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REPORT ON THE ACTUARIAL VALUATION OF THE DEFINED BENEFIT PART OF THE UNIVERSITY OF WINNIPEG TRUSTEED PENSION PLAN AS AT DECEMBER 31, 2017

Canada Revenue Agency Registration Number 0309914
Manitoba Registration Number 0309914

September 7, 2018

Prepared by:

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Going concern assets	$137,241,000	$131,687,000
Going concern liabilities	$155,911,000	$150,490,000
Going concern surplus/ (unfunded liability)	($18,670,000)	($18,803,000)
Going-concern ratio	0.880	0.875
Windup Financial Position		
Market value of assets net of provision for wind-up expenses	$137,041,000	$131,492,000
Windup liability	$180,901,000	$181,886,000
Windup excess/ (deficiency)	($43,860,000)	($50,394,000)
Solvency Financial Position		
Solvency assets	$147,822,000	$141,842,000
Solvency liabilities	$180,901,000	$181,886,000
Solvency excess/ (deficiency)	($33,079,000)	($40,044,000)
Solvency ratio	0.758	0.723
Minimum Contributions in Year Following valuation		
Estimated University current service cost	$1,111,000	$1,199,000
Minimum special payments	$2,320,000	$2,229,000
Total minimum required contributions	$3,431,000	$3,428,000

Section 1. EXECUTIVE SUMMARY

To the Board of Trustees of the University of Winnipeg Trusteed Pension Plan Trust:

We are pleased to present this report which was prepared at the request of The Board of Trustees of the University of Winnipeg Trusteed Pension Plan Trust ("Trustees") for the following purposes:

1. To report on the financial position of the defined benefit part of the University of Winnipeg Trusteed Pension Plan ("Plan") as at December 31, 2017 on a going concern basis;

2. To determine the actuarial cost of benefits expected to accrue under the Plan for service of the employees for the period following the valuation date and up to the date of the next actuarial valuation. The effective date of the next valuation must be no later than December 31, 2018;

3. To determine the financial position of the Plan as at December 31, 2017 on solvency and hypothetical wind-up bases;

4. To establish the minimum and maximum contributions required for the period from December 31, 2017 until the date of the next actuarial valuation for compliance with the applicable pension legislation and the terms of the Plan;

5. To provide the actuarial certifications required under the Pension Benefits Act of Manitoba and the Income Tax Act of Canada.

The intended users of this report are the Trustees, The University of Winnipeg, the Office of the Superintendent - Pension Commission (Manitoba), and Canada Revenue Agency. This report is not intended or necessarily suitable for purposes other than those listed above. Any party reviewing this report for other purposes should have their own actuary or other qualified professional assist in their review to ensure that the party understands the assumptions, results and uncertainties inherent in our estimates.

A summary of the key valuation results is provided below.

1. Using the projected unit credit accrued benefit funding method the plan has an unfunded liability equal to $18,670,000 at December 31, 2017. This must be funded by special payments at least equal to the amounts shown in the following schedule, payable monthly for the periods identified.

Effective Date	Amortization Period	Annual Special Payment
December 31, 2010	Jan 2011 – Dec 2025	$751,000
December 31, 2011	Jan 2012 – Dec 2026	$622,000
December 31, 2015	Jan 2016 – Dec 2030	$856,000
December 31, 2017	Jan 2018 – Dec 2032	$91,000
Total		**$2,320,000**

2. The improvement in the financial position from an unfunded liability of $18,803,000 at December 31, 2016 to an unfunded liability of $18,670,000 at December 31, 2017 is mainly due to investment returns better than expected and the University special payments made in 2017, offset to some extent by a decrease in the valuation interest rate, change to the mortality improvement scale and other plan experience.

3. After including the present value of special payments due in the next five years, there is a solvency deficiency of $33,079,000. The solvency ratio is 0.758.

   The Plan is subject to the funding requirements of the Pension Benefits Act of Manitoba. As such a solvency valuation is required to be prepared and, normally, any solvency deficiency would require funding over a five-year period. However, the University was eligible and made an election to be exempt from certain solvency funding and other requirements in accordance with the *Solvency Exemption for Public Sector Pension Plans Regulation*. As a result of the election, the University is exempt from making special payments for solvency deficiencies. The election was filed with the Manitoba Pension Commission on January 29, 2008.

   In the absence of the election under the *Solvency Exemption for Public Sector Pension Plans Regulation* special payments would be necessary to fund the solvency deficiency as follows:

Effective Date	Amortization Period	Annual Special Payment
December 31, 2017	Jan 2018 – Dec 2022	$7,119,000

   These payments would be in addition to the going concern special payments described above.

   University contributions are eligible contributions under the Income Tax Act.

4. If the Plan was wound-up on the valuation date, the liabilities would exceed the value of assets by $43,860,000.

5. The recommended contributions determined in this valuation satisfy the requirements of the Pension Benefits Act of Manitoba, and the Income Tax Act. The recommended University contributions are in accordance with the following schedule.

	Annual Estimated Dollar Amount	**Amount as a percent of pensionable payroll***
Regular University contributions	$680,000	8.4%
Additional University contributions for current service shortfall and administration expenses	$431,000	5.3%
Going concern special payments	$2,320,000	
Total	$3,431,000	

**Pensionable payroll is limited to the Years Maximum Contributory Earnings (YMCE)*

6. Since the solvency ratio of the plan is less than 0.90, the Pension Benefits Act of Manitoba requires that the next valuation be prepared no later than December 31, 2018.

7. In accordance with the Plan provisions, pensions have been increased effective July 1, 2018 by 1.87%. This increase, which has been reflected in our valuation, exceeds the assumed increase of 0.75%. This resulted in a loss on the going concern valuation basis of $1,040,000.

This report should be filed with the Office of the Superintendent - Pension Commission, to meet the filing requirements of the Pension Benefits Act of Manitoba and with Canada Revenue Agency, in order to ensure that contributions recommended in the report will qualify as eligible contributions for purposes of the Income Tax Act. The next actuarial valuation of the Plan should be performed no later than December 31, 2018.

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

Respectfully submitted,
ECKLER LTD.

Andrew Kulyk
Fellow of the Canadian Institute of Actuaries

Kerem Leylek
Fellow of the Canadian Institute of Actuaries

Section 2. INTRODUCTION

The defined benefit provisions of the Plan have been amended since the date of the previous valuation; however, the amendments had no material impact on the results of our valuation.

Our report is based on the provisions of the 2008 consolidated Plan text and all subsequent amendments made to the Plan.

SUBSEQUENT EVENTS

We are not aware of any events that occurred between the valuation date and the date this report was completed that have a material impact on the results of this valuation.

