AGENDA

NOTE: Members who wish to have items moved from the Consent to the Regular Agenda should contact the University Secretariat before the Board meeting. Members may also request to have items moved when the Agenda is presented for approval at the Board meeting.

A. OPEN SESSION

1. REMARKS FROM THE CHAIR

2. NOTICE OF MEETING – April 6, 2017

3. APPROVAL OF THE AGENDA - OPEN SESSION

CONSENT (9:05 a.m.)

4. MINUTES OF PREVIOUS MEETING – March 2, 2017
   (OPEN SESSION) Approval

5. BUSINESS ARISING

6. REPORT FROM SENATE

   a. Revised Terms of Reference and Name Change – Ontario Research Chair in Educational Achievement and At-Risk Students Approval

   b. Revisions to SPS B11, “Curriculum Vitae Requirements” Approval

7. COMMITTEE REPORTS

   a. Planning and Resources Committee

      i. Sustainability Annual Report Information

MOTION: That items 4 to 7 be approved or received for information by consent.
8. BUSINESS ARISING

9. COMMUNICATIONS

10. PRESENTATION TO THE BOARD OF GOVERNORS (9:10 a.m.)
    Name: Dr. D. Wilkinson, Provost and Vice-President (Academic)

11. PRESIDENT’S REPORT TO THE BOARD (9:45 a.m.)

    a. Minutes of Appreciation

12. REPORT FROM SENATE (9:55 a.m.)

    a. Proposal to Establish the McMaster Digital Transformation Research Centre Approval

    b. Proposal to Terminate the McMaster Brain-Body Institute Approval

13. COMMITTEE REPORTS (10:10 a.m.)

    a. Planning and Resources Committee

        i. Athletics and Recreation – Revised Project Approval

        ii. Hourly Pension Plan – Valuation and Solvency Application Approval

        iii. Strategic Mandate Agreement – Report Back Information

14. REPORTS RECEIVED FOR INFORMATION (10:35 a.m.) Information

    a. Report from Health, Safety and Risk Management

    b. Annual Report – Equity and Inclusion Office

15. OTHER BUSINESS
B. CLOSED SESSION (10:55 a.m.)

16. APPROVAL OF AGENDA - CLOSED SESSION Approval

CONSENT

17. MINUTES OF PREVIOUS MEETING – March 2, 2017 (CLOSED SESSION) Approval

18. BUSINESS ARISING

19. REPORT FROM SENATE Approval

   a. Appointments Recommendations

20. COMMITTEE REPORTS

   a. Executive and Governance Committee

      i. Honorary Naming Information

   b. University Planning Committee Approval

      i. Proposed Named Spaces

MOTION: That items 17 to 20 be approved or received for information by consent.

REGULAR

21. BUSINESS ARISING

22. REPORT FROM THE PRESIDENT (11:00 a.m.) Approval

   a. Appointments Recommendations to the Advisory Committee of the McMaster Museum of Art

23. REPORT FROM SENATE

   a. Appointments Recommendations – April 12, 2017 Approval

24. COMMITTEE REPORTS (11:05 a.m.) Approval

   a. Planning and Resources Committee

      i. Off-Campus Development

25. OTHER BUSINESS (11:25 a.m.)

26. ADJOURNMENT
MEMBERS’ DISCUSSION

Next Meeting: Thursday, June 8, 2017
Council Room (Room 111), Gilmour Hall

Lunch will be served following the meeting in CIBC Hall, located in room 308-309 of the McMaster University Student Centre.
MINUTES OF THE BOARD OF GOVERNORS
March 2, 2017 at 9:00 a.m.
Council Room, Gilmour Hall

PRESENT:    Ms J. Pike (Chair), Ms L. Allan, Ms S. Cruickshanks, Dr. P. Deane,
            Mr. S. Donnelly, Mr. P. Douglas, Ms H. Faidi, Mr. D. Feather, Dr. M. George,
            Dr. D. Harnish, Dr. A. Holloway, Mr. D. Horwood, Dr. R. Kleiman,
            Mr. B. Merkel, Mr. R. Narro Perez, Mr. K. Nye, Mr. E. Onuoha, Dr. B. Pelton,
            Mr. R. Piro, Mr. M. Runciman, Ms F. Samji, Dr. H. Schellhorn,
            Ms S. Stephenson, Dr. E. Szathmáry, Dr. L. Thabane, Mr. T. Valeri, Ms H. Ayre
            (University Secretary), Mr. M. Downard (Associate University Secretary)

OBSERVERS:  Dr. R. Baker, Mr. R. Couldrey, Ms E. Davies, Ms D. Henne, Dr. M. Horn,
             Dr. B. Levy, Dr. P. O’Byrne, Ms T. Smith, Ms M. Williams

INVITED:     Mr. Z. Douglas, President and CEO, McMaster Innovation Park
             Ms L. Morine, Associate Director, Health, Safety and Risk Management
             Ms C. Podedworny, Director, McMaster Museum of Art

REGRETS RECEIVED:   Mr. Q. Broad, Ms. R. Jamieson, Mr. C. Keizer, Mr. M. Latimer,
                     Dr. S. Porter, Ms J. Rowe, Mr. M. Runciman, Mr. N. Skelding,
                     Ms C. Stefankiewicz, Mr. D. Williamson, Dr. D. Wilkinson

A.  OPEN SESSION

1.  REMARKS FROM THE CHAIR

Ms Pike welcomed members to the March 2, 2017, meeting of the Board of Governors.

2.  NOTICE OF MEETING – February 16, 2017

The Notice of Meeting was circulated on February 16, 2017.

3.  APPROVAL OF THE AGENDA – OPEN SESSION

Ms Pike noted that no requests had been received to move any items from the Consent to
the Regular agenda of the Open Session.
IT WAS DULY MOVED AND SECONDED,
that the Board of Governors approve the Open Session agenda for the meeting of March 2, 2017, and that items 4-5 be approved or received for information by Consent.

The motion was Carried.

CONSENT

4. MINUTES OF THE PREVIOUS MEETING – DECEMBER 15, 2016 (OPEN SESSION)

Motion:
that the Board of Governors approve the Open Session minutes of the meeting held on December 15, 2016 as circulated.

Approved by Consent

5. BUSINESS ARISING

6. BUSINESS ARISING

a. Athletics and Recreation Referendum – Update

Mr. Couldrey provided members with an update on the recent student referendum related to the proposed athletics and recreation expansion project. The referendum did not pass, although the vote was close. The administration has put together another proposal that includes a financial contribution from the University. A second referendum will be held to vote on the revised project.

7. COMMUNICATIONS

There were no communications for the meeting held on March 2, 2017.

8. PRESENTATION TO THE BOARD OF GOVERNORS

Dr. R. Baker, Vice-President (Research) gave a presentation to the Board of Governors.
9. PRESIDENT’S REPORT TO THE BOARD

Dr. Deane discussed recent events related to immigration and the new United States administration, noting that it demonstrates the need to build an inclusive community. The newly created position of Associate Vice-President (Equity and Inclusion) will help in this area.

With regard to developments with the provincial government, there are a number of items that will require attention, including the tuition framework and funding formula. The current funding formula has not been changed since the 1960’s, and this will be significant for institutions. It is believed that the government is close to finalizing the formula, which will be a corridor system that moves away from the past focus on enrolment growth. Dr. Deane provided details regarding the corridor system.

Members were informed the Chancellor Emeritus Lynton Red Wilson has established a scholarship program for students with the capacity for exceptional leadership. Three students will be selected each year for the $50,000 scholarships. This year, candidates will be meeting with alumnus Mr. Kevin Lynch, who will share his insight from a long and distinguished career in the public sector.

10. REPORT FROM SENATE


Dr. Deane informed members that the Panel to Review the Discrimination, Harassment and Sexual Harassment: Prevention and Response Policy is requesting that the Board of Governors suspend the sexual harassment provisions of that policy so that issues related to sexual harassment can be processed through the newly approved Sexual Violence Policy. The Panel is concerned that having two separate policies in place that address the same issue may lead to confusion, and that the provisions in the Discrimination/Harassment Policy that duplicate the Sexual Violence Policy can be suspended until the Discrimination/Harassment Policy can be revised to remove them entirely. The interim measures have been reviewed and approved by Senate at its February 8, 2017 meeting.

IT WAS DULY MOVED AND SECONDED,

that the Board of Governors agree to suspend those provisions in the Policy, Discrimination, Harassment and Sexual Harassment: Prevention and Response that address issues of sexual harassment in favour of the relevant provisions of the Policy on Sexual Violence, as recommended by Senate.

The motion was Carried.
b. Recommendation to Formally Adopt the Okanagan Charter

At its meeting on February 8, the Senate approved a proposal to formally adopt the Okanagan Charter. If passed by the Board, McMaster will be the first University in Ontario to sign the agreement. The Charter commits its signatories to promote human and environmental wellbeing in all aspects of their work, and this is something that fits naturally with McMaster’s mission.

IT WAS DULY MOVED AND SECONDED,

that the Board of Governors approve formally adopting the Okanagan Charter, as outlined in attachment I of the report from Senate.

The motion was Carried.

c. Terms of Reference – Associate Vice-President (Equity and Inclusion)

On January 11, 2017, Senate approved a recommendation from the Committee on Appointments regarding the proposed terms of reference for the new Associate Vice-President (Equity and Inclusion) position. It was noted that the position will be titled Vice-Provost (Equity and Inclusion) as of July 1.

A member commented that action is required to address equity and inclusion issues on campus, including diversity in leadership roles. Some of the language within the terms of reference are unclear with respect to the position’s ability to enact change. It was asked if the position has the ability to act in ways that go beyond advice and guidance. Dr. Deane agreed that there is progress to be made and outlined his vision for the role. One of the objectives is to provide a diversity lens to the decisions that are made on campus, including driving change and increasing awareness.

