪ pensioners and survivors	$309,985	$283,951
▪ deferred pensioners	$2,160	$2,224
▪ additional voluntary contributions	$76	$103
▪ inactive-status undecided	$19,137	$16,378
Solvency liabilities	$757,442	$695,566
Solvency liability averaging method adjustment	$(31,410)	$0
Adjusted solvency liabilities	$726,032	$695,566
Solvency excess (deficiency)	$99,174	$220,293
Transfer ratio	0.95	1.16

It should be noted that the solvency liabilities shown above exclude liabilities for future post-retirement indexing benefits provided under the Plan.

Financial Position on a Wind-Up Basis

The Plan's hypothetical wind-up position as of July 1, 2003, assuming circumstances producing the maximum wind-up liabilities on the valuation date, is determined as follows:

Wind-Up Position ($000)

	01.07.03
Market value of assets (adjusted for in-transit items)	$719,900
Termination expenses	$(885)
Wind-up assets	$719,015
Present value of accrued benefits for:	
▪ active members	$465,284
▪ pensioners and survivors	$343,227
▪ deferred pensioners	$2,405
▪ additional voluntary contributions	$76
▪ inactive – status undecided	$19,137
Total wind-up liabilities	$830,129
Wind-up excess (deficiency)	$(111,114)

Impact of Plan Wind Up

In our opinion, the value of the Plan's assets would be less than its actuarial liabilities by $111,114,000 if the Plan were to be wound up on the valuation date. This calculation includes a provision for termination expenses that might be payable from the pension fund as well as post-retirement indexing benefits as provided under the terms of the Plan.

Pension Benefit Guarantee Fund (PBGF) Assessment

The PBGF assessment is calculated as follows:

Lesser of:

A:	$1 for each Ontario member	$4,301
	PLUS	
	0.5% of PBGF assessment base up to 10% of PBGF liabilities	$187,714
	PLUS	
	1.0% of PBGF assessment base up to between 10% and 20% of PBGF liabilities	$0
	PLUS	
	1.5% of PBGF assessment base over 20% of PBGF liabilities	$0
	PBGF assessment	$192,015
B:	$100 for each Ontario member	$430,100

The PBGF assessment base and liabilities are derived as follows:

PBGF Assessment Base and PBGF Liabilities ($000)

PBGF liabilities	$757,442	(a)
Total solvency liabilities	$757,442	(b)
Ontario asset ratio	100%	(c) = (a) ÷ (b)
Market value of assets	$719,900	(d)
Ontario portion of the fund	$719,900	(e) = (c) x (d)
PBGF assessment base	$37,542	(f) = (a) - (e)

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Funding Requirements

Current Service Cost

The estimated value of the benefits that will accrue on behalf of the active members during 2003/2004, in comparison with the corresponding value determined in the previous valuation as at July 1, 2002, is summarised below:

Employer's Current Service Cost ($000)

	2003/2004	2002/2003
Total current service cost	$25,892	$23,808
Estimated members' required contributions	$6,183	$5,955 *
Estimated employer's current service cost	$19,709	$17,853
Employer's current service cost expressed as a percentage of members' required contributions	319%	300%

* Members contributed 50% of this amount during the 2002/2003 Plan Year. The remainder was funded through surplus assets in the Plan.

An analysis of the changes in the employer's current service cost follows:

Changes in Employer's Current Service Cost (as a % of member contributions)

Employer's current service cost as at 01.07.02	300%
Aging of entire membership	2%
Salary increases greater than expected	8%
New ITA maximum pension	14%
New Entrants	(5%)
Employer's current service cost as at 01.07.03	319%

Employer Contributions

There is a funding excess of $57,356,000 and no special payments are required for solvency purposes, as at July 1, 2003, on the basis of the assumptions and methods described in this report. Thus, from an actuarial perspective, the employer need not contribute to the Plan in order to maintain its fully funded status, until after the entire funding excess has been applied towards the employer's current service cost.

Once the entire funding excess has been so applied, monthly employer contributions must resume. We recommend that such employer contributions be determined as 319% of members' required contributions. The amount of the employer's current service cost should be monitored in order to ensure that monthly employer contributions resume in a timely manner.

In accordance with Section 147.2 of the Income Tax Act, the Plan may not retain its registered status if the employer makes a contribution while the funding excess ($57,356,000 as at July 1, 2003) exceeds the lesser of:

- 20% of the going-concern actuarial liability ($156,080,000); and
- the greater of
  - 10% of the going-concern actuarial liability ($78,040,000); and
  - two years of total current service cost ($51,784,000).

Since the funding excess does not exceed the maximum allowed under Section 147.2 of the *Income Tax Act*, the University may make contributions of up to 319% of members' required contributions until the next valuation.

Contributions for current service must be made within 30 days following the month to which they apply.