VALUATIONS INCLUDED IN THIS REPORT

In this report, we describe the results of three different valuations of the Plan:

- A "going concern valuation" which is used to estimate the funded position of the Plan, assuming the Plan is continued indefinitely, and to estimate the contributions currently required to be made to the Plan's fund, both to fund the cost of any benefits being earned by members for current service and, in the event there is a funding deficiency, to liquidate the amount of the funding deficiency.

- a "wind-up valuation", which is intended to reflect the status of the Plan as if it had been wound up on the valuation date and the Plan members had been provided with the benefits specified by the Plan and the Pension Benefits Act of Manitoba. The purpose of this valuation is to show the degree of benefit security provided for all of the Plan members' accrued benefit by the current assets of the pension fund. The wind-up valuation is not used to determine the required contributions to the Plan.

- A "solvency valuation", which is required by the Regulations under the Pension Benefits Act of Manitoba. This valuation is similar to a wind-up valuation, except that certain adjustments may be made to the assets. The solvency valuation is required to be performed but does not affect the required contributions to the Plan because of the *Solvency Exemption for Public Sector Pension Plans Regulation*.

The difference between the wind-up and solvency valuations for this Plan relates to the value of assets that are included in the valuation. In the wind-up valuation, the only assets taken into account are the invested assets of the Plan which are taken at their market value adjusted for receivables and payables reflected in the Plan's audited financial statements, net of a provision for wind-up expenses. In the solvency valuation, the assets are equal to the wind-up assets plus the present value of all special payments that are scheduled to be made in the five years following the valuation date.

FILING REQUIREMENTS

The last filed actuarial report was effective December 31, 2016. This report outlines the changes to the Plan's financial position since the previous valuation as at December 31, 2016, and is to be filed with the Office of the Superintendent of Pensions in Manitoba and Canada Revenue Agency. The report is also to be used by the Trustees to determine the University's funding requirements for the period following the valuation until the date of the next required valuation of the Plan.

The next actuarial valuation of the Plan is required to be performed no later than December 31, 2018.

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Section 3. DATA

The valuation was based on data as of December 31, 2017, supplied to us by the Board of Trustees of the Plan. This data is summarized in Appendix C.

We subjected this data to a number of tests of reasonableness and consistency, including the following:

- a member's (and partner's as applicable) age is within a reasonable range;
- all dates remained unchanged from the data used in the previous actuarial valuation of the Plan;
- accrued service changed by a reasonable amount;
- the form of pension payment did not change (other than resulting from the death of a retired member); and
- we examined the deletions from each of the data files (i.e., the files for active members, pensioners and terminated members entitled to a deferred vested pension) since the previous valuation to determine whether all Plan members were accounted for in this valuation, to check for duplicate records and to confirm pension amounts.

Data was corrected as appropriate. The results of our tests were satisfactory.

Assets of the Plan are held in trust with CIBC Mellon. The funds are invested in a number of pooled funds. We have relied on the audited financial statements for the fund prepared by the University of Winnipeg on behalf of the Board of Trustees for the year ending December 31, 2017.

Section 4. GOING CONCERN VALUATION

VALUATION BALANCE SHEET

The following is the going concern valuation balance sheet as at December 31, 2017 based on:

- the Plan provisions (summarized in Appendix A);
- the going concern valuation assumptions (described in Appendix B);
- the membership data (summarized in Appendix C); and
- the actuarial value of assets (summarized in Appendix D).

Going Concern Valuation	12.31.2017	12.31.2016
Going Concern Assets		
Market Value of Plan assets	$137,241,000	$131,687,000
Going Concern Liabilities		
Active members – academic	$28,644,000	$31,502,000
Active members – support	$17,296,000	$17,654,000
Pensioners and survivors	$108,842,000	$100,071,000
Inactive and deferred	$957,000	$1,068,000
Outstanding surplus distribution	$172,000	$195,000
Total going concern liabilities	$155,911,000	$150,490,000
Excess / (unfunded liability)	($18,670,000)	($18,803,000)
Going concern ratio	0.880	0.875

The unfunded actuarial liability for accrued service as at December 31, 2017 is $18,670,000. The present value of previously established special payments is $17,709,000 as shown in the following table:

Effective Date	Annual Special Payment (payable monthly)	End of Liquidation Period	Present Value of Payments on December 31, 2017
01.01.2011	$751,000	12.31.2025	$4,964,000
01.01.2012	$622,000	12.31.2026	$4,521,000
01.01.2016	$856,000	12.31.2030	$8,224,000
Total	$2,229,000		$17,709,000

The unfunded actuarial liability for accrued service as at December 31, 2017 of $18,670,000 is more than the present value of previously established special payments of $17,709,000. The difference results in new annual special payment of $91,000 with an effective date of January 1, 2018. The minimum annual contributions to fund the total unfunded liability of $18,670,000 are in accordance with the following schedule.

Effective Date	Annual Special Payment (payable monthly)	End of Liquidation Period	Present Value of Payments on December 31, 2017
01.01.2011	$751,000	12.31.2025	$4,964,000
01.01.2012	$622,000	12.31.2026	$4,521,000
01.01.2016	$856,000	12.31.2030	$8,224,000
01.01.2018	$91,000	12.31.2032	$961,000
Total	$2,320,000		$18,670,000

PROVISION FOR ADVERSE DEVIATION

The going concern valuation includes a margin for adverse deviation in the valuation interest rate equal to 0.80% per year. This amounts to a provision for adverse deviation in the going concern accrued liabilities of approximately $11,764,000, or additional annual University contributions, when compared to a best estimate valuation, of:

- $1,601,000 for special payments to amortize the unfunded liability, and
- $168,000 for current service.

EXPERIENCE GAIN AND LOSS

The Plan has a going concern unfunded liability of $18,670,000 at December 31, 2017. Our previous valuation of the Plan as at December 31, 2016 showed the Plan had an unfunded liability of $18,803,000. The approximate derivation of the going concern unfunded liability at December 31, 2017 is as follows:

Going concern surplus / (unfunded liability) at December 31, 2016		($18,803,000)
University special payments with interest to amortize the unfunded liability		$2,288,000
Interest on surplus / (unfunded liability) during inter-valuation period at 5.25% per year		($987,000)
Expected surplus / (unfunded liability) at December 31, 2017		($17,502,000)
Plus actuarial gains/(losses) due to experience differing from assumed during the inter-valuation period:		
▪ Gain/(loss) on retirements	($968,000)	
▪ Gain/(loss) on mortality	($262,000)	
▪ Gain/(loss) on termination	($139,000)	
▪ Gain/(loss) on salaries and the YMPE	($79,000)	
▪ Gain/(loss) attributable to net investment experience	$6,757,000	
▪ Gain/(loss) attributable to pension increases	($1,040,000)	
Net actuarial experience gain/(loss)		$4,269,000
Gain/(loss) due to changing the actuarial assumptions:		
▪ decrease in the valuation interest rate		($3,915,000)
▪ change to the mortality improvement scale		($1,480,000)
Other gains/(losses)		($42,000)
Going concern surplus / (unfunded liability) at December 31, 2017		($18,670,000)

The following describes the larger sources of gain and loss since the previous valuation:

- The University made special payments to eliminate the unfunded liability equal to $2,229,000.