A question was asked about why the role is limited to faculty. The President explained that the position reports to the Provost and would have responsibilities that include academic areas. It is possible that the position will be held by a faculty member with research expertise in this area.

A discussion ensued regarding the role of Associate Vice-President (Equity and Inclusion), and it was suggested that the Board be provided with an annual report on equity and inclusion. This would help provide the Board with information about progress in this area. It would also ensure accountability and prominence of these issues within decision making.
IT WAS DULY MOVED AND SECONDED,

that the Board of Governors approve the terms of reference for an Associate Vice-President (Equity and Inclusion), as set out in the report from Senate.

The motion was Carried on a vote of 25 in favor, 0 against, and 1 abstention.

11. COMMITTEE REPORTS

a. Planning and Resources Committee

i. McMaster Innovation Park – 2016 Financial Results and 2017 Strategic Plan

Mr. Donnelly informed members of the Board that the Planning and Resources Committee met on February 16 and approved receiving McMaster Innovation Park’s 2016 financial results and 2017 strategic plan.

Mr. Zach Douglas, President and CEO of McMaster Innovation Park (MIP) gave a presentation on the circulated material.

A member noted that innovation is a focus of the federal government and asked how MIP is positioned for the future. Mr. Z. Douglas explained that the government’s focus on commercialization and innovation works well with the business of McMaster Innovation Park. There is a need for specialized space, as well as other business services, and this is an area where MIP has strength. The Vice-President (Research) noted that commercialization has been a challenge to foster on campus, but interest is growing. The University has begun working more closely with the Innovation Park and it is connecting with the research enterprise.

IT WAS DULY MOVED AND SECONDED,

that the Board of Governors receive McMaster Innovation Park’s 2016 financial results and 2017 strategic plan, as recommended by the Planning and Resources Committee.

The motion was Carried.
12. REPORTS RECEIVED FOR INFORMATION

   a. Report from Health, Safety and Risk Management

      Ms Morine provided an overview of the report from Health, Safety and Risk Management.

   b. McMaster Museum of Art – Report

      Ms Podedworny discussed the Museum’s annual report, providing members with information about programs and recent developments.

13. OTHER BUSINESS

    There was no further business for the Open Session of the meeting.
REPORT TO THE BOARD OF GOVERNORS
FROM THE SENATE

a. Revised Terms of Reference and Name Change – Ontario Research Chair in Educational Achievement and At-Risk Students

At its meeting on April 12, 2017, Senate approved a recommendation from the Committee on Appointments to revise the terms of reference and change the name of the Ontario Research Chair in Educational Achievement and At-Risk Students. Details of the proposal are contained as Attachment I of the report from Senate.

It is now recommended,

that the Board of Governors approve the proposal to change the name of the Ontario Research Chair in Educational Achievement and At-Risk Students to “Ontario Research Chair in Educational Achievement and At-Risk Youth”, as contained in the attached report.

that the Board of Governors approve the proposed revisions to the terms of reference for the Ontario Research Chair in Educational Achievement and At-Risk Youth, as contained in the attached report.

b. Revisions to SPS B11, “Curriculum Vitae Requirements”

On April 12, 2017, Senate reviewed and approved the proposed revisions to SPS B11, “Curriculum Vitae Requirements”. Details of the revisions are contained in attachment II of the circulated report.

It is now recommended,

that the Board of Governors approve the proposed revisions to SPS B11, “Curriculum Vitae Requirements”, as outlined in the circulated material.

Board of Governors: FOR APPROVAL
April 20, 2017
February 24, 2017

TO: Senate Committee on Appointments

FROM: Jeremiah Hurley, Dean

RE: Revised Terms of Reference and Name Change, Ontario Research Chair in Educational Achievement and At-Risk Students

In 2008, the Ontario Research Chair in Educational Achievement and At Risk Students was established and Dr. Scott Davis was appointed as Chair. Dr. Davis left the University in 2014 and a search began for the position with a joint selection committee between the Faculty of Social Sciences and the Faculty of Health Sciences.

The successful candidate, Dr. Karen Robson, was appointed in July 2016 as an Associate Professor with tenure in the Department of Sociology and the Ontario Research Chair in Educational Achievement and At-Risk Students.

The terms of reference for the Ontario Research Chair in Educational Achievement and At Risk Students have subsequently been revised to accord with the research program of Dr. Robson. The name of the position has also been modified from Ontario Research Chair in Educational Achievement and At-Risk Students to Ontario Research Chair in Educational Achievement and At-Risk Youth. I am attaching the revised terms of reference for approval.

Attach.

cc: G. Hooks
     K. Robson
Ontario Research Chair in Educational Achievement and At-Risk Youth  
McMaster University  

Terms of Reference

The Ontario Research Chair in Educational Achievement and At-Risk Youth will significantly contribute to McMaster’s achievement of its research goals and objectives. Through the excellence of his/her research and leadership qualities, the Chair will lead a comprehensive multi-disciplinary team research program in educational achievement; stimulate/guide public policy debate on health deficits and socioeconomics disadvantage and their impact on children’s academic achievement among a broad range of stakeholder groups; and build linkages within and among academics, policy-makers, practitioners, students and families.

The terms of the Ontario Research Chair in Educational Achievement and At-Risk Youth at McMaster University with regard to the Chair’s proposed research and teaching program is described below.

Description of the Proposed Research and Teaching Program

The research plan entails five components:

a) **Analysis of longitudinal data in Ontario**
   The Chair will analyze longitudinal data sources from Ontario -- primarily the Toronto District School Board (TDSB) -- which includes student census survey, administrative data, and links to post-secondary pathways. These data are unique as they allow for student characteristics to be measured throughout high school and linked to post-secondary transitions. New cohorts are available approximately every five years when the census is undertaken by the school board. These data are one of the few – if not the only – containing the self-identified race of the student. The data contain numerous risk markers (sociodemographic characteristics, parental characteristics, and absenteeism and suspension rates) for students, which can be associated with their educational achievement and attainment.

b) **Comparative analyses**
   The Chair will engage in comparative analyses and the development of partnerships with other cities to examine how student risk characteristics influence educational achievement. Thus far, comparisons have been undertaken with Chicago, New York City, London (UK), and Vancouver, with the possibility of adding other cities (e.g. Los Angeles and Paris). By examining the relative determinants of achievement across the cities, context must be taken into consideration when explaining observed differences. These contextual features include history, education policies, and political climates.

c) **Analysis of surveys**
   The Chair will assist other McMaster researchers and students to conduct analyses on publically-accessible data sets on school achievement and family characteristics including: The National Longitudinal Student of Children and Youth, the Youth in Transition Survey, the Trends in International Mathematics and Science Study, and the Programme for International Student Assessment.
d) **Critical engagement with policy**

The Chair will examine how education policies impact upon the educational attainment of at-risk youth. This will be undertaken by examining the data from Multi Year Accessibility Report Backs (data collected by the Ministry of Advanced Education and Skills Development) and by examining changes in provincial education policies and how these changes may relate to any changes in educational achievement observed in school board data.

e) **Long term projects**

Two major long term projects are in the planning stages. One is participation in expanding the TDSB student census to other school boards in Ontario, a project that has been started by the previous TDSB Executive Director Donna Quan. The other is to use the Early Development Instrument Data, working with colleagues in the Offord Centre, and link them to the TDSB cohort data to examine long term outcomes associated with early risk markers.

**Teaching Program**

The Chair will supervise graduate students and encourage the development of theses pertaining to educational issues and at risk children and teach undergraduate courses and graduate courses as appropriate. In terms of graduate training, the Chair's program will fill a large gap in educational research in Ontario by offering graduate students a program with direct relevance to the design and evaluation of policy and interventions that address the complexity of health and socioeconomic factors that contribute to educational underachievement.

The original 2008 terms of reference were revised in January 2017 to accord with the research program of the new Chairholder.
March 9, 2017

TO: Senate Committee on Appointments

FROM: Helen Ayre
University Secretary

RE: Proposed Revision to SPS B11, Curriculum Vitae Requirements

In response to a request from the Dean of Humanities, supported by the Provost and the Vice-President (Research), MUFA has agreed that there should be a revision to section 14 of SPS B11. This revision is intended to make it easier for faculty who work in the area of research creation to have their work properly acknowledged and quantified on their CV.

In his request, the Dean noted the Tri-Council definition of research creation:

An approach to research that combines creative and academic research practices, and supports the development of knowledge and innovation through artistic expression, scholarly investigation, and experimentation. The creation process is situated within the research activity and produces critically informed work in a variety of media (art forms). Examples offered by Tri-Council include: visual arts (e.g., painting, drawing, sculpture, ceramics, textiles), performing arts (e.g., dance, music, theatre), creative writing, film, video, performance art, interdisciplinary arts, media and electronic arts, and new artistic practices.

The proposed revision to section 14 would allow the inclusion of contributions to research creation to be included in the Lifetime Publications section of the CV, rather than in the Other category which is where such work is currently often included.

MUFA has accepted this revision as a minor amendment and, in keeping with Section III, clause 4.b., of the Tenure and Promotion Policy, this revision is now being presented to the Senate Committee on Appointments for its approval and transmittal to Senate.
Faculty members being considered for re-appointment, tenure, permanence, promotion or as a candidate for an academic or administrative office at McMaster University should have an up-to-date curriculum vitae prepared for consideration. It is the faculty member's own responsibility to prepare and keep the curriculum vitae up-to-date and it is the responsibility of the Department Chair to ensure that it is accurate for cases of re-appointment, tenure, permanence, and promotion.

Curricula vitae must follow the exact format, in the sequence presented, including the sequence within every category. Any category that is not applicable should be identified as such.