The maximum amount that the University may contribute to the Plan for the year commencing July 1, 2003 is equal to $130,823,000 which represents the sum of the current service cost and the wind-up deficiency.

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Actuarial Opinion

With respect to the Actuarial Valuation as at July 1, 2003 of The Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College 2000

FSCO and Canada Customs and Revenue Agency Registration : 1079920

Based on the results of this valuation, we hereby certify that, as at July 1, 2003,

- The employer's current service cost for 2003/2004 and subsequent years, up to the next actuarial valuation should be calculated as 319% of members' required contributions.
- The employer's current service cost for 2003/2004 is estimated to be $19,709,000.
- There is a going-concern funding excess of $57,356,000 and no special payments are required for solvency purposes, as at July 1, 2003, on the basis of the assumptions and methods described in this report. Thus, from an actuarial perspective, the employer need not contribute to the Plan in order to maintain its fully funded status, until after the entire funding excess has been applied towards the employer's current service cost. Once the entire funding excess has been so applied, monthly employer contributions must resume.
- The Plan has a solvency excess of $99,174,000 as at July 1, 2003. No special payments are required for solvency purposes.
- The solvency liabilities used to determine the solvency status of the Plan exclude liabilities for the post-retirement indexing benefits provided by the Plan.

- The Pension Benefits Guarantee Fund annual assessment under Section 37 of the Regulations to the *Pension Benefits Act of Ontario* for 2002/2003 is $192,015 payable no later than March 31, 2004. The PBGF assessment base is $37,542,000. The PBGF liabilities are $757,442,000.

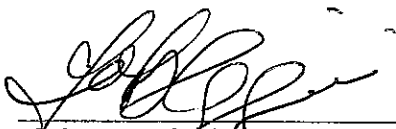
- The transfer ratio of the Plan is 0.95. The Prior Year Credit Balance on July 1, 2003 is $0.

- In our opinion,

  - the data on which the valuation is based are sufficient and reliable for the purposes of the valuation,
  - the assumptions are, in aggregate, appropriate for the purposes of determining the funded status of the Plan as at July 1, 2003 on going-concern and solvency bases, and determining the minimum funding requirements, and
  - the methods employed in the valuation are appropriate for the purposes of determining the funded status of the Plan as at July 1, 2003 on going-concern and solvency bases, and determining the minimum funding requirements.

- This report has been prepared, and our opinions given, in accordance with accepted actuarial practice.

- All assumptions made for the purposes of the valuation were reasonable at the time the valuation was prepared.



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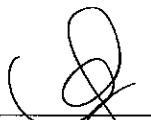

Wendy Mizuno
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Date

Appendix A

Plan Assets

Starting November 1, 2002, the Plan assets have been physically separated between this Plan and The Contributory Pension Plan for Salaried Employees of McMaster University including McMaster Divinity College ("Prior Plan").

Sources of Plan Asset Data

The pension fund is held in trust by CIBC-Mellon and is invested in accordance with the Plan's investment policy statement.

For the period prior to November 1, 2002, we have used the information contained in the July 1, 2002 Actuarial Valuation Report (filed previously) and cash flows attributed to this Plan during the period from July 1, 2002 to October 31, 2002. For the period from November 1, 2002 to July 1, 2003, we have relied upon the fund statements prepared by CIBC-Mellon.

Reconciliation of Plan Assets

The pension fund transactions for the period from July 1, 2002 to July 1, 2003 are summarised as follows:

Reconciliation of Plan Assets (Market Value - $000)

	2002/2003
As at July 1	$917,993
PLUS	
Members' contributions	$5,228
Company's contributions	$0
Transfer-in	$3,597
Investment income	$(19,393)
	$(10,568)
LESS	
Surplus withdrawn	$148,849
Pensions paid	$27,749
Lump-sum refunds	$6,130
Administration fees	$4,389
	$187,117
As at June 30	$720,308

We have tested the lump-sum refunds and the contributions for consistency with the membership data for the Plan members who have received benefits or made contributions. The results of these tests were satisfactory.

Appendix B

Actuarial Methods and Assumptions

Actuarial Valuations Methods — Going-Concern Basis

Valuation of Assets

For this valuation, we have continued to use a market-related valuation method to determine the actuarial value of Plan assets. This method smoothes each year's experience gains and losses (difference between actual and expected investment income) evenly over 5 years. The asset values produced by this method are related to the market value of the assets with the advantage that, over time, the market-related asset values will tend to be more stable than market values.

The Plan assets have only been physically separated between this Plan and the Contributory Pension Plan for Salaried Employees of McMaster University including McMaster Divinity College ("Prior Plan") from November 1, 2002. We have therefore continued to determine the actuarial value of assets for the combined assets of the two plans and allocated this total to each plan in proportion to the market value of assets in each plan at the valuation date.