- The actual return earned by the Plan based on the market value of assets during the year was 10.40% net of investment expenses, compared to an expected return of 5.25% per year resulting in a gain of $6,757,000.

- A pension increase of 1.87% was provided effective July 1, 2018 resulting in a loss of $1,040,000. This is based on:
  - Expected annual pension increases of 0.75%,
  - the four year average fund rate of return of 8.13% net of investment expenses, and
  - the 2017 increase in the Consumer Price Index for Canada of 1.87%.

- The valuation interest rate was decreased from 5.25 % to 5.00% per year, resulting in a loss of $3,915,000
- The valuation generational mortality improvement scale was update to MI-2017 from CPM Improvement Scale B (CPM-B).

INTEREST RATE SENSITIVITY OF THE GOING CONCERN LIABILITY

The effect of a decrease to the going concern valuation interest rate of 1%, from 5.00% to 4.00%, is an increase in the liability of approximately $17,512,000.

CURRENT SERVICE COST

Based on the assumptions and membership data described herein, we estimate that the University's current service cost from December 31, 2017 until the effective date of the next valuation is:

- **Regular University Contributions**: weighted average of 8.4% of members' pensionable earnings limited to the Year's Maximum Contributory Earnings (YMCE)[1] including deemed earnings for members receiving long term disability (LTD) benefits. These are estimated to be $680,000.
  PLUS
- **Regular University Contribution Shortfall:** 3.3% of members' pensionable earnings limited to the YMCE for the current service cost shortfall. These are estimated to be $271,000.
  PLUS
- **Expenses**: 2.0% of members' pensionable earnings limited to the YMCE for annual expenses associated with the administration of the pension plan equal to $160,000.

Members are required to contribute 8% of pensionable earnings up to the YMCE less 1.8% of pensionable earnings for which Canada Pension Plan (CPP) contributions are required. Members receiving LTD benefits are not required to contribute.

Based on estimated pensionable earnings for 2018, capped by the YMCE, of $8,078,000, the total estimated University current service contribution including the University contributions made on behalf of LTD member contributions, and the annual allowance for administration expenses, is $1,111,000 or 13.7% of members' pensionable earnings. The table below summarizes the University's estimated current service contribution for 2018.

The actual dollar amount of current service contribution for 2018 may be higher or lower than the amount indicated if the actual pensionable earnings are different than assumed.

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[1] *The YMCE for 2018 is $102,881.*

	Estimated Dollar Amount	Percentage of Pensionable Earnings
Estimated 2018 pensionable earnings capped by the YMCE	$8,078,000	
Determination of Additional University Contribution		
Total current service cost for benefits	$1,521,000	18.8%
Estimated member required contributions	($570,000)	(7.1%)*
University current service cost	$951,000	11.7%
Regular University Contributions	($680,000)	(8.4%)*
University current service cost shortfall	$271,000	3.3%
Annual allowance for administration expenses	$160,000	2.0%
Additional University Contribution	**$431,000**	**5.3%**
University Contribution for Current Service		
University Regular Contribution	$680,000	8.4%
Additional University Contribution	$431,000	5.3%
Total University contribution for current service	$1,111,000	13.7%

**Member contributions and Regular University Contributions are shown here as a flat rate, however the actual amounts contributed in the year are based on the formula in the plan, which is integrated with Canada Pension Plan earnings.*

INTEREST RATE SENSITIVITY OF THE CURRENT SERVICE COST

The effect of a decrease in the valuation interest rate of 1%, from 5.00% to 4.00%, is an increase in the total current service cost and University current service cost of $268,000, or an increase in the University current service cost as a percentage of capped pensionable earnings from 13.7% to 17.0%.

Section 5. WIND-UP VALUATION

The purpose of the wind-up valuation is to determine the financial position of the Plan if it were wound up on the valuation date. The circumstances in which the plan wind-up occurs is that both the University of Winnipeg ceases operations and the Plan wind-up giving rise to termination benefits to members not eligible for retirement on the wind-up date and retirement benefits to all other members. There are no benefits on plan wind-up that were excluded from our valuation. The liability for all active members with 20 years or more of service on the valuation date includes the value of the early retirement subsidy as provided for in the Plan.

Accordingly, the following approach was used:

1. The Plan assets were valued at their market value.

2. The benefits valued are those which members would be entitled under applicable legislation and the Plan, if the Plan were wound up on the valuation date.

3. The actuarial assumptions are developed in accordance with the Canadian Institute of Actuaries' (CIA's) Standard of Practice for determining Pension Commuted Values and the CIA Educational Note – *Assumptions for Hypothetical Wind-up and Solvency Valuations with Effective Dates Between December 31, 2017 and December 30, 2018* dated March 2018. These assumptions are described in detail in Appendix B.

4. In accordance with the CIA Educational Note, the spread above the unadjusted CANSIM series V39062 was determined to be 75 basis points based on a duration of 9.96 for the portion of the liability assumed to be settled through the purchase of annuities. Accordingly, the valuation interest rate assumed for the purchase of non-indexed annuities is 2.97%.

Based on the Plan provisions in effect on December 31, 2017, the wind-up valuation assumptions and the membership data supplied by the Board of Trustees, the following is the wind-up position of the Plan as at December 31, 2017:

Wind-up Valuation	12.31.2017	12.31.2016
Wind-up Assets		
Market value of Plan assets	$137,241,000	$131,687,000
Allowance for wind-up expenses	($200,000)	($195,000)
Total wind-up assets	$137,041,000	$131,492,000
Wind-up Liabilities		
Active members	$61,521,000	$68,258,000
Pensioners and survivors	$118,092,000	$112,148,000
Inactive and deferred	$1,116,000	$1,285,000
Other (incl. outstanding surplus distribution)	$172,000	$195,000
Total wind-up liabilities	$180,901,000	$181,886,000
Wind-up excess/ (shortfall)	($43,860,000)	($50,394,000)

As shown above, if the Plan had been wound-up as at December 31, 2017, the wind-up liabilities would have exceeded the wind-up assets by $43,860,000.