1. Name in full, with common designate underlined

2. Business address (including postcode) and telephone number(s) (including area code)

3. Educational Background (since high school)
   - degrees, fellowships, diplomas, certificates including designation (BSc, PhD, FRCP(C), etc.); institution, department and location, year received

4. Current Status at McMaster
   - rank and title, joint appointments, associate memberships
   - status (tenured, continuing appointment without annual review, permanent, contract etc.)
5. Professional Organizations
   o name (note those that are elected)

6. Employment History (include starting and ending [if appropriate] dates, ranks, departments, institutions, locations)
   a. academic  b. consultations  c. other

7. Scholarly and Professional Activities (include starting and ending [if appropriate] dates, and number of reviews, if appropriate)
   a. editorial boards  c. executive positions
   b. grant & personnel committees  d. journal referee
      e. external grant reviews

8. Areas of Interest (research, teaching, consulting)

9. Honours
   o FRSC, Governor General's Award, Honorary Degrees
   o fellowships, scholarships, scientific awards (including title, agency, as well as starting and ending [if appropriate] dates)

10. Courses Taught¹ (last five years) (include department [program] number, title, dates taught).
    a. undergraduate  c. postgraduate (medical)
    b. graduate  d. other

¹ In the Faculty of Health Sciences, this includes program components without course designations i.e. tutorials, large group sessions non-clinical electives, etc.
11. Contributions to Teaching Practice
   a. pedagogic innovation and/or development of technology-enhanced learning
   b. leadership in delivery of educational programs
   c. course/curriculum development
   d. development/evaluation of educational materials and programs
   e. other

12. Supervisorships (include department [program] numbers completed, in progress, inactive and dates)
   a. master
   b. doctoral
   c. post-doctoral/fellowship
   d. clinical/professional
   e. supervisory committees
   f. other

13. Lifetime Research Funding
   The names of all the individual(s) to whom the grant is awarded should be listed and the principal investigator's name must be underlined.
   o include type, source agency, amount, purpose, title

14. Lifetime Publications
   The sequence of authors must be the exact replica of the sequence in which the work was published.
   a. Peer Reviewed
      i) books
      ii) contributions to books
      iii) journal articles
      iv) research creation and artistic contributions (e.g. exhibitions, performances, recordings, screenings)
      v) journal abstracts
      vi) other, including Proceedings of Meetings
   b. Not Peer Reviewed
      i) books
      ii) contributions to books
      iii) journal articles
      iv) research creation and artistic contributions (e.g. exhibitions, performances, recordings, screenings)
      v) journal abstracts
      vi) other, including Proceedings of Meetings
c. Accepted for Publication (in final form)
d. Submitted for Publication
e. Unpublished Documents
   i) technical report series   ii) other

15. Presentations at Meetings
   For presentations attributable to multiple authors, the sequence of authors must replicate that in which the abstract was accepted, with the name(s) of the presenter(s) underlined.
   a. Invited
   b. Contributed
      i) peer reviewed       ii) not peer reviewed

16. Patents, Inventions and Copyrights

17. Administrative Responsibilities (include name, role: member or chair, starting and [if appropriate] ending date)

18. Other Responsibilities
REPORT TO THE BOARD OF GOVERNORS
FROM THE
PLANNING AND RESOURCES COMMITTEE

i. Sustainability Annual Report

The 2016 Annual Sustainability Report outlines progress made by the University in areas of focus including energy conservation, waste management, health and well-being, and green space. The report was presented to the Planning and Resources Committee at its meeting on March 30, 2017, for information.

Board of Governors: FOR INFORMATION
April 20, 2017
McMaster is one of Canada’s leading research-intensive universities and is dedicated to the advancement of human and societal health and well-being through the art and science of discovery. Our ongoing focus on sustainability is an important aspect of this work and the 8th Annual Sustainability report aims to showcase the initiatives that McMaster has implemented and been engaged in over the past year.

Through the ongoing support of McMaster students, staff, faculty and community members, the University has been able to undertake numerous sustainability initiatives. Over the course of 2015/16, McMaster has continued to participate in programs such as chasing the peak, completed LED lighting retrofits in many buildings, implemented energy efficiency measures in two of McMaster’s three highest energy cost and consumption facilities (MDCL and JHE), in addition to implementing various energy efficiency measures in many other campus buildings. The overall result has been to reduce campus GHG emissions by approximately 800 metric tones in 2015 and another 900 metric tonnes in 2016, as well as conserving significant amounts of energy and water, and reducing costs.

To be successful, our sustainability initiatives require the participation and support of all members of our community. Events such as Bike to Work Day encourage active participation from across the campus and the newly inaugurated annual Sustainability Day commits to raising awareness, providing information about sustainability, and engaging our students in effecting real change. Thank you to everyone who has contributed to making McMaster University a more sustainable institution. If you are interested in learning more about Sustainability at McMaster, please visit: http://www.mcmaster.ca/sustainability/

Patrick Deane
President and Vice-Chancellor
Mission Statement

At McMaster, our purpose is the discovery, communication, and preservation of knowledge. In our teaching, research, and scholarship, we are committed to creativity, innovation, and excellence. We value integrity, quality, inclusiveness and teamwork in everything we do. We inspire critical thinking, personal growth, and a passion for lifelong learning. We serve the social, cultural, and economic needs of our community and our society.

Guiding Principles

1. Strengthening the excellence of our research and our graduate education and training while seeking opportunities to integrate research more purposefully into our academic mission;

2. Developing a distinctive, personalized, engaging, and sustainable student experience; and

3. Enhancing the connections between McMaster and the communities we serve, locally, provincially, nationally, and around the globe.

University Sustainability Areas of Focus

- Energy
- Water
- Waste Management
- Green Space
- Health and Well-Being
- Transportation
- Education
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Chasing the Peak

Overview

For the third consecutive year, McMaster University, one of the largest energy consumers in Ontario, participated in the Chasing the Peak initiative to build on the success of the past years. The Province of Ontario encourages electricity consumers to help reduce their peak electricity demand to avoid additional generation sources and associated greenhouse gases (GHGs). The university monitors the provincial electricity forecasts available at www.ieso.ca. In addition university staff monitor weather forecasts from other sources to determine the likelihood of a peak hour. The ratio of McMaster’s energy usage to that of Ontario on the top 5 peak hours of the year is used to calculate the following year global adjustment charges. McMaster was successful in reducing energy during the five peak hours in 2016.

Objectives

1. Create awareness of the environmental impact of consumption, as well as the costs of consumption.
2. Reduce peak demand and energy consumption in campus buildings during provincial electrical peak.

CHASING THE PEAK
WHAT TO DO:

Restrict use of fume hoods and ensure sashes are lowered

Power OFF any unnecessary equipment

Ensure volatile chemicals are properly stored

Do not start new experiments during this hour
This initiative was successful in reducing electricity consumption across all major energy consuming facilities on campus.

Average campus peak demand reduction  
Total campus electricity consumption reduced  

Which is equivalent to the electrical demand of 1,014 homes
And the electricity consumption of 1,625 homes in one day

8.96 Tonnes = 8,960 kg of greenhouse gas emissions were avoided

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Reduced (kWh)</td>
<td>24,840</td>
<td>52,700</td>
</tr>
<tr>
<td>GHG emissions avoided (tonnes)</td>
<td>4.23</td>
<td>8.96</td>
</tr>
</tbody>
</table>

Patrick Burke received the Top Individual Contributor Award
J.H.E. & M.D.C.L. Chemistry Wing Demand Controlled Ventilation

Overview
Based on the success achieved in implementing a demand controlled ventilation system in the Undergraduate Wing at Alan B. Bourns, a similar energy conservation initiative was implemented in John Hodgins Engineering (J.H.E.) and Michael DeGroote Centre for Learning (M.D.C.L.) buildings.

Objectives
1. Reduce McMaster University’s electricity and natural gas consumption and energy-related greenhouse gases (GHGs).
2. Reduce the operating costs of McMaster’s fume hoods

Reporting
The expected results of the project include:
✓ Expected annual Greenhouse gas emissions avoided: 760 metric tons of CO2 equivalent
✓ Expected annual electricity savings: 866,000 kWh
✓ Expected annual gas savings: 259,000 m³
Shut the Sash

Overview

The goal of the initiative is to implement the best operational practices in our laboratories on campus and to reduce energy consumption in labs by shutting fume hood sashes when they are not in use. We work collaboratively with our Researchers and Research Assistants to maintain fume hood doors closed. Facility Services has been performing bi-weekly reviews of fume hoods in every building on campus and producing an inventory of the status of fume hoods sash positions. When a fume hood not in use is left open, it is noted and tagged with a sticker that reminds users to keep the sash shut and also outlines the benefits of doing so. This initiative has been essential to helping the campus conserve energy. It allows us to track improvements and target areas that need to achieve more energy savings.

Objectives

1. Ensure that the sashes on unused fume hoods are shut to maintain safe working conditions for lab personnel.
2. Reduce fume hoods energy cost.

Reporting

Summary of the individual facility results for Shut the Sash is presented in the table below. The biggest improvement was in NRB (40%) followed by ABB (10%).

<table>
<thead>
<tr>
<th>Building</th>
<th>ABB</th>
<th>JHE</th>
<th>NRB</th>
<th>MDCL</th>
<th>LSB</th>
<th>GSB</th>
<th>ETB</th>
<th>BSB</th>
<th>Spinal</th>
<th>PB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of fume hoods</td>
<td>317</td>
<td>54</td>
<td>52</td>
<td>37</td>
<td>50</td>
<td>16</td>
<td>20</td>
<td>12</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>% Improvement of unused fume hoods being closed</td>
<td>10%</td>
<td>-26%</td>
<td>40%</td>
<td>-14%</td>
<td>-20%</td>
<td>-13%</td>
<td>5%</td>
<td>8%</td>
<td>-25%</td>
<td>-25%</td>
</tr>
</tbody>
</table>
LED Retrofit Lighting

Overview

Building on the success of McMaster’s Facility Services LED lighting retrofit in campus stairwells and corridors, more lighting retrofits were implemented in the Student Residence Buildings.