The actuarial value of the combined assets of the Plan and Prior Plan was determined as follows (in $millions):

	1999/00	2000/01	2001/02	2002/03
Market Value at July 1st	$918	$972	$963	$919
Payment into Plan	$3	$3	$3	$12
Payment out of Plan	$(34)	$(34)	$(34)	$(182)
Expected interest	$59	$62	$62	$54
Investment experience gains/(losses)	$26	$(40)	$(75)	$(79)
Market Value at June 30th	$972	$963	$919	$724

1. Market Value of the Total Fund at July 1, 2003 $724

LESS

Investment experience gains or losses

2002: $(79)	x	0.8	$(63)
2001: $(75)	x	0.6	$(45)
2000: $(40)	x	0.4	$(16)
1999: $26	x	0.2	$5

2. Total Adjustment $(119)

3. Actuarial Value of the Total Fund at July 1, 2003 (1. minus 2.) $843

The market value of assets in the Plan at June 30, 2003 represents 99.43% of the assets of the two plans combined. Multiplying this percentage by the actuarial value of the combined assets of the two plans produces an actuarial asset value of $838,163,000 at July 1, 2003.

In addition, there were in-transit benefit payments of $650,000 and in-transit contributions of $242,000 as at July 1, 2003. Thus, the actuarial value of assets as at July 1, 2003 adjusted for in-transit items is $837,755,000.

Performance of Fund Assets

Our estimate of the average annual rate of return experienced by the fund during the 1 year period July 1, 2002 to June 30, 2003 is (2.86)% on market value and 1.92% on actuarial value.

The return on actuarial value of 1.92% per year is less than the assumed investment return of 6.5% by 4.58% per year. This has resulted in experience losses of $40,884,000 for the Plan.

A history of fund yields of the Total Fund is set out in Appendix F.

Valuation of Actuarial Liabilities

Over time, the real cost to the employer of a pension plan is the excess of benefits and expenses over member contributions and investment earnings. The actuarial cost method allocates this cost to annual time periods.

For purposes of the going-concern valuation, we have continued to use the *projected unit credit actuarial cost method.* Under this method, we determine the actuarial present value of benefits accrued in respect of service prior to the valuation date, including ancillary benefits, based on projected final average earnings. This is referred to as the *actuarial liability.*

The *funding excess* or *unfunded liability*, as the case may be, is the difference between the actuarial value of assets and the actuarial liability. An unfunded liability will be amortised over no more than 15 years through special payments as required under the *Pension Benefits Act of Ontario.* A funding excess may, from an actuarial standpoint, be applied immediately to reduce required employer current service contributions unless precluded by the terms of the plan or by legislation.

This actuarial funding method produces a reasonable matching of contributions with accruing benefits. Because benefits are recognised as they accrue, the actuarial funding method aims at keeping the plan fully funded at all times. This promotes benefit security, once any unfunded liabilities and solvency deficiencies have been funded.

Current Service Cost

The *current service cost* is the actuarial present value of projected benefits to be paid under the plan with respect to service during the year following the valuation date.

The employer's current service cost is the total current service cost reduced by the members' required contributions.

The employer's current service cost has been expressed as a percentage of the members' required contributions to provide an automatic adjustment in the event of fluctuations in membership and pensionable earnings.

Under the projected unit credit actuarial cost method, the current service cost for an individual member will increase each year as the member approaches retirement. However, the current service cost of the entire group, expressed as a percentage of the members' required contributions, can be expected to remain stable as long as the average age of the group remains constant.

Employer's Contribution

Accordingly, the employer's contributions for this purpose are determined as follows:

Employer's Contributions

With a funding excess	With an unfunded liability or solvency deficiency
Current service cost	Current service cost
MINUS	PLUS
Any funding excess applied to cover the Employer's current service cost	Payments to amortise any unfunded liability or solvency deficiency

Actuarial Assumptions — Going-Concern Basis

The actuarial value of benefits is based on economic and demographic assumptions. At each valuation, we determine whether, in our opinion, the actuarial assumptions are still appropriate for the purposes of the valuation, and we revise them if necessary.

In this valuation, we have used the same assumptions as in the previous valuation except as noted. Emerging experience will result in gains or losses that will be revealed and considered in future actuarial valuations. For this valuation, we have used the following assumptions:

Economic Assumptions

Investment Return

It was assumed that the pension fund will earn interest net of expenses at the rate of 6.5% per annum prior to retirement and 4.5% per annum after retirement. The post-retirement interest assumption reflects the fact that investment income in excess of 4.5% on the 5 year average market value return of the fund can be used for augmenting pensions in payment to the extent allowed by the Plan.

Expenses

No explicit allowance has been made to cover the anticipated expenses of administration of the Plan. The interest rate used to value the Plan is net of expenses.