WIND-UP INCREMENTAL COST

The incremental cost represents the present value on the valuation date of the expected aggregate change in the wind-up liability between the valuations, adjusted upward for expected benefit payments between the valuation dates.

The estimated incremental cost of the Plan on a wind-up basis from December 31, 2017 until the next required valuation at December 31, 2018 is $3,996,000.

Section 6. SOLVENCY VALUATION

The table below shows the solvency position of the Plan as at December 31, 2017. The circumstances in which the plan wind-up occurs is that both the University of Winnipeg ceases operations and the Plan wind-up giving rise to termination benefits to members not eligible for retirement on the wind-up date and retirement benefits to all other members. There are no benefits on plan wind-up that were excluded from our valuation. The liability for all active members with 20 years or more of service on the valuation date includes the value of the early retirement subsidy as provided for in the Plan.

The calculations are based on the Plan provisions in effect on the valuation date, the solvency valuation assumptions described in Appendix B, and the membership data supplied by the Board of Trustees.

Solvency Valuation	12.31.2017	12.31.2016
Solvency Assets		
Market value of Plan assets (A)	$137,241,000	$131,687,000
Present value of the first five years of special payments to eliminate the going concern unfunded actuarial liability	$10,781,000	$10,350,000
Allowance for wind-up expenses (B)	($200,000)	($195,000)
Total solvency assets	$147,822,000	$141,842,000
Solvency Liabilities		
Active members	$61,521,000	$68,258,000
Pensioners and survivors	$118,092,000	$112,148,000
Inactive and deferred	$1,116,000	$1,285,000
Other (incl. outstanding surplus distribution)	$172,000	$195,000
Total solvency liabilities (C)	$180,901,000	$181,886,000
Solvency excess / (deficiency)	($33,079,000)	($40,044,000)
Solvency ratio [(A + B) ÷ C]	0.758	0.723

INTEREST RATE SENSITIVITY OF THE SOLVENCY LIABILITY

The effect of decreasing the interest rates used to determine the solvency liability by 1%, i.e. reducing the annuity purchase rate from 2.97% p.a. to 1.97% and a corresponding decrease in the commuted value rates, is an increase in the liability of approximately $20,595,000.

SPECIAL PAYMENTS

This plan is subject to the funding requirements of the Pension Benefits Act of Manitoba. As such, it is required that a solvency valuation is prepared and, any solvency deficiency is required to be funded over a five-year period. However, the University was eligible and made an election to be exempt from certain solvency funding and other requirements in accordance with the *Solvency Exemption for Public Sector Pension Plans Regulation* ("Solvency Exemption"). As a result of the election, the University is exempt from making special payments for solvency deficiencies. The election was filed with the Manitoba Pension Commission on January 29, 2008.

The Plan has a solvency deficiency (i.e., an excess of solvency liabilities over solvency assets after adjustment) of $33,079,000. The solvency gain is $0 since the previous valuation. In the absence of the Solvency Exemption, the solvency deficiency would require funding by equal monthly payments over the period beginning on the valuation date and ending on December 31, 2022. Accordingly, the minimum special payment required to liquidate this solvency deficiency would be $7,119,000 per year, payable monthly from January 1, 2018 to December 31, 2022 inclusive. These payments would be in addition to the special payments required to fund the going concern unfunded liability.

The following schedule summarizes the special payments that would be required to liquidate the unfunded liabilities and solvency deficiencies as at December 31, 2017. The payments to amortize the unfunded liability must be made regardless of the solvency exemption. Payments to amortize the solvency deficiency are not required.

			Present Value of Payments on December 31, 2017 for purposes of*	
Effective Date	**Annual Special Payment (payable monthly)**	**End of Liquidation Period**	**Solvency Valuation**	**Going Concern Valuation**
Unfunded Liability				
01.01.2011	$751,000	12.31.2025	$3,490,000	$4,964,000
01.01.2012	$622,000	12.31.2026	$2,890,000	$4,521,000
01.01.2016	$856,000	12.31.2030	$3,978,000	$8,224,000
01.01.2018	$91,000	12.31.2032	$423,000	$961,000
Total	$2,320,000		$10,781,000	$18,670,000
Solvency Deficiency				
01.01.2018	$7,119,000	12.31.2022	$33,079,000	-
Total Including Solvency	$9,439,000		$43,860,000	

**The present value for the Solvency Valuation reflects only the next five years of payments, discounted at the weighted average solvency interest rate of 2.96% per year. The present value for the Going Concern Valuation reflects all years of payments, discounted at the going concern interest rate of 5.00% per year.*

Section 7. ELIGIBLE CONTRIBUTIONS

MINIMUM CONTRIBUTIONS

The University is required to make:

- Regular University Contributions at the rate of 9.0% of earnings up to the YBE, 7.2% of earnings between the YBE and the YMPE and 9.0% of earnings in excess of the YMPE up to the Year's Maximum Contributory Earnings (YMCE) in the Plan, plus
- the member contribution on behalf of LTD members, plus
- the current service shortfall for benefits calculated as the total current service cost minus member and University Regular Contributions, plus
- the annual allowance for administration expenses, plus
- special payments to fund the going concern deficiency at December 31, 2017.

Based on estimated capped pensionable earnings of $8,078,000 including the deemed earnings for LTD members, the minimum required annual University contribution under the Pension Benefits Act of Manitoba and Solvency Exemption are as follows:

	Estimated Dollar Amount	Contribution Rule
Regular University Contributions including full contributions for LTD members	$680,000	8.4%*
Current service shortfall for benefits	$271,000	3.3%
Annual allowance for administration expenses	$160,000	2.0%
Special payments:		
- Unfunded actuarial liability	$2,320,000	$2,320,000
- Solvency deficiency	-	-
Total required contributions	$3,431,000	

** Regular University Contributions are shown here as a flat rate, however the actual amounts contributed in the year are based on the formula in the plan, which is integrated with Canada Pension Plan earnings.*

MAXIMUM CONTRIBUTIONS

The University is permitted to fund at a higher level than the minimum requirement stated above. The maximum permitted contribution the University could make is equal to the sum of:

1. A lump sum equal to $43,860,000 – the greater of the unfunded actuarial liability of $18,670,000 and the windup deficiency of $43,860,000 as of December 31, 2017; PLUS
2. The current service contributions of 13.7% of capped earnings representing:
   (i) Regular University contributions and;
   (ii) Additional contributions for the current service shortfall and expenses.

Under the Pension Benefits Act of Manitoba, all contributions due to the Plan must be remitted monthly. Member and University contributions are due within 30 days following the end of the month to which they apply.