Reporting

The estimated annual electricity consumption saving is around 985,000 kWh, and the annual GHG avoidance is estimated to be 123 metric tonnes.

Objectives

1. Improve the lighting in various student residence buildings.
2. Save energy by using more efficient LED bulbs.
3. Reduce lighting maintenance requirements with longer lifespan bulbs.

The expected results of the project include:

✓ Expected annual Greenhouse gas emissions avoided: 123 metric tons of CO2 equivalent
✓ Expected annual electricity savings: 985,427 kWh

The project included the installation of LED lamps in:

- Matthews Hall
- Moulton Hall
- Wallingford Hall
- Edwards Hall
- Hedden Hall
- Woodstock Hall
- Brandon Hall
- McKay Hall
- Whidden Hall
Miscellaneous Control Systems

Overview

The following miscellaneous control systems retrofits has been implemented in campus buildings:

i. University Hall Controls Retrofit
This project involved upgrading the existing pneumatic and mechanical control system to a digital control system, replacing control valves with two-way pressure dependent valves and installing variable speed drives.

ii. All building mechanical fan belt upgrade
This project involved installing slip reducing fan belts on buildings ventilation and exhaust systems across campus.

iii. All building heating systems set-backs after hours
This initiative involved utilizing the outdoor air reset system to reduce all campus building ventilation and heating systems operation during low occupancy periods on campus.

iv. Central plant/Chilled water plant operational modifications
The project involved operational modifications to plant controls to improve central plant efficiencies and lower energy consumption.

Objectives

1. Reduce energy consumption and operational costs.

Reporting

The estimated reduction in annual electricity consumption from the above measures is 230,000 kWh and the annual GHG emissions avoidance is around 450 metric tonnes.
Water Fountain Retrofits

Overview
Since its implementation in 2010, McMaster’s retrofitted water fountains have provided drinking water to campus in an effort to reduce the use of disposable single-use plastic water bottles, and encourage refilling reusable bottles. Each water fountain was retrofitted with a gooseneck spout, bubbler, and chiller. Sensors on each fountain provide an updated number of water bottles saved from landfill by refilling.

Objectives

1. Decrease the number of single-use plastic water bottles being consumed by the campus community by providing the infrastructure to support the refilling of reusable containers.

2. Promote the campus-wide use of reusable containers and water-filling stations.

Reporting

The Office of Sustainability and Facility Services have worked in collaboration to provide water fountain stations all over campus. Currently, there are over 100 water stations on campus, and since implementation in 2010 the number of water bottles saved has reached around 5 million in 2015, and went up to 6.9 million water bottles in 2016. This indicates that McMaster University has helped eliminate about 1.9 million water bottles in 2016.
Waste Diversion

Objectives

1. Measure the 2015 and 2016 diversion rate at McMaster University and track performance.
2. Raise awareness about the importance of disposing waste properly in order to increase the diversion rate.

Reporting

A breakdown of the amount of campus waste produced by McMaster in 2015 and in 2016 can be found in graphs below where it shows that McMaster’s diversion rate has improved by about 20% (from 38% to 48%) over the past two years.

Overview

McMaster is constantly looking for opportunities to make progress when it comes to waste management. The rate of diverted waste is the percentage of overall waste that has been diverted from landfills. In 2013 we were able to divert one third of total campus waste. Over the course of the following years we were able to improve our diversion rate, diverting a total of 38% of waste for 2015, and 48% of waste in 2016. This waste diversion is achieved through recycling, reuse, and composting. Facility Services staff members continue to help increase the diversion rate by educating the McMaster community and promoting proper waste disposal.

![Waste vs. Recyclables Pie Chart]

- **Waste**
- **Recyclables** (including paper, cardboard, wood, glass, organics, metal and plastic)
Overview

To continue towards increasing the percentage of diverted waste on campus, McMaster University has developed a waste reduction plan and a new waste labeling criteria aimed at enhancing waste diversion and reducing cross-contamination between different types of recycled waste. The outcome of the above bin-labeling system is currently being evaluated by Facility Services and necessary changes will be made to further enhance the diversion rate at McMaster.

Objectives

1. Use yearly waste audit report to develop ways to increase waste diversion rate and reduce cross-contamination between waste and recyclables

Reporting

Facility Services continues to recycle around 1,200 skids a year in addition to diverting a considerable amount of wood from waste by donating furniture to various organizations, including the Kayanase Greenhouse located on the Six Nation Reserve, near Brantford Ontario. We are continuing our efforts to improve our diversion rates by:

- Continuing to recycle glass, metal, cans, wood, paper, cardboards and print cartridges.
- Providing additional education to the McMaster community.
- Promoting the use of refillable water bottles and increasing the number of water filling stations on campus.
- Working with Hospitality Services to switch to sustainable packaging and reduce the amount of packaging.
- Providing information about electronic waste drop-off locations, and continue to offer e-waste collection days.
- Expanding McMaster's composting program to campus eateries, office locations and some central areas.
- Continuing to encourage clothing donations.

In addition to the above, grounds staff have been converting ash tress that have been affected by the ash borer into benches to use on campus.
E-Waste Recycling

Overview
Providing the McMaster community with a number of locations to recycle their old electronics is an important part of our mission to become a more sustainable University. Electronics contain harmful chemicals such as lead and mercury, and are often expensive to dispose of in a responsible manner. Collecting and disposing of electronic waste through the use of our bins keeps this harmful waste from entering landfills. There are multiple designated locations on campus where electronics such as printers, telephones and computers can be dropped off.

For more information and locations, refer to McMaster Office of Sustainability website:
www.mcmaster.ca/sustainability

Objectives
1. To properly dispose of harmful devices to ensure safety
2. Help the McMaster community dispose of electronic waste in a convenient manner.

Reporting

Electronic Waste (in lbs)

TOTAL: 52,283 lbs

- Display Devices
- Computer Equipment
- Computer Peripherals
- Other

15,304
9,870
12,521
24,588

TOTAL: 52,283 lbs
Teaching & Community Garden

Overview
The McMaster Teaching and Community Garden is planted, grown and maintained by students in partnership with Facility Services. The garden has provided opportunities for workshops and outreach events, and some of the crops are sold to McMaster students and staff and faculty through the Mac Farm Stand. Students have developed plans to build on the success of the garden including collaborating with local food initiatives, coming up with ideas to improve seed and fertilizer procurement, and refining communications plans to improve outreach.

Objectives
1. Engage students in an opportunity to learn sustainable food experiences
2. Provide McMaster and greater Hamilton communities a clean and sustainable food source
This year, the produce grown in the garden included: cucumbers, strawberries, tomatoes, onions, carrots, zucchini, eggplant, beets, corn, green beans, melons, sweet peppers, hot peppers, rhubarb.

Recently, we have begun collaborating with the local Ronald McDonald House and East Meets West Bistro, donating a large portion of our fresh produce to their kitchen staff.
Annual Campus Sustainability Day

Overview

On October 29th, 2015, McMaster’s Facility Services department held its annual Campus Sustainability Day in the McMaster University Student Centre. This event gave McMaster an opportunity to highlight its accomplishments in contributing to sustainability through the participation of various university groups.

Objectives

1. Contribute to a culture of sustainability campus by raising awareness about the various initiatives undertaken by McMaster University staff and students.

Reporting

Facility Services staff, and volunteers from a variety of organizations set up booths which display programs and achievements that promote sustainability. Staff spent the day educating campus members about the several programs such as Smart Commute, OPIRG, Hydro One, Community Car Share and Engineers without Borders. Facility Services also distributed awards for the Chasing the Peak and Shut the Sash initiatives.
Electronics Collection Day

Overview
On June 16th, 2016, McMaster’s Facility Services organized an Electronic Waste Collection event. The purpose of the event was to collect a large amount of electronic waste for recycling in order to divert harmful electronic waste from contaminating landfills.

Objectives
1. To provide the McMaster staff, faculty and students an opportunity to conveniently dispose of electronic waste.
2. Ensure that campus waste is collected and recycled in a responsible and sustainable manner.

<table>
<thead>
<tr>
<th>ITEMS COLLECTED</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printers and Peripherals Devices With Plastic</td>
<td>1565 LBS</td>
</tr>
<tr>
<td>Printers and Peripherals Devices With Metal</td>
<td>111 LBS</td>
</tr>
<tr>
<td>Desktop Computers</td>
<td>1687 LBS</td>
</tr>
<tr>
<td>CRT Television</td>
<td>614 LBS</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,977 LBS</strong></td>
</tr>
</tbody>
</table>

Reporting
Several members of the McMaster community brought items no longer in use such as desktop computers, laptops, cell phones, keyboards, printers, monitors, and cables. These contributions made the event a great success. As demonstrated in the table below, we were able to collect almost 4,000 LBS of electronic waste for recycling.
Health & Safety Week

Overview
Each year, McMaster Environmental & Occupational Health Support Services (EOHSS) hosts a North American Occupational Health and Safety Week. The week is filled with many informative events such as WHIMS training and a Vendor Fair. The Vendor Fair is an event open to the McMaster Community and consisted of booths by health and safety related organizations and Facility Services.

Objectives
1. Showcase the department’s safety practices
2. Educate the community about the importance of work safety.

Reporting
McMaster Facility Services Energy Management and Sustainability department participated in the vendor fair on May 6th 2015, with a booth explaining the proper use of fume hoods. The intent was to ensure that best practices in lab safety, health and sustainability.
Sidewalk Sale

Overview
On September 10\textsuperscript{th} 2015 Facility Services hosted a booth at the annual Sidewalk Sale Welcome Week event. The Energy Management and Sustainability Division educated the McMaster community about the consequences of buying single-use plastic bottles and the benefits of using reusable containers.