Increases in Pensionable Earnings

The benefits ultimately paid will depend on each member's final average earnings. To calculate the pension benefits payable upon retirement, death or termination of employment, we have taken the 2003/2004 earnings and assumed that such pensionable earnings will increase from July 1, 2004 onward at 5.5% per year.

Increases in the YMPE

Since the benefits provided by the Plan depend on the final average Year's Maximum Pensionable Earnings (YMPE) under the Canada Pension Plan, it is necessary to make an assumption about increases in the YMPE for this valuation. We have assumed that the YMPE will increase at the rate of 4.5% per year from its 2003 level of $39,900.

Increases in the Maximum Pension Permitted under the Income Tax Act

The *Income Tax Act* stipulates that the maximum pension that can be provided under a registered pension plan will be increased to specified amounts in 2004 and 2005, and automatically, starting in 2006, in accordance with general increases in the average wage.

For this valuation, we have assumed that the maximum pension payable under the Plan will increase as specified in the *Income Tax Act* to $1,833.33 in 2004 and $2,000 in 2005, and will increase starting in 2006 at the rate of 4.5% per year. (It was assumed the maximum pension of $1,722.22 would increase at 4.5% per year starting in 2005 in previous valuation).

Interest Credited on Employee-Required Contributions

For this valuation, we have assumed that the interest rate to be credited on members required contributions will represent, on average, 6.5% per annum, over the long term.

Demographic Assumptions

Retirement Age

We have assumed that 13% of those eligible to retire under the "Rule of 80" would do so when first eligible with the remainder of the members retiring at 65. Those retiring under the "Rule of 80" are assumed to receive an unreduced pension and a bridge benefit commencing at age 60 (or actual retirement, if after age 60).

Termination of Employment

We have made an allowance for projected benefits payable on the termination of employment before retirement for reasons other than death.

Medium termination rates obtained by the Ontario Committee on Portable Pensions were used without graduation, but restricted to age 39.
Sample rates are shown in the following table:

Termination Rates

Age	Probability of Terminating Within 1 Year
20	.360
25	.200
30	.112
35	.063
40 and over	.000

Mortality

The actuarial value of the pension depends on the life expectancy of the member. We have assumed mortality rates, both before and after retirement, in accordance with the Group Annuity Mortality (GAM) Table for 1983, which is commonly used in actuarial valuations of pension plans. According to this table, the life expectancy at age 65 is 16.7 years for a man and 21.3 years for a woman.

Family Composition

Benefits in case of death, before and after retirement, depend on the Plan member's spousal status.

For this valuation, we have assumed that 85% of Plan members will have an eligible spouse on death and that the male partner will be 3 years older than the female partner.

Valuation of Termination and Death Benefits

This valuation has assumed that for purposes of calculating the actuarial liability, the benefit payable upon termination or pre-retirement death will equal at least twice contributions with interest.

Actuarial Valuation Methods and Assumptions — Solvency Basis

We have used the market value of the Plan's assets in our valuation of the Plan for solvency purposes. In our determination of the solvency asset adjustment, we have used an adjusted market value method to determine the actuarial value of the Plan assets.

The actuarial value of the combined assets of the Plan and Plan 2000 Fund was determined as the four-year average market related value, as follows(in $millions):

	2000	2001	2002	2003
Market value at July 1	$972			
Payment into Plan	$3			
Payment out of Plan	$(34)			
Expected interest at 6.35%	$60			
Market value at June 30	$1,001	$963		
Payment into Plan	$3	$3		
Payment out of Plan	($34)	$(34)		
Expected interest at 6.35%	$62	$60		
Market value at June 30	$1,032	$992	$919	
Payment into Plan	$12	$12	$12	
Payment out of Plan	$(183)	$(183)	$(183)	
Expected interest at 6.35%	$60	$57	$53	
Market Value at June 30	$921	$878	$801	$724

The actuarial value of the Total Fund has been calculated by averaging the expected market values of the Total Fund as at July 1, 2003 (as shown above) and the actual market value of the Total Fund as at July 1, 2003.

The resulting actuarial value of the Total Fund is $831,238,000. The market value of assets in the Plan at June 30, 2003 represents 99.43% of the assets of the two plans combined. Multiplying this percentage by the actuarial value of the combined assets of the two plans produces an actuarial asset value of $826,499,000 at July 1, 2003. The difference between the market value of assets of $720,308,000 and the actuarial value using the smoothing methodology of $826,499,000 provides the solvency averaging method adjustment of $106,191,000.

To determine the solvency actuarial liability, the benefits valued are those that would have been paid had the Plan been wound up on the valuation date, with all members fully vested in their accrued benefits. Liabilities for post-retirement indexing were excluded from our calculations.