Section 8. ACTUARIAL OPINION

With respect to the University of Winnipeg Trusteed Pension Plan forming part of the actuarial report on a valuation of the plan at December 31, 2017, I hereby certify that:

a. The purpose of this report is to provide actuarial estimates of the funding payments required to be made by the University of Winnipeg for the period from December 31, 2017 to the date of the next valuation. The effective date of the next valuation must be no later than December 31, 2018 in order to comply with applicable legislation.

b. Based on the projected unit credit actuarial funding method, the plan has an unfunded liability of $18,670,000.

c. In order to satisfy the funding requirements of the Pension Benefits Act, the University must amortize the unfunded liability according to the following schedule:

	Effective Date	End of Amortization Period	Annual Special Payment (payable monthly)
Unfunded Liability	01.01.2011	12.31.2025	$751,000
Unfunded Liability	01.01.2012	12.31.2026	$622,000
Unfunded Liability	01.01.2016	12.31.2030	$856,000
Unfunded Liability	01.01.2018	12.31.2032	$91,000
Total			$2,320,000

d. Based on the projected unit credit actuarial funding method, the University is required to contribute 13.7% of capped pensionable earnings in order to satisfy their funding requirements. This is comprised of University Regular Contributions of approximately 8.4% of capped earnings, plus 3.3% of earnings for the current service cost shortfall, plus 2.0% of capped earnings for administration expenses. The estimated cost of benefits including the allowance for expenses, for 2018 is $1,681,000, of which $570,000 will be paid by the members and $1,111,000 will be paid by the University.

e. The value of the Plan assets would be less than the actuarial liabilities if the Plan was wound up as at December 31, 2017. The estimated shortfall is $43,860,000.

f. After taking into account the present value of the next five years special payments to amortize the unfunded liability, the Plan has a solvency deficiency at December 31, 2017 of $33,079,000. The Plan has a solvency ratio of 0.758.

Eckler

Notwithstanding the foregoing opinion, emerging experience differing from the assumptions will result in gains or losses which will be revealed in future valuations.

In my opinion,

a. the membership data on which the valuation is based are sufficient and reliable, for the purposes of the valuation,

b. the assumptions used are appropriate for the purposes of the valuation, and

c. the methods employed in the valuation are appropriate for the purposes of the valuation.

This report has been prepared and this opinion given in accordance with accepted actuarial practice in Canada.

Andrew Kulyk
Fellow of the Canadian Institute of Actuaries

Sept. 7, 2018
Date

Kerem Leylek
Fellow of the Canadian Institute of Actuaries

Sept. 7, 2018
Date

Appendix A. SUMMARY OF PLAN PROVISIONS

The defined benefit provisions of the Plan have been amended since the date of the previous valuation; however, the amendments had no material impact on the results of our valuation.

The following is a summary of the main provisions of the Plan in effect at December 31, 2017. It is not intended to be a complete description of the Plan.

ELIGIBILITY
The defined benefit part of the Plan is closed to new entrants.

MEMBER CONTRIBUTIONS
Members are required to contribute at the rate of 8.0% of salary up to the Year's Basic Earnings (YBE) under the Canada Pension Plan, 6.2% between the YBE and the Year's Maximum Pensionable Earnings (YMPE) and 8.0% in excess of the YMPE. Members contribute only on the amount earned up to the Year's Maximum Contributory Earnings (YMCE).

The YMCE is the sum of $86,111 and 30% of the YMPE for the year, or $102,881 for 2018.

Members receiving benefits from the long term disability (LTD) plan are not required to contribute to the plan while disabled.

UNIVERSITY CONTRIBUTIONS
The University is required to contribute at the rate of 9.0% up to the YBE, 7.2% between the YBE and the YMPE and 9.0% in excess of the YMPE. The University only contributes on the amount earned up to the YMCE, plus any additional payments required under the Pension Benefits Act of Manitoba.

For members receiving benefits from the LTD plan, the University also contributes the amount that the member would have otherwise contributed had the member not been disabled. For the purpose of results presented in this report, this amount is included in Regular University Contributions.

NORMAL RETIREMENT
The normal retirement date of all members is the first of the month following their 65th birthday.

EARLY RETIREMENT
A member may retire on the first day of any month within the 10 year period prior to his normal retirement date. If the member is age 61 or over and his age plus years of service equals 85 or more, there is no reduction on early pension commencement, otherwise the reduction is ¼% for each month by which his early retirement date precedes the earlier of the first date that he would have satisfied the "rule of 85, minimum age 61", had employment continued, and age 65.

LATE RETIREMENT
A member who continues in employment after his normal retirement date continues to make contributions to the Plan and his pension does not commence until his actual retirement date or the end of the year in which the member attains age 71, if earlier. Upon retirement the members receives the greater of the pension accrued to the date of retirement and the actuarial equivalent pension based on the amount that would have been payable had the member retired on his or her normal retirement date.

PENSION
At retirement, the member is entitled to an annual pension equal to 2% of his final average earnings multiplied by his years of credited service less 0.6% of his CPP average earnings multiplied by his years of service since January 1, 1988. Final average earnings are the average of the best 60 months earnings in the last 15 years prior to retirement. CPP average earnings are his average earnings up to the YMPE in the same 60 months used for calculating the average earnings. The maximum annual pension is $1,722.22 per year of credited service.

FORMS OF PENSION
The normal form of pension at retirement is payable for life with a guarantee of 5 years' payments.

Members with a spouse must elect an actuarially equivalent pension in the form of a joint and last survivor pension with at least 2/3rds of the pension continuing to the survivor.

Other options are available on an actuarially equivalent basis.

Non-retired members on December 31, 1999 who elected to participate in the defined benefit option were given the choice of three ways to receive their Initial Surplus Share as follows:

a) A lump sum payment,
b) As partial lump sum payment and an improvement in the normal form of pension in respect of credited service accrued prior to December 31, 1999 from life guaranteed 5 years to life guaranteed 10 years; or
c) No lump sum payment and an improvement in the normal form of pension in respect of credited service accrued prior to December 31, 1999 from life guaranteed 5 years to life guaranteed 13 years.

Where applicable, the enhanced form of pension is reflected in our valuation.

PENSION INCREASES
Pensions in payment are increased automatically on July 1 by the same percentage as the average annual investment return on the fund, net of investment and administration expenses, in the previous four calendar years exceeds 6%, subject to a maximum increase of the CPI in that year. If the increase in any year is limited by the CPI increase and there was a previous year, or years, when the increase was less than the CPI, the Board of Trustees may provide a higher increase to make up some, or all of, the shortfall.

DEATH BENEFITS PRIOR TO RETIREMENT
The death benefit is the commuted value of the pension earned to the date of death.