Objectives

1. Educate students about sustainable efforts going on throughout the University
2. Encourage students to participate in sustainable practices.

Reporting

Over 20,000 students participated in the event! In 2015, over 300 students signed the pledge and received refillable bottles. There was a draw for people who visited the Facility Services booth, and one lucky student won a brand new tablet.

In 2015, student staff developed a pledge which encouraged the McMaster community to reduce their plastic bottle and water waste. To provide support, those who signed the pledge received a complementary refillable bottle.
Annual Bike to Work Day

Overview
On Monday May 26th, 2015 McMaster participated in the Bike to Work day event. Staff from Facility Services stood at all the school entrances handing out granola bars to reward incoming bikers for choosing a sustainable mode of transportation. Later on in the day facility services also provided bikers with a complementary bike wash and repair.

Objectives

1. Raise awareness about the different sustainable methods of transportation that are available.

2. Encourage the McMaster community to use alternative methods of transportation whenever possible.

Reporting
More than 400 students and University employees took part in Bike to Work Day. Over 200 granola bars were handed out to cyclists and during the event, over 20 bikes were washed and repaired, and prizes were given to 3 participants!
Bike Share

Overview

The SoBi Hamilton Bike Share program provides bicycles around the city for people to use as an easy, affordable and sustainable alternative to commuting. McMaster University currently hosts 5 bike stations (hubs) on campus. Students, faculty and staff are able to purchase a discounted membership which provides access to the bikes located at the Student Centre, the Health Sciences building, Mary Keyes, at Emerson and the Stadium.

Objectives

1. Raise awareness about the importance of reducing fossil fuels.
2. Promote and encourage the use of sustainable alternatives of transportation.

Reporting

The table on the right reflects the bike trips made in and out of each campus hub.

In 2015, there were 404 McMaster members registered for SoBi using the McMaster discount.

The average trip distance and time was 1.92 km and 21 minutes respectively in 2015.

<table>
<thead>
<tr>
<th>HUB</th>
<th>TRIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Centre</td>
<td>15,513</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>11,360</td>
</tr>
<tr>
<td>Mary Keyes</td>
<td>5,019</td>
</tr>
<tr>
<td>Emerson</td>
<td>7,311</td>
</tr>
<tr>
<td>Stadium</td>
<td>2,192</td>
</tr>
<tr>
<td>Arthur Bourns</td>
<td>4,304</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>45,699</td>
</tr>
</tbody>
</table>
Electric Vehicle Charging Stations

Overview
There are several electric vehicles (EV’s) charging stations at McMaster, few of which are in off-campus buildings. Some of them were installed in LEED certified new built buildings. Most recently, three EV’s charging stations were installed in Wilson Hall building.

Objectives
1. Facilitate the use of electric vehicles.
2. Contribute to the Province of Ontario efforts to electrify transportation and reduce GHG emissions.

Reporting
More than 15 EV’s are registered in Security and Parking Services records on campus. The Sustainability Office will work in collaboration with Security and Parking Services in developing a campus-wide policy for using the EV’s chargers.
Facility Services Experiential Learning

Overview

McMaster University’s Facility Services department and Office of Sustainability offer student employees a valuable opportunity to work and contribute to McMaster’s sustainability goals, while earning an income and valuable hands-on experience in various fields.

Objectives

1. Provide McMaster students an opportunity to help their community grow sustainably, and gain relevant experience.

2. Support a number of academic courses and projects in regards to sustainability.

3. Provide experiential learning opportunities to McMaster students.

Reporting

McMaster University students have been involved in many aspects of the Facility Services department, and have contributed to the success of sustainability initiatives and events. This includes Shut the Sash, Chasing the Peak, the Community Garden, Sustainability Day, E-Waste Collection Day, and engaging students through social media.

Facility Services supports the following courses:

- SEP 747 Energy Efficient Buildings
- CIV TECH 3UH3 Utilities Management
- SEP 746 Design of Sustainable Community Infrastructure
Real Time Energy Displays

Overview
Another important project that has recently been completed is the display of real time energy data within facilities. The displays provide building occupants information about individual behaviours, weather and how building design affects energy consumption across campus. The goal of the initiative is to engage the community in meeting conservation targets.

Each building has a Really Simple Syndication, more commonly known as RSS Feed. The RSS Feeds collect updated building specific information from the campus energy analysis provider. This information is then communicated campus-wide through electronic displays in user-friendly formats.

Objectives
1. Educate people about McMaster’s Sustainability efforts.
2. Encourage participation in sustainability projects and initiatives.

Reporting
The initiative was put in place in 2014 and has since expanded over the last year. Two additional screens have been installed in high traffic areas of campus buildings. We have found that this initiative has created an awareness of energy consumption, and has facilitated behavioral change. Moving forward, the Office of Sustainability plans to maintain this project, and possibly expand it by using social media as another avenue to engage members of the McMaster community.
11-Year Sustainable Trends

Overview

McMaster University’s Facility Services has implemented many sustainability initiatives and energy conservation projects which contribute to the progress of campus sustainability. Decreasing water consumption, GHG emissions, and operating costs while improving the carbon footprint and energy management is something that McMaster’s Office of Sustainability is committed to.

Objectives

1. Track McMaster’s progress in sustainability to measure success.
2. Continue to promote and implement new initiatives to lower McMaster’s carbon footprint and improve energy management.

Reporting

Graphs below present the results of energy conservation and sustainability efforts made.
Social Engagement

Overview
McMaster Office of Sustainability has used social media to connect with and inform students. The use of Facebook and Twitter have been a valuable way to reach out to students across campus and involve them in McMaster’s Sustainability initiatives.

Objectives
1. Reach out to McMaster students in a way that will promote involvement
2. Promote and inform the McMaster community about the department of Sustainability and its initiatives

Reporting
Social media has been a successful way to get in touch with students on campus, and promote involvement in Department of Sustainability initiatives. The McMaster Energy Management and Sustainability Division (EMSD) Facebook has reached out to over 180 students, and the McMaster EMSD Twitter reaches more than 1,000 followers. Through these social media platforms, we are able to inform students and the McMaster community about important information such as recycling tips, events such as e-waste recycling days, and Chasing the Peak days, and important campus initiatives.

Find us on Facebook
McMaster Energy Management and Sustainability Division
http://Facebook.com/MacEMSD

Follow us on Twitter
MacEMSD
http://Twitter.com/MacEMSD
Overview

The Academic Sustainability programs provide students with unique opportunities in sustainable education.

Objectives

1. Provide students with opportunities to take part in student-led, community-based, and sustainability-focused experiential learning.

To learn more please visit asp.mcmaster.ca or connect with us on social media:

- Facebook: www.facebook.com/MacSustain
- Twitter: twitter.com/MacSustain
- LinkedIn: https://www.linkedin.com/grp/home?gid=6712552
The Fundamental Importance of Academic Freedom

In my last report to the Board, I highlighted the response of universities across Canada and beyond to the now notorious Executive Order: Protecting the Nation from Foreign Terrorist Entry into the United States implemented by the Trump administration, and subsequently blocked by the courts. In drawing attention to the response of the academy, I noted that the life of any great university depends on the “free flow of people and ideas” and that the intellectual concept of academic freedom underpins any university worthy of the name.

Over the last few weeks I have had cause to reflect a great deal on the fundamental importance of academic freedom to our community and on the importance of ensuring that our campus is a place where controversial opinions can be considered and debated. Many Board Members will be aware of the events surrounding the recent visit of Dr. Jordan Peterson, a Professor at the University of Toronto, to our campus. Dr. Peterson has been the subject of media interest regarding his opposition to Bill C-16, which proposes adding gender identity and gender orientation to the Canadian Human Rights Act, and his refusal to use gender-neutral pronouns. Dr. Peterson’s talk, which was originally conceived and planned as a panel discussion on political correctness and freedom of speech on campus, was interrupted by noisy protestors who chanted slogans, rang cowbells, and attempted to prevent him from speaking. As I stated in an Open Letter to the McMaster community soon afterwards, while such behaviour clearly does not reflect the standard of debate that we would hope to see on our campus, the right to engage in peaceful protest must also be respected and upheld.

It has never been the practice of this University to shut down events, exclude speakers, or prevent voices raised in opposition from being heard. It has also not been our practice to use Security Services, who have as their core mandate the safety and security of our campus community, to silence protests or to police the academic life of our University. There is, however, a line to be drawn between actions that can reasonably be considered peaceful protest, and those that are intended to stifle or prevent any form of intellectual discourse or debate. It is clear that McMaster is not alone in grappling with this problem. Across North America universities have been dealing for some time with increasing numbers of protests in relation to certain controversial speakers, including demands that invitations be revoked, or particular speakers blocked. In response to these concerns, the University of Chicago struck a committee to consider freedom of expression, which was followed by a committee specifically tasked to make recommendations on University discipline for disruptive conduct, while the Texas A&M University recently developed a new policy on the hosting and sponsorship of events on its campus, and faculty at Middlebury College released a statement of core principles relating to free inquiry after a protest on their campus degenerated into violence.

Here at McMaster we are in the process of putting together a small faculty-led Committee to consider and recommend appropriate principles or guidelines to assist event organizers and hosts in responding to disruptive conduct. We also plan to engage in a review of our current event
planning and approval processes to explore whether any changes or enhancements might usefully be made. Fundamental to all of this, though, must be the recognition that the freedom to engage in full and unrestricted consideration of any opinion, no matter how controversial, and to teach, research and learn unhindered by non-academic constraints is the cornerstone of academic life. It is our responsibility as an institution of higher learning to steadfastly uphold this principle, to protect the free flow of ideas, and to encourage respectful debate and discussion even where there is fundamental disagreement between opposing voices. Whenever this is called into question, it is my duty as President to defend the principle unequivocally, and it is for this reason that I felt it necessary to take the unusual step of issuing an open letter to the McMaster community, the text of which is set out below.