We have considered that members whose age plus service at July 1, 2003 totalled 80 points are assumed to have their pension commence immediately on an unreduced basis. Members who satisfy the "Rule of 55" are assumed to retire at the age at which they would attain 80 points assuming a grow-in of age and service. Those "Rule of 55" members who will not have 80 points before age 65 are assumed to have their pension commence at age 62 or their current age if older. Pensions, in this case, are reduced by 6% per year for each year the pension is assumed to commence prior to age 65. Retirement at age 62 is assumed to create the largest potential liability for an individual who cannot attain 80 points prior to age 65. Members who do not have 55 points at the valuation date are assumed to retire at age 65.

The value of benefits accrued on July 1, 2003, is based on the assumptions described in the Recommendations for the Computation of Transfer Values from Registered Pension Plans of the Canadian Institute of Actuaries applicable for July 1, 2003 for benefits expected to be settled through transfer in accordance with relevant portability requirements. For benefits expected to be settled through the purchase of annuities, an estimate of the cost of settlement through purchase of annuities has been made. We have assumed that pensioners will have their benefits settled through the purchase of annuities and that all other members will have their benefits settled through transfers. Assumptions are as follows:

Actuarial Assumptions

Mortality rates:	GAM-1983 blending 50% male mortality and 50% female mortality	
Interest rates for benefits to be settled through lump sum transfer:	Wind-up:	5.50% per year for the first 15 years and 6% per year thereafter before retirement; 4.5% per year after retirement
	Solvency:	5.50% per year for the first 15 years and 6% per year thereafter
	Solvency Adjustment:	6.35% per year for the first 15 years and 6% per year thereafter
Interest rates for benefits to be settled through annuity purchase:	Wind-up:	4.17% per year for the first 15 years and 3.74% per year thereafter
	Solvency:	5.30% per year
	Solvency Adjustment:	5.96% per year
Escalation of the maximum pension limit under the Income Tax Act:	Wind-up & Solvency:	3.24% per year for the first 15 years following July 1, 2003 and 3.66% per year thereafter
	Solvency Adjustment:	3.37% per year for the first 15 years and 3.66% per year thereafter
Final average earnings:	Based on actual pensionable earnings over the averaging period.	
Family composition:	Same as for going-concern valuation	
Termination expenses:	$885,000	

For purposes of determining the solvency liability adjustment, we have averaged the prescribed interest rates throughout the 48-month period from August of 1999 to July of 2003 for both the benefits expected to be settled through transfers and the benefits expected to be settled through the purchase of annuities.

In a solvency valuation, the accrued benefits are based on the member's final average earnings on the valuation date. Therefore, no salary projection is used.

Liabilities have been valued as the greater of twice contributions with interest or the commuted value.

For the purpose of determining the actuarial liabilities, assuming the Plan was wound up on the valuation date, we have included the liabilities for post-retirement indexing.

In determining the estimated termination expenses, we have assumed that the Plan sponsor is solvent.

Appendix C

Membership Data

Analysis of Membership Data

The actuarial valuation is based on membership data as at July 1, 2003, provided by the University.

We have applied tests for internal consistency, as well as for consistency with the data used for the previous valuation. These tests were applied to membership reconciliation, basic information (date of birth, date of hire, date of membership, gender, etc.), pensionable earnings, credited service, contributions accumulated with interest and pensions to retirees and other members entitled to a deferred pension. Contributions, lump sum payments and pensions to retirees were compared with corresponding amounts reported in financial statements. The results of these tests were satisfactory.

Plan membership data are summarised below. For comparison, we have also summarised corresponding data from the previous valuation.

Membership Data

	01.07.03			01.07.02		
	Males	**Females**	**Totals**	**Males**	**Females**	**Totals**
Active Members						
Full-time						
Number	957	1,431	2,388	957	1407	2364
Total salary	$84,488,403	$76,104,786	$160,593,189	$81,945,068	$71,441,777	$153,386,845
Average salary	$88,285	$53,183	$67,250	$85,627	$50,776	$64,884
Average pensionable service	14.9	12.5	13.5	15.3	12.4	13.6
Average age	48.8	46.0	47.1	49.1	46.0	47.2
Part-time						
Number	22	269	291	26	268	294
Total salary	$1,180,715	$11,752,143	$12,932,858	$1,520,661	$11,092,755	$12,613,416
Average salary	$53,669	$43,688	$44,443	$58,487	$41,391	$42,903
Average pensionable service	15.0	8.5	9.0	14.7	8.2	8.8
Average age	49.7	46.3	46.6	50.9	45.6	46.1
Pensioners						
Number	616	581	1,197	599	539	1,138
Total annual basic pension	$20,975,284	$7,642,655	$28,617,939	$19,899,920	$6,719,167	$26,619,087
Average annual basic pension	$34,051	$13,154	$23,908	$33,222	$12,466	$23,391
Average age	71.8	73.2	72.5	71.6	73.1	72.3
Deferred Pensioners						
Number	32	39	71	31	38	69
Total annual pension	$195,308	$138,612	$333,920	$214,103	$99,625	$313,728
Average annual pension	$6,103	$3,554	$4,703	$6,907	$2,622	$4,547
Average age	49.6	45.4	47.3	49.7	45.6	47.4