BENEFITS ON TERMINATION OF EMPLOYMENT
A member who terminates employment is entitled to a deferred pension payable from normal retirement date.

50% of the deferred pension in respect of service after January 1, 1985 must be paid for by University contributions.

Members not eligible to commence an immediate pension upon termination of employment may transfer the commuted value of their accrued pension to a locked-in retirement account.

BENEFITS ON DISABILITY
A member receiving benefits from the University's Long Term Disability (LTD) Plan continues to accrue credited service but is not required to make contributions. For pension calculation purposes, the salary (and YMPE) are deemed to be equal to that paid to the member immediately prior to the commencement of the LTD benefit.

SUPERINTENDENT'S ORDER FOR SURPLUS DISTRIBUTION
On December 8, 2006, the Superintendent of Pensions of Manitoba issued an Order requiring the University to pay a lump sum amount of $6,454,000, plus interest in respect to the distribution of a surplus dating back to 2000 to certain plan members. The University appealed the Order of the Manitoba Pension Commission, and further to the Manitoba Court of Appeal. As a result of the appeal to the Manitoba Pension Commission, the Superintendent issued a revised Order on June 6, 2008, leaving the Order with respect to surplus distribution unchanged. The Manitoba Court of Appeal delivered its decision in support of the Superintendent's Order on January 23, 2009.

Following the Court of Appeal decision, the Board of Trustees received clarification of the Order from the Superintendent with respect to several matters with respect to the Order, and requested Canada Revenue Agency approval for the necessary contribution by the University and the payment of the corresponding amounts to plan members. The final necessary approval was received after December 31, 2009. The University immediately contributed $8,775,827 into the fund in January 2010, and payments to members entitled to a share of this amount commenced in February 2010.

A small portion of this amount remains undistributed and is treated as a liability of the Plan for the purpose of our valuation as at December 31, 2017.

Appendix B. ACTUARIAL ASSUMPTIONS

Going Concern Valuation

These assumptions are the same as those used at the previous valuation, except where noted.

Valuation interest rate:

In order to determine the expected investment return on the investments of the Plan, our model determined expected long term capital market returns, standard deviations and correlations for each major asset class noted in Appendix E (Bonds, Canadian equities, US equities, etc.) by using historic returns, current yields and forecasts. We then stochastically generated projected asset class returns for 5,000 paths over 30 years to create expected returns for each asset class. The simulated going concern valuation interest rate was the return at the median of each asset class weighted by the Plan's target asset mix taking into account changes in the asset mix that are scheduled to be triggered after the valuation data (i.e. under a glide-path). To arrive at the expected gross investment return we then added assumed additional returns due to diversification and active management. We assumed that there will be no added-value returns from the active management strategy employed in excess of the associated additional investment management fees.

Based on the methodology described above, the going concern valuation interest rate assumption was developed as follows:

	Expected Return
Simulated gross investment return before margin and expenses	5.90%
Assumed active management value added	0.35%
Provision for investment management expenses	(0.45%)
Provision for adverse deviations	(0.80%)
Going concern valuation interest rate	5.00%

The level of the margin for adverse deviation of 0.80% was agreed upon with the Board of Trustees of the Plan.

For the previous valuation, an interest rate of 5.25% per year was used.

Interest rate credited on member required contribution accounts:

It was assumed that members' accumulated required contribution accounts would increase at the rate of 1.75% per year. This rate was developed based on the five-year average of the CANSIM Series V122515 rates and is consistent with the rate provided by the Plan.

Expenses:

We have assumed that annual administration expenses will be $160,000 per year. This allowance was developed based on recent administration expenses incurred by the Plan and an expense budget provided by the Trustees. An implicit allowance for investment management expenses of 0.45% is reflected in the valuation interest rate.

Salary Increases:
Salaries are assumed to increase from the valuation date as follows:

i. General increases of 3.0% per year. This rate is based on an allowance for market implied inflation at December 31, 2017 of 2.0% per year based on the difference between long-term nominal and real return Government of Canada bond yields plus real salary increases of 1.0% per year which is consistent with historical increases in the Canadian economy.

ii. Performance – Academic Members only – The following table describes the performance scale used for the valuation, for selected ages:

Age	Average Annual Increase over next 5 years	Average Annual Increase to age 65
40	2.3%	1.9%
45	2.1%	1.8%
50	1.9%	1.7%
55	1.7%	1.7%
60	1.6%	1.6%

Where negotiated salary increases are available, the negotiated scheduled rate increases, as provided by the University, have been reflected in place of the salary increase assumption. A summary of the scheduled rate increases is provided below. For Academic members, the scheduled rate increases include a component for performance.

Year	Annual Increase for Support Members	Annual Increase for Academic Members
2017	2.00%	3.50%
2018	1.25%	3.50%
2019	1.00%	4.00%
2020	Increases in accordance with salary assumption described above	3.00%
2021+	Increases in accordance with salary assumption described above	Increases in accordance with salary assumption described above

Mortality:
The RPP 2014 Public Sector Mortality Table from the CIA report (CPM2014Publ) without size adjustments with fully generational mortality improvements using the MI-2017 mortality improvement scale to estimate the incidence of death before and after retirement. The mortality table is based the Canadian Institute of Actuaries' (CIA) final report on the results of a study performed on the mortality of pension plan members in Canada. The mortality improvement scale

is based on a report released by the CIA Task Force on Mortality Improvement on September 20, 2017. Previously, generational mortality improvements were based on Scale CPM-B.

Termination:
Considering the age and length of employment of current members (the DB part of the Plan was closed to new entrants January 1, 2001) and the very low number of terminations occurring, we have made no allowance for the incidence of termination of employment prior to becoming eligible to retire.

Retirement:
The retirement age of members has a financial impact on the Plan. We have developed the following table based on 6 years of retirement experience of the Plan from 2005 to 2010. We have continued to evaluate this table and update the experience since 2010. Based on these evaluations, these probabilities continue to be appropriate for the purposes of the valuation.

Age	Probability of Retirement
61 – 68	20%
69	30%
70	40%
71+	100%

Actuarial Equivalence on Postponed Retirement:
The current administrative practice of the Plan is to determine actuarial equivalent pension increases in a manner consistent with the actuarial assumptions used for determining commuted values. We have assumed an average commuted value interest rate of 4.0% and mortality rates in accordance with the RPP 2014 Combined Mortality Table from the CIA report without size adjustments (CPM2014) with full generational improvements in mortality, using CPM improvement Scale B (CPM-B). In determining the interest rate assumption we have considered the following:

- Current Government of Canada long bond yields and commuted value rates are currently at historical lows and may not be indicative of commuted value interest rates at future decrement dates.
- The Canadian Institute of Actuaries' (CIA's) Standard of Practice for determining Pension Commuted Values currently provides for non-indexed select interest rates equal to the Government of Canada seven year bond yield plus 0.9% and non-indexed ultimate interest rates equal to the Government of Canada Long Term Bond yield plus half the spread between the long bond rate and the seven year rate plus 0.9%.
- We assumed future long term Government of Canada bond yields equal to 3% and future average commuted value rates of 4.0% per year.