Dear Members of the McMaster University Community,

I said in a recent interview with students that the most serious thing I have to do in my role as President is to defend the principle of academic freedom. The freedom to research, consider, discuss and present even the most controversial or potentially divisive issues is a fundamental tenet of academic freedom, and the foundation of the work and mission of the academy. In the same interview, I also made the comment that defending academic freedom is not always easy to do.

The events of last Friday surrounding the "Drawing the Line" student-organized event provide a perfect demonstration of this difficulty. The University received multiple communications both before and after the event from individuals and groups writing either in support of or in opposition to the speaker. The University was variously invited to shut down the event, to silence anticipated protests, to make public statements denouncing the speaker, and to make similar statements denouncing those expressing their opposition to the speaker.

As President I chose to do none of those things. The event was framed and organized as a discussion of political correctness and freedom of speech on campus, which I regard as an important and entirely appropriate topic for discussion at an institution of higher learning. The fundamental mission of the University is to provide opportunities for education, both within and beyond the classroom. Taking the opportunity to listen to a speaker, even one with whom one may vehemently disagree, is an important aspect of education and a cornerstone of academic debate. It has not, therefore, been my approach, nor that of this University, to intervene to shut down events, exclude speakers, or prevent discussion of issues, even where controversial topics are under discussion.

In clearly affirming the commitment of this University to protecting the expression of diverse opinions on our campus, I also want to be absolutely unequivocal in expressing our support for the diversity of our campus community, and our commitment to the rights of minority groups, including trans- and gender-non-conforming members of our community, in particular. I am in no doubt that our University, like our society, is only enriched and strengthened by the diversity of people and opinions on our campus. As such, the presence on campus of a speaker who may challenge the rights of any particular group should not be seen as undermining the University’s
commitment to inclusivity but merely as an opportunity to explore and debate the topics under discussion.

Indeed, an important aspect of academic freedom is the willingness and ability to engage with and discuss ideas that might be fundamentally opposed to one’s own. It is extremely regrettable that the events of last Friday do not reflect the standard of academic debate that we would aspire to model on our campus but this does not mean that as an institution we should ever seek to limit the right of members of our community and visitors to our campus to engage in peaceful protest. In the event that the tactics employed by such protestors violate the laws of our land, or the codes of conduct of our community, appropriate sanctions can and will be applied, but our commitment to academic freedom requires that, except in the most extreme cases, the cancellation of events, or the exclusion or removal of particular individuals will not be our response.

I would hope that all members of our community are united in our pursuit of knowledge, our belief in the power and importance of education, and our mission to protect the free flow of ideas within an inclusive and respectful environment. As members of the academy, we bear a shared responsibility to reaffirm and uphold the core principles of academic freedom, collegiality, and respect that are fundamental to McMaster and to ensure that our University continues to be a place where respectful debate and discussion can flourish.”

CAMPUS UPDATE

Prime Minister chooses McMaster Students for Budget Day Meeting
Prime Minister Justin Trudeau spent part of budget day meeting with a group of McMaster students, winners of a national competition organized by the federal government. Just a few hours from unveiling their government’s fiscal plans, the Prime Minister and Federal Finance Minister Bill Morneau hosted Health Sciences students Krish Bilimoria, Ramachandiran Sethuraman, Matthew Yau and Shangmou Wu and Commerce student Raj Jain on Parliament Hill. The group were the winners of the first Minister of Finance’s Post-Secondary Policy Forum.

New Student Residence and Teaching Building to be Named for Peter George
McMaster is naming its new student residence, classroom and activity building the Peter George Centre for Living and Learning. The naming is in recognition of President Emeritus Peter George’s transformative leadership as University President and his many contributions to McMaster, Hamilton and higher education in Ontario and Canada. In addition to the naming of the Peter George Centre for Living and Learning, Dr. George was also awarded an honorary doctorate.

Students Approve Landmark Expansion of Activity and Recreation Space
Students have approved a significant expansion and improvement of campus activity and athletic space, including adding nearly 100,000 square feet of fitness studios, study areas, multi-faith and meeting facilities. In a recent referendum, 59% voted in favour of contributing to the construction of a new Student Activity Building, the expansion of the Pulse fitness area and improvements to existing facilities. The new building and the expanded facilities will contribute...
to a revitalization of the north end of campus, which is also the site of the Peter George Centre for Living and Learning now under construction.

**Kinesiology Student-Athlete Named Canada’s Top University Women’s Basketball Player**
Kinesiology student and Marauders basketball player Danielle Boiago has been named this year's winner of the Nan Copp Award as U SPORTS Women's Basketball Player of the Year. Boiago is the first McMaster student-athlete to win the national honour. Fellow Kinesiology student and Marauders basketball player Vanessa Pickard became just the second Marauder to win the Tracy McLeod Award for her outstanding perseverance in the face of adversity.

**Good Student Neighbours Recognized with Community Awards**
University and community leaders gathered in MUSC recently to recognize the 2017 winners of the Exceptional Student Neighbour Awards. Each year, McMaster, Hamilton Police Services, the Ainslie Wood/Westdale Community Association and the City of Hamilton present the awards to students who have enhanced the residential communities surrounding campus. The students are nominated by community members, in recognition of being good neighbours.

**Research**

**Ontario Invests more than $9M in McMaster Research**
Two McMaster research projects – one focused on electric vehicles, the other on eye disease – have each received a $4 million boost from the Ontario Research Fund (ORF). The provincial investment of $8 million represents a third of the more than $31 million combined project values. The awards, funded through ORF’s Research Excellence stream, support the operational costs of large-scale transformative research of strategic value to the Province.

**SSHRC-Funded Project to Help Ensure Indigenous Communities are Equal Partners in Research**
Two McMaster researchers have been awarded funding from the federal government's Social Sciences and Humanities Research Council (SSHRC) for a project aimed at identifying the resources Indigenous peoples need to be equal partners and leaders in social science research within their own communities. Michelle Dion, Associate Professor, Political Science and Chelsea Gabel, Assistant Professor, Health, Aging, and Society, have been awarded one of 28 Knowledge Synthesis Grants as part of SSHRC’s Imagining Canada’s Future initiative.

**Gene Found to Cause Sudden Death in Young People**
The gene, called CDH2, causes arrhythmogenic right ventricle cardiomyopathy (ARVC), which is a genetic disorder that predisposes patients to cardiac arrest and is a major cause of unexpected death in seemingly healthy young people. A team of investigators from the Population Health Research Institute of McMaster and Hamilton Health Sciences, led by Dr. Guillaume Paré, performed the genetic sequencing, as well as the bioinformatics analysis for the study.
Teaching and Learning

Grad gives $350,000 to the Arts & Science Program
Bruce Miyashita, the first graduate of the Arts & Science Program’s first cohort, has given $350,000 to the Program – the largest gift in its history. The gift will provide resources for initiatives such as a forum that will inspire Artsci students to learn more about the business world, while also introducing business leaders to the program’s talented students.

Renaissance Award Winners to Study the Perception of Disability and Gender Identity
Two McMaster students will spend the summer learning about the relationship between culture and identity in five different countries around the world. Medical student Kira Gossack-Keenan will travel to India, Cambodia and Vietnam to find out how the region’s inhabitants relate to and interact with those with physical disabilities. She’ll also study the relationship between disability and art, while producing some artistic works of her own along the way. Tai Jacob, in Arts & Science, will produce a podcast – tentatively titled “Gender Blender” – on the experiences of those going through gender transition. Jacob plans to travel to Toronto, Montreal, New York and Chicago to interview members of those cities’ trans communities for the show, which will be available on iTunes.

McMaster Map helps Commemorate 100th Anniversary of Vimy Ridge
A map from McMaster’s WWI map collection is part of Souterrain Impressions, a special exhibit now on display at the Canadian National Vimy Memorial in France created to commemorate those who fought in the Battle of Vimy Ridge. The map, a trench map of the area surrounding Vimy Ridge, provides the backdrop for the exhibit, which features 3D reproductions of military crests and insignias carved by Canadian soldiers into the wall of an underground tunnel where they waited – some for weeks on end – for the Battle of Vimy Ridge to begin.

Global and Community Engagement

Helping those Struggling with Food Insecurity
Tina Moffat is working with community partners on a research project aimed at finding ways to assess and improve programs designed to help those struggling with food insecurity, poverty and marginalization in Hamilton. Moffat, an Associate Professor in the Anthropology Department and this year’s Scholar-in-Community, is working in partnership with staff and community members at Neighbour 2 Neighbour’s Hamilton Community Food Centre to develop a framework to evaluate the Food Centre’s programs and identify new ways to support those who either can’t afford, or don’t have access to, healthy food.

Kinesiology Course Promotes Health and Wellness to Older Adults in Hamilton
Janet Pritchard’s fourth year Kinesiology course visited Hamilton’s First Place Seniors Residence recently, teaching residents how exercise can be used to manage or help with the progression of age-related diseases. The visit resulted in three tenants joining a falls prevention program and two more joining a residence wellness program.
Halton McMaster Family Health Centre Awarded LEED Gold
McMaster and Joseph Brant Hospital in Burlington have been awarded LEED (Leadership in Energy and Environmental Design) Gold certification for the design and construction of the Halton McMaster Family Health Centre. The building was originally designed to achieve LEED Silver standards, but upon completion of the certification process, the organizations were awarded LEED Gold certification, because of the lasting benefits of the building to the local community and environment.

