

February 2007

**THE CONTRIBUTORY PENSION PLAN  
FOR SALARIED EMPLOYEES OF  
MCMASTER UNIVERSITY INCLUDING  
MCMASTER DIVINITY COLLEGE**

Report on the Actuarial Valuation for  
Funding Purposes as at July 1, 2006

**MERCER**

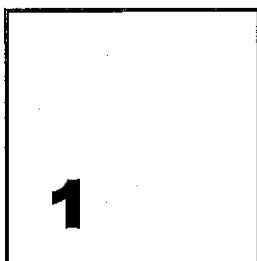
Human Resource Consulting

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### Summary of Results (\$000)

<b>Going-Concern Financial Position</b>	<b>01.07.06</b>	<b>01.07.03</b>
Actuarial value of assets	\$1,433	\$1,773
Actuarial liability	\$1,486	\$1,141
Funding excess (shortfall)	(\$53)	\$632
 <b>Solvency Financial Position</b>	 <b>01.07.06</b>	 <b>01.07.03</b>
Adjusted solvency assets	\$1,441 <sup>1</sup>	\$1,624
Adjusted solvency liability	\$1,435	\$1,077
Solvency excess (deficiency)	\$6	\$547
Ratio of solvency assets to solvency liabilities	0.99	0.95
 <b>Wind-Up Financial Position</b>	 <b>01.07.06</b>	 <b>01.07.03</b>
Market value of assets (net of termination expenses)	\$1,417	\$1,043
Total wind-up liability	\$1,473	\$1,133
Wind-up excess (deficiency)	(\$56)	(\$90)
Transfer ratio	0.96	0.95

<sup>1</sup> Including the present value of the next 5 years' going-concern special payments of \$24,200. This present value is excluded to calculate the ratio of solvency assets to solvency liabilities.

**Summary of Results (cont'd) (\$000)**

<b>Funding Requirements (annualized)</b>	<b>2006/2007</b>	<b>2003/2004</b>
Total current service cost	\$60.6	\$44.0
Estimated members' required contributions	(\$15.5)	(\$11.0)
Estimated employer's current service cost	\$45.1	\$33.0
Expense Allowance	\$5.0	\$0.0
Total estimated employer's current service cost	\$50.1	\$33.0
Employer's current service cost as a percentage of members' required contributions	323%	304%
Minimum special payments	\$5.5	\$0.0
Estimated minimum employer contribution for year	\$55.6	\$0.0
Estimated maximum employer contribution for year	\$106.1	\$90.0

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## **Introduction**

### **Report on the Actuarial Valuation as at July 1, 2006 To McMaster University**

At the request of McMaster University, (the "University"), we have conducted an actuarial valuation of the Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College (the "Plan") as at July 1, 2006. We are pleased to present the results of the valuation.

The purposes of this valuation are to determine:

- the funded status of the Plan as at July 1, 2006 on going-concern and solvency bases, and
- the minimum funding requirements from 2006/2007.

The next actuarial valuation of the Plan will be required as at a date not later than July 1, 2009 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 funding shortfall of \$53,000 and no special payments are required for solvency purposes at July 1, 2006. As such, the minimum monthly contributions to be remitted to the Plan from July 1, 2006 to July 1, 2009 is as follows:

### **Minimum Monthly Employer Contributions**

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For current service:

July 1, 2006 – June 30, 2007: 323% of members' required contributions

July 1, 2007 – June 30, 2008: 286% of members' required contributions

July 1, 2008 – June 30, 2009: 287% of members' required contributions

PLUS

Minimum special payments for unfunded liability: \$456

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The minimum contribution requirements based on this report exceed the minimum contribution requirements recommended in the previous valuation report. Upon filing this report, McMaster University must contribute the excess, if any, of the minimum contribution recommended in this report over contributions actually made in respect of the period following July 1, 2006. This contribution, along with an allowance for interest, is due no later than 60 days following the date this report is filed.

The maximum contributions that McMaster University may make to the Plan in 2006/2007 is \$106,100 which is comprised of the McMaster University current service cost plus the greater of the going-concern funding shortfall and the wind-up deficiency.

As at July 1, 2003, an asset transfer valuation report was prepared and filed with the Financial Services Commission of Ontario. This asset transfer, in respect of members who joined the Plan between January 1, 2001 and January 14, 2003 was approved and the assets were actually transferred in June 2005 to the Contributory Pension Plan for Salaried Employees of McMaster University Including McMaster Divinity College 2000 (the "Plan 2000"). The comparative results in this valuation reflect the position of the Plan as at July 1, 2003 after the asset transfer as shown in the asset transfer valuation report dated February 2004.