Year's Maximum Pensionable Earnings:
We have assumed that the CPP Year's Maximum Pensionable Earnings (YMPE) will increase annually based on average general increases in wages in Canada. For this valuation we have

assumed that the YMPE will increase from its 2018 level of $55,900 by 3.0% per year. This is consistent with the general salary increase assumption.

Future Pension Increases:
Pensions in pay are increased annually by an amount equal to the excess return of the fund, net of investment management and administration expenses, over a base rate of 6.0%, limited by increases in the Consumer Price Index for Canada. Considering the target asset mix of the fund, we have continued to assume that pensions will increase by 0.75% per year on average.

Our valuation includes the pension increase of 1.87% effective July 1, 2018.

Actuarial value of assets:
For this valuation we have used the market value of assets.

GOING-CONCERN VALUATION METHOD
We have used a projected unit credit actuarial cost method. This values the benefits for accrued service up to the valuation date by projecting salaries to retirement, determining the pension at retirement and discounting the value back to the valuation date. We compare the value of the liabilities in respect of service after 1984 to the contributions plus interest in respect of the same period to determine if the 50% test is applicable. If it is we make the appropriate adjustment to the liability. Ancillary benefits on death or termination of employment are valued in a similar manner.

The University's current service cost under this method is the excess of the cost of benefits which will arise in the year following the valuation over the members' contributions in that year.

Solvency and Wind-up Valuation

The following summarizes the actuarial assumptions used for the Solvency and Wind-up Valuations:

Actuarial value of assets:	Solvency: Market value of assets Wind-up: Market value of assets
Interest:	2.97% per year for annuity purchase[2] 2.6% per year for 10 years and 3.4% per year thereafter for lump sum transfer.
Future increases in Pensionable Earnings:	None

[2] In accordance with the CIA Educational Note – Assumptions for Hypothetical Wind-up and Solvency Valuations with Effective Dates between December 31, 2017 and December 30, 2018, dated March 2018, the spread above the unadjusted CANSIM series V39062 was determined to be 75 basis points based on a duration of 9.96 for the portion of the liability assumed to be settled through the purchase of annuities. Accordingly, the discount rate assumed for the purchase of non-indexed annuities is 2.97%.

Mortality:	CPM2014 (Combined) Mortality Table with mortality improvement projected generationally in accordance with Scale CPM-B.
Proportion electing annuity purchase	100% of retirees and 100% of active and deferred members age 55 & older. All others elect a lump sum transfer of the commuted value.
Allowance for wind-up expenses:	$200,000 ($80,000 plus $275 per member)

Incremental Cost

The incremental cost is the present value, at the valuation date, of the expected aggregate change in the hypothetical wind-up or solvency liability between the valuation date and the next valuation date. It also reflects expected benefit payments between the valuation date and the calculation date.

In our report we have determined the incremental cost under the wind-up basis. The incremental cost was determined as the sum of (a) and (b) minus (c)

(a) the projected wind-up liability at the next valuation date for those members at the current valuation date, allowing for expected decrements and change in membership status, service accrual, increase in earnings, and post-retirement pension increases between the current valuation date and the next valuation date. Consistent with the terms of the Plan, no adjustment was made for new entrants between the two valuation dates. The resulting projected wind-up liability was then discounted to the current valuation date;

(b) the present value of the benefit payments expected to be paid between current valuation date and the next valuation date, discounted to the current valuation date;

(c) the wind-up liability as at the current valuation date.

For purposes of calculating the wind-up incremental cost, the expected decrements, as well as the expected benefit payments between the current valuation date and the next, were determined using the going concern demographic assumptions. The projected wind-up liability at the next valuation date was determined using the same method and assumptions as disclosed in this Appendix. In particular, we have assumed that the interest rates will remain the same throughout the projection period and the CIA's Standards of Practice for commuted value rates in effect at the valuation date will remain unchanged, as will the current guidance on the estimation of annuity purchase costs.

Appendix C. MEMBERSHIP DATA

This section provides a summary of membership data used in the valuation. The data was provided by the Board of Trustees. We have reconciled the data with that used in the previous valuation and are satisfied that the data are sufficient and reliable for the purposes of the valuation.

Active Members	12.31.2017	12.31.2016
Number of Members	118	133
Average Pensionable Earnings	$92,772	$91,926
Average Credited Service	25.0	24.5
Average Age	59.1	58.8
Total Required Contributions with Interest	$14,546,003	$16,326,656

Inactive and Deferred Pensioners	12.31.2017	12.31.2016
Total Number of Deferred Members	35	38
Number of Members with Deferred Lifetime Pension	33	36
Average Age	57.1	56.8
Average Annual Deferred Pension Payable at 65	$1,665	$1,839
Number of Members with Lump Sum Benefit Payable	19	21
Total Lump Sum Benefits Payable	$353,414	$375,820

Pensioners and Survivors	12.31.2017	12.31.2016
Number of Lifetime Pensions	287	277
Average Age	75.1	74.7
Average Annual Lifetime Pension	$30,545	$30,329
Number of Certain Only Pensions	4	4
Average Annual Certain Only Pension	$45,167	$44,500

Distribution of Active Membership

The following table summarizes the distribution of active membership by age and credited service. We have included the count of members in each group and shown their average pensionable earnings for 2017.

Age Group	Credited Service						Total
	10 - 14	15 – 19	20 - 24	25 - 29	30 - 34	35+	
40 - 44	*	*	*				**$70,204**
	1	1	1				**3**
45 - 49		$58,495	*				**$64,034**
		4	1				**5**
50 - 54	*	$83,104	*	$52,555			**$77,725**
	1	11	2	4			**18**
55 - 59	*	$92,895	$80,113	$83,847	$75,774	*	**$83,243**
	1	10	6	13	4	1	**35**
60 - 64		$99,748	$109,419	$111,324	$109,637	$62,854	**$101,702**
		10	5	14	10	6	**45**
65 - 69		*	*	*	$124,808	*	**$119,940**
		2	1	2	3	2	**10**
70-74						*	*
						2	**2**
Total	**$54,516**	**$87,055**	**$94,970**	**$96,902**	**$104,347**	**$89,486**	**$92,772**
	3	**38**	**16**	**33**	**17**	**11**	**118**

**Earnings in cells with fewer than three members have been suppressed.*

The following tables summarize the distribution of retired members by age.