McMaster Graduate Pioneering Water Quality Innovations
Business graduate Jodi Glover’s award-winning company designs and manufactures real-time water quality monitoring sensors and custom software. Real Tech helps detect contaminants, reduce energy and water consumption, protect public health, and minimize the pollution of waterways. Now in their third manufacturing facility, Real Tech products can be found in 50 countries around the world and are empowering people and communities to bring intelligence and control to water.

Student Leads Trip to Local Waterfalls ahead of World Water Day
As part of the Make 150 Count campaign, RBC gave $150 to individuals across the country – including McMaster student Sherry Du – and asked them to do good in their communities. Du gave her funds to the McMaster Water Network Student Chapter, and together with Nature@McMaster, they organized a group outing to some of the city’s more than 100 waterfalls. The hikes were intended to get people thinking about their relationship with water, and included discussion about the more than 663 million people around the world currently living without access to a safe water supply.

Newcomer Kitchen
MBA candidate Faizan Ashraf knows a thing or two about being in a new land. Living in several Middle Eastern countries as a child, Ashraf immigrated with his family to Canada from Pakistan in 2014. Ashraf now serves as treasurer of Newcomer Kitchen, which invites Syrian women to cook a weekly meal and socialize, then sell the meal to provide income.

Anthropology Students in Search of Art
A group of McMaster Anthropology students took to the streets of Hamilton armed with cell phones, cameras, tablets, pens and paper to explore and document the street art in five West Harbour neighbourhoods. This community exploration was part of Rebecca Plett’s fourth-year Anthropology course Practicing Anthropology: Ethics, Theory, Engagement, designed to give students hands-on experience conducting research using anthropological methodologies to investigate social problems, and how these methods can be applied to positively impact society.
MINUTE OF APPRECIATION

DONALD IVISON, B.A., M.B.A., LL.D (Hons)

It is with great sadness that the Board of Governors of McMaster University notes the passing of Dr. Donald Ivison.

Don was born in Ottawa, Ontario, and graduated from McMaster University with a Bachelor of Arts degree in Political Economy. During his studies at McMaster, Dr. Ivison was a winner of the Chancellor’s gold medal, awarded annually to recognize an undergraduate student with exceptional scholarship, leadership, and influence in the course of their studies. It was at McMaster where Don would meet his wife Betty, who is also an alumnus. Dr. Ivison would go on to receive a Master of Business Administration degree from the University of Western Ontario. Don had a distinguished 36 year career at Du Pont of Canada, serving in roles including Director, Strategic Planning, Chief Financial Officer, and Senior Vice-President.

Dr. Ivison joined McMaster’s Board of Governors in 1990 and served as Chair and Vice-Chair from 1995 to 1999. During his 12 years on the Board, Donald provided thoughtful advice and guidance that helped McMaster grow and thrive. In June 2000, McMaster recognized Don’s achievements and service to the University and broader community by awarding him an honorary doctorate.

As an expression of our regard for the contributions of Dr. Donald Ivison to McMaster University, it is moved that this Minute of Appreciation be recorded in the permanent minutes of the Board of Governors and a copy sent to his family.

Board of Governors
April 20, 2017
MINUTE OF APPRECIATION

DOUGLAS MARRS, LL.D. (Hon)

The Board of Governors of McMaster University hereby notes with sadness the passing of Dr. Douglas Marrs on February 25, 2017, at the age of 103.

Dr. Marrs was born in Hamilton and had a successful 45-year career with Westinghouse Canada Limited, leading to his appointment as Chief Executive Officer. Douglas was a long-standing supporter and friend to McMaster University. Beginning with his appointment in 1975 as a Board-elected member, Dr. Marrs served on McMaster’s Board of Governors for 15 years, including 2 years each as Chair and Vice-Chair.

As an expression of our regard for the contributions of Douglas Marrs to McMaster University, it is moved that this Minute of Appreciation be recorded in the permanent minutes of the Board of Governors and a copy sent to his family.

Board of Governors
April 20, 2017
a. Proposal to Establish the McMaster Digital Transformation Research Centre

At its meeting on April 12, 2017, Senate approved a recommendation from the University Planning Committee to establish the McMaster Digital Transformation Research Centre. The Centre’s vision is to become an international leader in digital transformation and its impact on management, organizations, and society. By building interdisciplinary collaborations, the Centre will focus on digital innovation that is transforming society. Details of the proposal are contained as Attachment I of the report from Senate.

It is now recommended,

that the Board of Governors approve the establishment of the McMaster Digital Transformation Research Centre effective immediately, as contained in the attached report.

b. Proposal to Terminate the McMaster Brain-Body Institute

On April 12, 2017, Senate reviewed and approved the closure of the McMaster Brain-Body Institute at St. Joseph’s Healthcare Hamilton. The Institute was established in 2008 and has produced high-quality research, but recently financial considerations have necessitated the proposed closure. It is recommended that the termination is effective April 30, 2017. Details of the proposal are contained in attachment II of the circulated report.

It is now recommended,

that the Board of Governors approve the termination of the McMaster Brain-Body Institute, effective April 30, 2017, as outlined in the circulated material.
March 7, 2017

TO: University Planning Committee

FROM: Robert L. Baker

RE: Updated - McMaster Digital Transformation Research Centre Proposal

Please see attached the updated proposal for the McMaster Digital Transformation Research Centre.

Kindly include this as an Agenda Item for the next University Planning Committee Meeting.

RLB/pb

cc: David Wilkinson
    Len Waverman
    Doug Welch
    Helen Ayre
A NEW FOCUS ON DIGITAL TRANSFORMATION

Vision

The McMaster Digital Transformation Research Centre’s (M-DTRC) vision is to become a self-sustaining world leading research centre and knowledge hub with a focus on the leadership and management of digital transformation and its impact on people, organizations and society. The M-DTRC will represent the best in multidisciplinary research, building on collaborations with key partners and affiliates in academia as well as the public, private, and not-for-profit sectors. The centre’s mission will focus on innovative research that investigates the booming digital innovations that are prevailing through and transforming all aspects of our modern society. This timely and important research will lead to a fundamental shift in our understanding of the developing digital revolution and its challenges and opportunities, with far reaching implications for managerial practice, in the different sectors of the knowledge economy as well as society at large. It is anticipated that the program of research and training at the M-DTRC will contribute to the development of a unique breed of Highly Qualified Personnel (HQP) with specialized skillsets, building their capabilities to become the digital transformation leaders of tomorrow.
The Digital Revolution

The end of the twentieth century marked a new era in human history. Information Technology (IT) and the Internet have become ubiquitous, and fueled an information revolution that transformed societies and created a complex global knowledge economy. Technological innovations continue to grow exponentially, and the world is entering a new stage of the Information Age, a second Digital Transformation revolution that is disrupting almost every aspect of our lives. The growing wave of digitization of products, processes and organizations promises fascinating opportunities and significant challenges, and is radically transforming the office, factory, farm, home, government, and everything in between.

McMaster’s Leadership Opportunity

McMaster’s guiding strategy, as communicated through the Forward with Integrity mandate, establishes the University’s key priorities of strengthening research excellence; graduate education and training; and connections with the local, provincial, and global communities through distinctive and sustainable initiatives. As such, the DeGroote School of Business is committed to evolving and facilitating innovative research and educational programs that meet the contemporary challenges and opportunities of an increasingly complex business world. To that end, the DeGroote School of Business is distinguishing itself in an area of monumental importance and one in which it has considerable strength: the management of Digital Transformation. The DeGroote School of Business Strategic Plan’s objectives provides a solid roadmap to ensure that the next generation of leaders is expertly equipped with the skillsets necessary to manage in the digital economy through data-driven knowledge discovery and evidence-based decision making. This will ensure that future leaders are capable of effectively steering their organizations in a sophisticated, competitive, increasingly digital and rapidly evolving global landscape. To that effect, the School has recently launched an innovative Executive MBA in Digital Transformation program. The M-DTRC will serve as an imperative component supplementing this strategy and bolstering McMaster’s position as a world leading institution in this emerging field.

M-DTRC Concept Innovativeness

M-DTRC will function as a world class research organization to bring top researchers from DeGroote, McMaster, and beyond to engage in cutting-edge multidisciplinary research aimed at better understanding how the digital revolution is impacting individuals in their personal and professional lives. We will strive to develop guidelines and methods for organizations of all sizes, at all stages of maturity, and across a broad spectrum of industries that allows them to create more value while increasing their
efficiency and effectiveness through information/communication technologies and digitization. **M-DTRC** will serve as a hub for collaborative multidisciplinary research, graduate/undergraduate training, and executive education. It will contribute to further McMaster’s leadership role in the study of evidence-based decision making especially in the presence of big data, human-computer interaction, and strategic management in the digital economy. **M-DTRC** will be one of the first of its kind in Canada, and will bolster DeGroote’s and McMaster’s position as global pioneers of **Digital Transformation**.

**M-DTRC** will mainly be situated on the fourth floor of DeGroote’s Ron Joyce Centre (occupying approximately 300 m²/3,300 ft²) in Burlington, with complimentary space located on the second floor of DeGroote’s Hamilton campus. The centre will draw on three complimentary CFI/ORF-RI-funded research labs involving collaboration between researchers from DeGroote and the Department of Psychology, Neuroscience & Behaviour at McMaster: (i) **The Evidence Based Management Lab** ($499,866 CFI/ORF-RI funding secured in 2015/16 and lab is established, PI: Khaled Hassanein with Milena Head – Business and Patrick Bennett - Psychology, Neuroscience and Behaviour) as Co-PIs); (ii) **The Flexible NeuroIS User Experience Lab** ($284,411 CFI funding secured in 2016 with matching ORF-RI funding expected in 2017, PI: Milena Head with Khaled Hassanein – Business and Sukvinder Obhi - Psychology, Neuroscience and Behaviour) as Co-PIs); and (iii) **The Advanced Human-Computer Interaction Lab** ($271,000 CFI/ORF-RI funding secured in 2014/15 and lab is established, PI: Khaled Hassanein with Milena Head – Business and Scott Watter - Psychology, Neuroscience and Behaviour as Co-PIs). These innovatively designed labs house cutting-edge neurophysiological/information systems (Neuro-IS) research infrastructure combined with computing capacity that will enable a wide array of Digital Transformation research projects to be conducted across a broad range of social, professional, and educational contexts. The advanced NeuroIS infrastructure in these labs includes neurophysiological equipment measuring the cognitive and physiological responses of participants in real-time as they engage in various tasks (e.g. decision making, work meetings, learning, web surfing, e-Commerce, etc.). Together with traditional behavioural measures (e.g. interviews, questionnaires, video recordings), these neurophysiological measures will facilitate deeper insights into the subconscious aspects of technology users as they engage in various tasks thus highlighting how individuals select, process, interpret, and use information.