This valuation reflects the provisions of the Plan as at July 1, 2006. The Plan has been amended since the date of the previous valuation. The required employee contribution rates have been increased and the early retirement provisions have been amended for certain member groups. These amendments have resulted in a reduction in the going-concern liability of 7,000 and of \$1,500 in the employer current service cost. A summary of the Plan provisions, including a description of the amendments, is provided in Appendix D.

We have modified most of the going-concern valuation assumptions as compared to those used for the valuation as at July 1, 2003, as follows:

- the pensionable earnings increase assumption was reduced from 5.50% to 5.25% per year;
- the YMPE increase assumption was reduced from 4.50% to 4.25% per year;
- the CRA limits were changed to reflect the 2005 federal budget and the increase assumption was reduced from 4.50% to 4.25% per year;
- the mortality table was changed to UP94 (projected with mortality improvements to 2015) from GAM83; and
- the percentage of members assumed to retire at their earliest unreduced age was increased to 25%, from 13% assumed in the previous valuation.

These changes have resulted in an increase of \$62,000 in the going-concern actuarial liability and of \$4,700 in the employer current service cost. We have also added an explicit expense provision of \$5,000 to the current service cost. All other going-concern actuarial assumptions and methods remain unchanged from the previous valuation.

The solvency and wind-up assumptions have been updated to reflect market conditions at the valuation date. The solvency liabilities exclude the value of post-retirement indexing benefits.

All assumptions made for the purposes of the valuation were reasonable at the time the valuation was prepared. All actuarial assumptions and methods are described in detail in Appendix B.

We have assumed that all Plan assets are available to cover the Plan liabilities presented in this report.

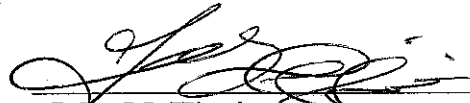
Effective December 12, 2006 the Plan is amended to remove the requirement for University consent for a member to postpone his retirement and the receipt of his pension. This amendment is not expected to have a material impact on the accrued liabilities at July 1, 2006 or on the current service cost, and has not been reflected in this valuation. To the best of our knowledge, there have been no other 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 Revenue Agency.

Respectfully submitted,



**Ana P. Caçoiló**  
Fellow of the Society of Actuaries  
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**FEB 23 2007**

Date

**FEB 23 2007**

Date

***The Contributory Pension Plan for Salaried Employees of McMaster University  
Including McMaster Divinity College***

Registration number with the Financial Services Commission of Ontario and with the Canada Revenue  
Agency: 0215400

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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, 2006, in comparison with those of the previous valuation as at July 1, 2003, are summarized as follows:

### Financial Position — Going-Concern Basis (\$000)

	01.07.06	01.07.03
Market value of assets (adjusted for in-transit items)	\$1,467	\$6,738
Smoothing adjustment	(\$34)	\$680
Asset transfer	-	(\$5,645)
Actuarial value of assets	\$1,433	\$1,773
Actuarial liability		
Present value of accrued benefits for:		
▪ active members	\$776	\$445
▪ pensioners and survivors	\$0	\$0
▪ deferred pensioners	\$710	\$696
Total liability	\$1,486	\$1,141
Funding excess / (shortfall)	(\$53)	\$632

## Reconciliation of Financial Position

The Plan's financial position, a funding shortfall of \$53,000 as at July 1, 2006, is reconciled with its previous position, a funding excess of \$632,000 as at July 1, 2003, as follows:

### Reconciliation of Financial Position (\$000)

Funding excess / (shortfall) as at 01.07.03	\$632
Interest on funding excess / (shortfall) at 6.5% per year to 01.07.06	\$131
University contributions less than current service cost	(\$435)
Net experience gains (losses) over 2003-2006 *	(\$354)
Impact of changes in assumptions	(\$52)
Impact of Plan amendments	\$7
Net impact of other elements of gains and losses	\$18
Funding excess / (shortfall) as at 01.07.06	(\$53)

\* Net experience gains (losses) are detailed below.