The membership movement for all categories of membership since the previous actuarial valuation is as follows:

Reconciliation of Membership

	Actives	Deferred Vested	Pensioners and Beneficiaries	Inactive – Status Undecided	Total
Total at 01.07.02	**2,658**	**69**	**1,138**	**335**	**4,200**
New entrants	175				175
Terminations:					
▪ status undecided	(54)			54	0
▪ transfers / refunds	(22)			(41)	(63)
▪ deferred pensions	(1)	2		(1)	0
Death – no outstanding benefits	(3)		(20)		(23)
Retirements	(75)	(3)	78		0
Data corrections	1	3	1	7	12
Total at 01.07.03	**2,679**	**71**	**1,197**	**354**	**4,301**

The distribution of the active members by age and pensionable service as at July 1, 2003, is summarised as follows:

Distribution of Active Members by Age Group and Pensionable Service As at 01.07.03

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	Total
20-24	8 33,026								8 33,026
25-29	72 39,118	10 39,640							82 39,181
30-34	121 47,248	61 44,474	14 42,177						196 46,022
35-39	130 53,854	84 59,505	71 46,985	23 44,338					308 53,101
40-44	119 52,359	105 60,733	101 60,090	88 52,281	32 44,346	2 **			447 55,492
45-49	76 57,488	77 58,475	106 79,829	107 78,847	73 58,046	30 50,241	3 54,180		472 67,113
50-54	52 41,807	57 53,478	106 71,989	111 84,872	81 83,813	62 67,001	27 52,542		496 69,830
55-59	24 46,271	45 52,506	99 61,551	77 75,124	78 94,078	76 98,792	42 75,328	1 **	442 75,607
60-64	8 56,615	18 52,215	30 59,544	28 83,668	30 95,946	42 94,573	50 106,817	8 139,630	214 87,991
65-69	1 **	2 **		4 47,466	2 **		2 **	3 112,140	14 93,403
TOTAL	611 49,383	459 55,610	527 64,456	438 72,592	296 77,328	212 81,367	124 83,998	12 125,844	2,679 64,773

For each age cell, the second row indicates the average annual earnings.

** *For individual cells with information on two members or less, the average earnings are not disclosed for confidentiality reasons.*

The distribution of the inactive members by age as at July 1, 2003, is summarised as follows:

Distribution of Inactive Members By Age Group as at July 1, 2003

	Deferred Pensioners		Pensioners and Survivors	
Age	**Number**	**Average Pension**	**Number**	**Average Pension**
30 – 34	4	$599		
35 – 39	8	$2,455		
40 – 44	16	$4,715		
45 – 49	18	$3,289		
50 – 54	11	$2,265	14	$27,447
55 – 59	9	$6,610	57	$23,036
60 – 64	5	$18,567	161	$27,733
65 – 69			276	$29,365
70 – 74			237	$25,058
75 – 79			204	$24,185
80 – 84			142	$15,283
85 – 89			80	$11,593
90 – 94			21	$14,265
95+			5	$16,272
Total	71	$4,703	1,197	$23,908

Appendix D

Summary of Plan Provisions

Introduction

The Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College 2000 became effective July 1, 2000. Assets and liabilities of the Surplus Sharing Group in the Prior Plan will be transferred to the Plan.

Eligibility for Membership

Once the Surplus Sharing Agreement is approved by the regulators, full-time employees may elect to join the Plan immediately but are required to join on the July 1st following completion of six months' employment.

All members of the Plan (active and inactive) as of July 1, 2000 and new employees who joined the Prior Plan between July 1, 2000 to December 31, 2000 have been transferred to this Plan if they voted in favour of the Surplus Sharing Agreement.

Retirement

Normal retirement is on the 1st of July next following the member's 65th birthday. However, a member may normally elect to retire immediately on attaining age 65.

A member whose age plus pensionable service equals or exceeds 80 points may retire early and receive an unreduced pension and a bridge benefit.

A member may also retire early with a reduced pension at any time during the 10-year period preceding his normal retirement date. The reduction will be 0.5% for each month by which actual retirement precedes age 65.

With the consent of the University, a member may postpone his actual retirement on a year-to-year basis, but in no event shall he remain in service beyond the 1st of the month prior to attainment of age 69. He will continue to make contributions and his benefits under the Plan will continue to accrue until such postponed retirement date.

Contributions

Each member is required to contribute 3.5% of his regular annual earnings up to the Year's Maximum Pensionable Earnings and 5% of his regular annual earnings in excess of the Year's Maximum Pensionable Earnings.