Male Retired Members

	Lifetime Pensions		Temporary Pensions	
Age	**Count**	**Average Annual Pension**	**Count**	**Average Annual Pension**
60 - 64	10	$33,136	1	*
65 - 69	25	$30,262	2	*
70 - 74	32	$43,790		
75 - 79	33	$44,832		
80 - 84	27	$33,317		
85 - 89	15	$36,467		
90 - 94	4	$23,810		
Total	**146**	**$37,743**	**3**	**$53,735**

**Pensions in cells with fewer than three members have been suppressed.*

Female Retired Members

	Lifetime Pensions		Temporary Pensions	
Age	**Count**	**Average Annual Pension**	**Count**	**Average Annual Pension**
55 - 59	2	*		
60 - 64	17	$22,154	1	*
65 - 69	32	$25,977		
70 - 74	26	$19,228		
75 - 79	27	$25,655		
80 - 84	23	$21,049		
85 - 89	9	$26,798		
90 - 94	4	$19,889		
95+	1	*		
Total	**141**	**$23,092**	**1**	*

**Pensions in cells with fewer than three members have been suppressed.*

The following table summarizes the changes in membership since the previous valuation.

Reconciliation of Membership

	Active				
	Academic	**Support**	**Pensioners & Survivors**	**Deferred**	**Total**
At December 31, 2016	**63**	**70**	**281**	**38**	**452**
Retirements					
- Pension	(7)	(5)	14	(2)	-
- Paid out	(1)	(2)			(3)
Deferred paid out				(1)	(1)
Pensioner Death			(6)		(6)
Survivor Benefits			2		2
At December 31, 2017	**55**	**63**	**291**	**35**	**444**

Appendix D. PLAN ASSETS

Assets of the Plan are held in trust with CIBC Mellon. The funds are invested in a number of pooled funds. We have relied on the audited financial statements for the fund prepared by the University of Winnipeg on behalf of the Board of Trustees for the year ending December 31, 2017.

The pooled funds are invested in marketable securities and at December 31, 2017, as reported by the audited financial statements consisted of the following:

Actual Asset Mix at December 31, 2017

	Market Values	Proportion
Fixed Income	$47,206,441	34.7%
Canadian Equities	$23,781,074	17.5%
U.S. Equities	$15,717,769	11.6%
International Equities	$34,783,341	25.6%
Real Estate	$14,562,033	10.7%
Short-term	$76	0.0%
Total Invested Assets	$136,050,734	100.0%

The invested assets are adjusted by the following amounts to arrive at the market value of assets ($137,241,351) as at December 31, 2017:

- Cash held was equal to $1,104,209, plus
- Contributions receivable equal to $391,956, minus
- Amounts payable equal to $305,548

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A summary of the change in assets since the previous valuation is summarized below:

	2017
Balance at January 1	131,687,150
Member Contributions	673,831
University Contributions	3,483,380
Investment Income	5,321,669
Realized Gains and Losses	(24,771,752)
Change in Market Values	33,519,483
Pensions Paid	(8,717,591)
Lump Sum Payments	(3,173,453)
Investment Management Expenses	(606,876)
Administration Expenses	(174,490)
Balance at December 31	137,241,351

INVESTMENT POLICY

The Pension Trustees adopted a revised Statement of Investment Policies and Procedures in 2013 (the "Policy"). The provisions of the Policy have been reflected in this valuation as they were in the previous valuation as at December 31, 2016.

The Policy is intended to provide guidelines to the investment managers as to the level of investment risk desired by Pension Trustees. As outlined in the draft Policy, the Trustees have adopted a de-risking strategy for the Fund that separates the assets in a Growth Portfolio and a Liability Matching Portfolio. As the going-concern funded ratio improves, a portion of the Growth Portfolio will be transferred to the Liability Matching Portfolio, effectively reducing the Plan risk. The transition is divided into six stages, as shown below. The trigger for each stage is based on the going concern funded ratio of the Plan.

De-risking Glidepath

Going Concern Funding Ratio	<85%	85% - 90%	90% - 95%	95% - 100%	100% - 105%	>105%
Growth Portfolio	75	65	55	50	45	40
Liability Matching Portfolio	25	35	45	50	55	60

Asset Mix Benchmark

Going Concern Funding Ratio	<85%	85% - 90%	90% - 95%	95% - 100%	100% - 105%	>105%
Canadian equities	20.0%	17.5%	15.0%	12.5%	12.5%	10.0%
Global equities	35.0%	30.0%	25.0%	22.5%	17.5%	15.0%
Emerging market equities	10.0%	7.5%	5.0%	5.0%	5.0%	5.0%
Real estate	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Total Growth Portfolio	**75.0%**	**65.0%**	**55.0%**	**50.0%**	**45.0%**	**40.0%**
Universe/Long bonds	20.0%	30.0%	40.0%	45.0%	50.0%	55.0%
High yield bonds	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total Liability Matching	**25.0%**	**35.0%**	**45.0%**	**50.0%**	**55.0%**	**60.0%**
Total Fund	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The constraints on the asset mix are as follows:

Asset Mix Constraints

Asset Class	Range in Relation to the Fund Benchmark %
Canadian equities	Between 5% below and 10% above
Global equities	Between 5% below and 10% above
Emerging market equities	Between 5% below and 2.5% above
Real estate	Between 10% below and 5% above
Bonds	Between 10% below and 10% above
High yield bonds	Between 5% below and 5% above

ACTUARIAL VALUE OF ASSETS

For this valuation, we have used the market value of assets.

INVESTMENT RETURN

Assuming that all cash flows occurred in the middle of the year, in 2017 the pension fund earned:

- a gross rate of return equal to 11.04%,
- a net rate of return equal to 10.54% after adjusting for investment management expenses, and
- a net rate of return equal to 10.40% after adjusting for investment management and administration expenses.

Appendix E. CERTIFICATION

With regard to the December 31, 2017 actuarial report for the defined benefit part of the University of Winnipeg Trusteed Pension Plan, we hereby certify that, to the best of our knowledge and belief:

- A copy of the official Plan document and all amendments made to December 31, 2017, were provided to the actuary;

- The membership data provided to the actuary includes a complete and accurate description of every person who is entitled to benefits under the terms of the Plan for service up to December 31, 2017; and

- All events subsequent to December 31, 2017 that may have an impact on the valuation have been communicated to the actuary.

- The valuation reflects the terms of the engagement with the actuary, in particular the use of the 5.00% valuation interest rate.

Trustee Signature	Trustee Signature
Chair	Vice-Chair
Title	Title
Sept 10/18	Sept. 10/18
Date	Date