### Plan Experience

The main assumptions are compared with actual experience since the previous valuation as at July 1, 2003:

#### Plan Experience

	Impact Gain (Loss)
Net Investment return	(\$195)
Increases in pensionable earnings and YMPE different than assumed	(\$23)
Increase in maximum pension different than assumed, including changes to projected future maximum pension limits	(\$10)
Experience on Retirements and Terminations of employment	(\$126)
Net experience gains (losses)	(\$354)

### 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, 2006, in comparison with that of the previous valuation as at July 1, 2003, is determined as follows:

#### Solvency Position (\$000)

	01.07.06	01.07.03
Market value of assets (adjusted for in-transit items)	\$1,467	\$1,093
Termination expenses	(\$50)	(\$50)
a. Solvency assets	\$1,417	\$1,043
Solvency asset adjustment:		
Averaging method adjustment	\$0	\$581
b. Adjusted solvency assets	\$1,417	\$1,624
Present value of special payments for next five years	\$24	\$0
c. Adjusted solvency assets including the present value of special payments for next five years	\$1,441	\$1,624
Actuarial liability		
Present value of accrued benefits for:		
▪ active members	\$711	\$395
▪ pensioners and survivors	\$0	\$0
▪ deferred pensioners	\$724	\$698
d. Solvency liabilities	\$1,435	\$1,093
Solvency liability averaging method adjustment	\$0	\$(16)
e. Adjusted solvency liability	\$1,435	\$1,077
Solvency excess / (deficiency) created as at valuation date (c - e)	\$6	\$547
f. Value of excluded benefits	\$38	\$40
g. Solvency liabilities before exclusion of benefits (d + f)	\$1,473	\$1,133
Transfer ratio <sup>1</sup>	0.96	0.95
Ratio of solvency assets to solvency liabilities (a + d)	0.99	0.95

<sup>1</sup> Equal to (a + d) prior to July 1, 2006 and (a + g) on and after July 1, 2006.

### Payment of Benefits

Since the transfer ratio is less than one, the Plan administrator should ensure that the monthly special payments are sufficient to meet the requirements of the *Pension Benefits Act of Ontario* to allow for the full payment of benefits. Otherwise, the Plan administrator should take the actions prescribed by the *Act*.

### Financial Position on a Wind-Up Basis

The Plan's hypothetical wind-up position as of July 1, 2006, assuming circumstances producing the maximum wind-up liabilities on the valuation date, is determined as follows:

#### Wind-Up Position (\$000)

	01.07.06	01.07.03
Market value of assets	\$1,467	\$1,093
Termination expenses	(\$50)	(\$50)
Wind-up assets	\$1,417	\$1,043
Present value of accrued benefits for:		
▪ active members	\$746	\$433
▪ pensioners and survivors	\$0	\$0
▪ deferred pensioners	\$727	\$700
Total wind-up liability	\$1,473	\$1,133
Wind-up excess / (deficiency)	(\$56)	(\$90)

### Impact of Plan Wind Up

In our opinion, the value of the Plan's assets would be less than its actuarial liabilities if the Plan were to be wound up on the valuation date.

Specifically, actuarial liabilities would exceed the market value of Plan assets by \$56,000. 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 (Ontario)**

The PBGF assessment is calculated as follows:

\$1 for each Ontario member	\$44
<b>PLUS</b>	
0.5% of PBGF assessment base up to 10% of PBGF liabilities	\$0
<b>PLUS</b>	
1.0% of PBGF assessment base up to between 10% and 20% of PBGF liabilities	\$0
<b>PLUS</b>	
1.5% of PBGF assessment base over 20% of PBGF liabilities	\$0
<b>[PLUS</b>	
2.0% of special PBGF assessment base	\$0
<b>PBGF assessment (taking into account the limit per member of \$100)</b>	<b>\$44</b>

The PBGF assessment base and liabilities are derived as follows:

#### **PBGF Assessment Base and PBGF Liabilities**

PBGF liabilities	\$1,435,000	(a)
Total solvency liabilities	\$1,435,000	(b)
Ontario asset ratio	100%	(c) = (a) ÷ (b)
Solvency assets	\$1,467,000	(d)
Ontario portion of the fund	\$1,467,000	(e) = (c) x (d)
<b>PBGF assessment base</b>	<b>\$0</b>	<b>(f) = (a) - (e)</b>

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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 2006/2007 through 2008/2009, is summarized below:

#### Employer's Current Service Cost (\$000)

	2006/2007	2007/2008	2008/2009
Total current service cost	\$60.6	\$63.8	\$67.1
Expense provision	\$5.0	\$5.3	\$5.6
Estimated members' required contributions*	(\$15.5)	(\$17.9)	(\$18.8)
Estimated employer's current service cost	\$50.1	\$51.2	\$53.9
Employer's current service cost expressed as a percentage of members' required contributions	323%	286%	287%
Employer's current service cost expressed as a percentage of pensionable earnings	13.1%	12.7%	12.7%
Expected pensionable earnings	\$383	\$403	\$424

\* Member's contribution rates for certain groups increasing through to July 1, 2008

The previous valuation determined the total current service cost for 2003/2004 to be \$44,000 with estimated employee contributions as \$11,000. The resulting employer's current service cost was \$33,000 or 304% of member's required contributions.