Effective July 1, 1997, member required contributions will be limited to the lesser of:

(a) the maximum amount permitted under the Income Tax Act in that calendar year; and

(b) 250% of the maximum annual pension benefit payable under the Plan.

For the period from July 1, 2000 to June 30, 2003, 50% of the contributions required of each member shall be made on behalf of the member from the assets of the Plan.

Pension Benefits

The amount of annual pension payable to a member will be:

(a) 1.4% of Best Average Salary up to the Average Year's Maximum Pensionable Earnings times years of pensionable service, plus

(b) 2.0% of Best Average Salary in excess of the Average Year's Maximum Pensionable Earnings times years of pensionable service.

Best Average Salary means the annualised average of the 48 highest months of earnings while a Plan participant. Average Year's Maximum Pensionable Earnings means the pro-rated average Yearly Maximum Pensionable Earnings as defined in the Canada Pension Plan, in the same 48 months as are used to calculate Best Average Salary.

Pensions in payment will be increased from January 1st each year on a pro-rated basis (using the number of months the pensioner has been retired in the twelve months) by the excess over 4.5% of the average annual rate of return earned on the assets of the Plan over the previous five calendar years, subject to a maximum of that year's rate of increase in the Consumer Price Index. Effective July 1, 1997, if there is any year where the percentage calculated under the excess interest formula exceeds the rate of increase in the Consumer Price Index, the excess will be used to provide a supplementary increase to the pensions in pay for which the annual pension increase in any of the three previous years was based on the excess interest formula.

In addition, members on LTD will have their salary adjusted each July 1st by the percentage increase applied to pensions in payment. This increase will be applied from the later of July 1, 1990 or the July 1st following disability.

Bridge Benefits

Faculty members who first attain 80 points between July 1, 1996 and December 31, 1996 and who elect to retire on December 31, 1996, will receive a bridge benefit equal to the greater of $7,500 or $249.29 per year of credited service. The bridge benefit is payable from the member's early retirement date and ceases at age 65 or death, if earlier.

Faculty members who first attain 80 points prior to July 1, 1996 and who elect to retire between July 1, 1996 and June 30, 1997 or who first attain 80 points between July 1, 1996 and December 31, 1996 and who elect to retire between January 1, 1997 and June 30, 1997, will receive a bridge benefit equal to $249.29 per year of credited service. The bridge benefit is payable from the member's early retirement date and ceases at age 65 or death if earlier.

Staff members who retire at the request of the University between June 30, 1996 and December 31, 1996 and who have attained 80 points, will receive a bridge benefit equal to $249.29 per year of credited service. The bridge benefit is payable from the member's early retirement date and ceases at age 65 or death, if earlier.

Effective July 1, 1997, members who retire early and have attained 80 points will receive a bridge benefit equal to $19.00 per month per year of credited service accrued to June 30, 1996 to a maximum of 20 years of service. The bridge benefit is payable from the later of the member's early retirement date and age 60 and ceases payment on attainment of age 65 or death, if earlier.

Survivor Benefits

Death Before Retirement

On the death of a member prior to retirement, his beneficiary or estate is entitled to receive a death benefit equal to his required contributions accrued to December 31, 1986 accumulated with Net Interest on the Fund.

In addition, his beneficiary or estate shall receive the commuted value of the member's pension accrued after December 31, 1986, plus any required contributions made after December 31, 1986, accumulated with Net Interest on the Fund, in excess of 50% of the commuted value.

Death After Retirement

The benefit is payable for life, but guaranteed for seven years in any event. In the case of a member with a spouse, 50% of the benefit is continued to the spouse for life and at least the remainder of the guaranteed seven years' payments will be made.

Prior to July 1, 1997, the normal form of benefit was as described above with a five-year guarantee in place of the seven-year guarantee.

Alternative forms of pension are available in actuarial equivalent amounts and for members who have a spouse and who retire after December 31, 1987, the automatic form of pension will be an actuarially reduced benefit which continues 60% of the pension to a surviving spouse for life.

Termination Benefits

If a member terminates employment prior to retirement, he may elect to receive one of the following:

(1) A refund of his Required Contributions, with Net Interest on the Fund.

(2) A transfer of the greater of twice his Required Contributions plus Net Interest on the Fund and the commuted value of his deferred pension to another registered pension vehicle. Such a transfer may only be made when there is an agreement in writing that such monies will be paid in the form of deferred pension benefits payable at retirement in the event that such member terminates his membership in that subsequent pension arrangement at some future date, or that such monies will only be transferred to another registered pension vehicle which in turn can make the same guarantee.

(3) A deferred pension, payable at Normal Retirement Date, equal to the pension earned up to the date of termination.

After January 1, 1988, if the member has over 2 years of membership in the Plan, he may elect only (2) or (3) in respect of benefits earned after January 1, 1987.