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

### Changes in Employer's Current Service Cost

Employer's current service cost as at 01.07.03	304%
Demographic changes	(35%)
Plan amendments	(43%)
Changes in assumptions	65%
Addition of Expense Provision	32%
Employer's current service cost as at 01.07.06	323%

### Special Payments

#### Going-Concern Basis

No going-concern unfunded liability or special payments existed in the previous valuation. In accordance with the *Pension Benefits Act of Ontario*, the going-concern unfunded liability of \$53,000 must be amortized over a period not exceeding 15 years. As such, special payments must be established at \$456 per month until June 30, 2021 to amortize this going-concern unfunded liability.

#### Solvency Basis

No solvency special payments are required.

#### Total Special Payments

The following minimum monthly special payments must be made to the Plan to eliminate any going-concern unfunded liability as at July 1, 2006, within the periods prescribed by the *Pension Benefits Act of Ontario*.

#### Minimum Monthly Special Payments

Type of Deficit	Effective Date	Special Payment	Last Payment
Unfunded Liability	July 1, 2006	\$456	June 30, 2021

## Employer Contributions

There is a funding shortfall of \$53,000 and no special payments are required for solvency purposes as at July 1, 2006. As such, we recommend that McMaster University make monthly contributions to the Plan from July 1, 2006 to July 1, 2009 as follows.

## Minimum Funding Requirements

The minimum monthly required contributions for the period from July 1, 2006 to July 1, 2009 are as follows:

### Monthly Employer Contributions

For current service:

July 1, 2006 – June 30, 2007: 323% of members' required contributions

July 1, 2007 – June 30, 2008: 286% of members' required contributions

July 1, 2008 – June 30, 2009: 287% of members' required contributions

PLUS

Minimum special payments for unfunded liability: \$456

On the basis of the members' estimated required contributions, we have estimated the minimum total employer contribution for the period from July 1, 2006 to July 1, 2009 to be as follows:

### Estimated Minimum Employer's Contributions Until July 1, 2009 (\$000)

Year Ending	Current Service Cost	Minimum Special Payments	Minimum Employer's Contribution
June 30, 2007	\$50.1	\$5.5	\$55.6
June 30, 2008	\$51.2	\$5.5	\$56.7
June 30, 2009	\$53.9	\$5.5	\$59.4

Contributions for current service must be made within 30 days following the month to which they apply. Special payments to eliminate an unfunded liability or solvency deficiency must be made in the month to which they apply.

The minimum contribution requirements based on this report exceed the minimum contribution requirements recommended in the previous valuation report. Upon filing this report, McMaster University must contribute the excess, if any, of the minimum

contribution recommended in this report over contributions actually made in respect of the period following July 1, 2006. This contribution, along with an allowance for interest, is due no later than 60 days following the date this report is filed.

### **Maximum Eligible Contributions**

The maximum eligible employer contribution is equal to the McMaster University current service cost (including the expense allowance) plus the greater of the going-concern deficit and the wind-up deficiency. We have estimated the maximum eligible annual contribution for 2006/2007 to be \$106,100 as at July 1, 2006.

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## **Actuarial Opinion**

**With respect to the Actuarial Valuation as at July 1, 2006  
of the Contributory Pension Plan for Salaried Employees of McMaster University  
Including McMaster Divinity College  
FSCO and Canada Revenue Agency Registration 0215400**

Based on the results of this valuation, whereby certify that, as at July 1, 2006,

- The employer's current service cost for 2006/2007, 2007/2008 and 2008/2009 should be calculated as 323%, 286% and 287% respectively of members' required contributions.
- The employer's current service cost for 2006/2007 is estimated to be \$50,100.
- The Plan would be fully funded on a going-concern basis if its assets were augmented by \$53,000. In order to comply with the provisions of the *Pension Benefits Act of Ontario*, the unfunded liability must be liquidated by monthly special payments of \$456 until June 30, 2021.
- The Plan has a solvency excess of \$6,000 as at July 1, 2006. No special payments are required for solvency purposes.
- The solvency liabilities used to determine the solvency status of the Plan exclude the value of post-retirement indexing benefits provided under the Plan. The value of these excluded liabilities is \$38,000 at July 1, 2006.