If the member has attained age 45 and has 10 or more years of employment, he may elect only (2) or (3); or he may receive a return of contributions with interest prior to January 1, 1965 subject to the 5% withdrawal charge, plus benefits under (2) or (3) for service after January 1, 1965.

Appendix E

Employer Certification

With respect to the report on the actuarial valuation of The *Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College 2000 (the "Plan")*, as at July 1, 2003, I hereby certify that, to the best of my knowledge and belief:

- a copy of the official Plan documents and of all amendments made up to July 1, 2003, were provided to the actuary;
- the membership data provided to the actuary include a complete and accurate description of every person who is entitled to benefits under the terms of the Plan for service up to July 1, 2003, and
- all events subsequent to July 1, 2003 that may have an impact on the results of the valuation have been communicated to the actuary.

March 5, 2004
Date

Signed

Lilian Scime, Assistant VP (Administration)
Name

Appendix F

History of Fund Yields

The following table summarizes the yields on the invested Total Fund for the last 20 years:

Year	Yield Based on Market Value Including Investment Income and Realized and Unrealized Gains or Losses
	%
83-84	(1.96)
84-85	31.41
85-86	24.70
86-87	10.45
87-88	1.28
88-89	19.31
89-90	0.23
90-91	8.22
91-92	10.51
92-93	13.67
93-94	2.75
94-95	16.09
95-96	13.67
96-97	21.53
97-98	15.38
98-99	4.91
99-00	9.32
00-01	2.37
01-02	(1.25)
02-03	(2.84)

Appendix G

Review of Funding Basis

In the previous sections we have individually noted the assumptions used in this valuation. While each is an important factor in determining the Plan liabilities and current service cost, the most significant elements are:

- the difference between the valuation rate of interest used prior to retirement and the rate of salary increase;
- the valuation rate of interest used after retirement;
- the assumed age of retirement;
- the assumed pattern of mortality; and
- the value placed on the fund's assets.

In addition, the maximum benefit, which can be paid from a Plan, is an important factor in the valuation. What follows is a description of the aforementioned factors.

Difference Between Pre-Retirement Interest Rate and Salary Increase

As of the end of 2002, the average annual rate of return for a typical pension plan exceeded the average annual increase in the Canadian Wage and Salary Index by:

in the last 5 years	4.5%
in the last 10 years	6.9%
in the last 15 years	5.4%
in the last 25 years	3.5%
in the last 40 years	2.6%

The larger spreads in the 5, 10 and 15 year periods would indicate short-term fluctuations in a long-term trend. It would seem reasonably conservative to anticipate a return on the fund which yields about 2% per annum more than the average salary increases over the long term.

In this valuation, a 1.0% difference between the pre-retirement interest rate (6.5%) and the long-term salary increase assumption (5.5%) would therefore seem to be an appropriate assumption given that the 1% difference accounts for:

The long term historical trend

less

an allowance for pay increases reflecting promotion and merit.

A continued watch on the historical short term difference will be maintained to see if a re-assessment is necessary in the future. As well, the short-term outlook on expected salary increases might suggest the reintroduction of a select salary scale in the future.

Post Retirement Valuation Interest Rate

The assumption of a yield of 4.5% per annum means that an allowance is being made in advance for the application of interest in excess of 4.5% per annum to provide for increases in pensions.

Retirement Age

The retirement age assumption is based in part on experience at other Universities and in part on the advice of the staff at McMaster. Future experience will determine the appropriateness of the retirement assumption which is that 13% of people who satisfy the Rule of 80 will retire when first eligible and that all others will retire at 65. Since the introduction of the Rule of 80, experience gains and losses resulting from actual incidence of retirement different from assumed have been relatively small. However, a large cohort of members will be reaching the Rule of 80 within the next 5-10 years and a more detailed study of the retirement pattern this cohort is likely to exhibit would be advisable in order to avoid the possibility of large experience losses.

Pattern of Mortality

Recent studies have indicated that there has been an improvement in longevity among pensioners. The current mortality table, the Group Annuity Mortality- 1983 reflects future increases in longevity and is deemed appropriate for the purposes of this valuation. Mortality experience has produced small but consistent losses. Continued monitoring of the appropriateness of this table is warranted.

Asset Valuation Method

The current asset valuation method is consistent with the development of a funding strategy which recognizes the long term nature of this pension plan.

Maximum Pension Limits

Maximum benefit limits must be included in any pension plan registered with the Canada Customs and Revenue Agency, and can only be increased with the approval of the Canada Customs and Revenue Agency.

The current maximum dollar limit is set at $1,722.22 per annum and is scheduled to increase as specified in the *Income Tax Act* in 2004 and 2005 and then increase in line with changes in the average wage commencing in 2006.

It is considered appropriate and prudent to recognize these future increases and to incorporate these provisions as part of the valuation.