Other available complementary research infrastructure such as Dr. Hassini’s CFI funded lab for **Advanced Business Analytics** at DeGroote and McMaster’s MacDATA institute will enhance the research capacity of M-DRTC especially as it relates to big data and data analytics. It should be emphasized that the scope and objectives of M-DTRC and MacData are distinct though being complementary and synergistic as clearly outlined in the attached letter from the Acting Director of MacData (refer to Appendix A).

**M-DTRC Research Activities**

Digital technologies are rapidly affecting all aspects of society including business, education, health and industry. As such, the **M-DTRC** will focus on generating and advancing knowledge on the best
More specifically, research at M-DTRC will focus on:

- Understanding how digitization can create value for individuals and organizations? How can digital transformation be best managed? and how can organizations refine their strategies to maintain and enhance their competitiveness through digital technologies?
- Understanding the facilitating and inhibiting factors for the adoption of digital technology in personal and organizational contexts?
- Investigating how individuals/groups make decisions in their personal and professional lives and how can we enhance their reliance on actual evidence in making such decisions?
- Designing customized decision support for individuals, teams, and user groups of digital technologies based on their abilities, characteristics, and context
- Investigating the positive and negative influences of mobile technology proliferation in different social, professional, and educational contexts on individuals’ and groups’ wellbeing and productivity
- Enhancing the user experience for individual, and group users of different digital technologies with a particular focus on user groups with extra needs (e.g., older adults, Millennials)

Facilitated by the novel design and sophisticated infrastructure of the centre, a wide range of studies can be conducted in the above areas. Some research projects are outlined below as examples:

- **Evidence-based Decision Making**: Effective decision making is a key success factor for organizations. Decision making is a complex task involving the searching, processing, integration and contextualization of information from a wide variety of sources. With the advent of sophisticated information technologies and “Big Data”, this problem has been further exacerbated as decision makers face an overabundance of information, which encourages them to settle for suboptimal decisions based on their intuition (as opposed to actual evidence) to reduce their cognitive burden. At the Evidence Based Management Lab, M-DTRC researchers will carry out research projects aimed at gaining a deeper understanding of and addressing of the challenges facing managerial decision making in the presence of Big Data using a mixed methods approach comprising traditional and neurophysiological techniques. Consequently, customized decisions aids will be designed and evaluated to support decision makers in different contexts to help them to best leverage available evidence in support of higher quality decisions. The implications of group and multi-located decision making will also be explored.

- **User Experience in the Digital Age**: Digital innovations are transforming societies and economies. Information technology has become ubiquitous and pervasive in all aspects of our lives. The prevalence of information technologies is evident as they have become essential to many contemporary professional, educational, and personal activities, with obvious implications to the way individuals interact, communicate, and collaborate with each other. In the Flexible NeuroIS
- **User Experience Lab**, interdisciplinary research at the M-DTRC will strive to decipher what occurs within the brains and bodies of participants engaged in real-time digital technology mediated-interactions in a variety of settings to study the digital transformation impacts on social interactions, professional and educational collaborations.

- **Designing Effective Digital interfaces for Older Adults**: The ageing of the Canadian population is expected to rapidly accelerate reaching 9.9 million to 10.9 million seniors by the year 2036, representing approximately 25% of the population. The senior population also represents the fastest growing segment of Internet users. The increasing proportion of older adults using information and communication technologies for professional or personal activities demand the tailoring of digital interfaces to match the diminishing cognitive and physical abilities of this segment due to the natural processes of ageing they go through. In the **Advanced Human-Computer Interaction Lab**, M-DTRC researchers will combine cutting-edge NeuroIS techniques with traditional behavioural methods to more deeply understand how digitization impacts older adult users while interacting with digital technologies in a variety of contexts. Consequently, this understanding will help us develop interface design guidelines and decision aids to support the special needs of this segment.

- **Digitization of Healthcare**: The digitization of the healthcare industry is becoming a critical imperative due to the mounting pressures on this sector resulting in part from an increasing ageing population. However, this process is hampered by a variety of policy, and technology interoperability issues as well as concerns over privacy and security. Research at **M-DTRC** will explore these issues leveraging the long history of our researchers in the area of eHealth and our flagship M.Sc. in eHealth program (an interdisciplinary program involving the faculties of Business, Engineering and Health Sciences). Students from the eHealth program will be benefit from taking part in M-DTRC projects as part of their thesis or internships.

**M-DTRC Training and Education**

The training of HQP will be a major component of the proposed programs of research conducted at the **M-DTRC**. The centre will serve to attract top talent to programs from the undergraduate, Master’s, Executive Education, and Ph.D. levels as well as Post-Doctoral Fellows (PDF) spanning the DeGroote School of Business, Faculty of Science, Faculty of Engineering, and other partner Faculties within and beyond McMaster. The multidisciplinary nature of the research undertaken at the centre, the ongoing interactions with our affiliates and partners, as well as the cutting-edge neurophysiological and behavioural research tools and equipment used will all serve to develop a unique breed of HQP with highly specialized skill sets. By utilizing these innovative methods, our students will develop refined capabilities in investigating and understanding how digital transformation, driven by innovations in technology and the continued emergence of sources of big data, is challenging the standards of business and other elements of society. Students will be trained on how this transformation could be best
leverage the betterment of our economic and social systems. The ongoing interactions with our partners in the private, public, and not-for-profit sectors will further enrich our students’ experiences making them more attractive for employment upon graduation given their multidisciplinary training and highly specialized and diverse skill sets.

Rationale for the Creation of the M-DTRC

Business schools produce professionals in areas such as accounting, finance, marketing, etc., but we can also contribute towards developing leaders who can understand and manage the transformations in industries and society that are fuelled by the ongoing digital revolution. Many of the significant transformations such as those we observe in the hospitality industry (Airbnb) and transportation sector (Uber), are largely driven by data and digital innovations, where leaders need to bridge the gap between technology affordances and business strategy by making evidence-based decisions. This applies whether they are driving the disruption or adapting to it. As such, there is a tremendous opportunity for the DeGroote School of Business to conquer this divide that exists in business and managerial practice and to make innovative contributions to business and society, through interdisciplinary research to transform the way we manage, strategize, produce, collaborate, and create value in an increasingly complex and digitally interconnected world.

The timing is right for this venture. McMaster has prioritized interdisciplinary research and teaching. Additionally, the new strategic plan for DeGroote School of Business includes a mission to “foster interdisciplinary thinking and evidence-based management to transform business and society.” As such, the School is putting significant resources and support behind the M-DTRC and other initiatives that fall under these criteria, which enhances its chances of success. This support includes contributions such as the dedication of space and infrastructure for the faculty, graduate student offices and research laboratories, as well as financial support.

Funding

Funding will come from research granting agencies, investment from the School of Business and private donors, in addition to income generated through the operations of the centre including research contracts. As outlined above the School of Business has dedicated space on the fourth floor of DeGroote’s Ron Joyce Centre (occupying approximately 300 m²/3,300 ft²) in Burlington for M-DTRC, with additional space located on the second floor of DeGroote’s Hamilton campus. The centre will draw on three complimentary CFI/ORF-RI-funded research labs involving collaboration between researchers from DeGroote and the Department of Psychology, Neuroscience & Behaviour at McMaster: (i) The Evidence Based Management Lab; (ii) The Flexible NeuroIS User Experience Lab; and (iii) The Advanced Human-Computer Interaction Lab. In the immediate future, operating research funds will come for a variety of research grants currently held by members of the centre (e.g. SSHRC Insight Grants, SSHRC Insight Development Grants, SSHRC Partnership Development Grants, NSERC Discovery and Engage Grants. In addition, from the first year of operation we envision a variety of revenue
generating activities for the **M-DTRC** that will see the centre breaking even or making a small profit accruing a healthy operating balance in the process to offset any fluctuations or one-time costs/investments that may need to be made (e.g. replacing equipment, etc.)

A detailed budget is provided in Appendix B outlining the envisioned revenues and expenses associated with the operations of **M-DTRC** over its first six years of its operation. Some of the sources of revenue outlined in the proposed budget are discussed below.

**Research Grants:** A laboratory of this caliber will allow members of the associated research team to ensure robust innovative applications to standard sources of funding that include those already utilized by the faculty such as SSHRC Insight Grants, SSHRC Insight Development Grants, SSHRC Partnership Development Grants, NSERC Discovery and Engage Grants. Applications to strategic grants involving multidisciplinary teams and close collaborations with industry partners are also envisioned on a regular basis.

**Research Contracts:** University based laboratories, as evidenced by the collective experiences of the Faculties of Science, Engineering and Health Sciences also facilitate research contracts with industry partners. It is reasonable to expect that the **M-DTRC** comprising three laboratories of this stature would generate a steady flow of research contracts with business partners (our experiences with engaging potential partners so far has been very promising). Such contracts will provide opportunities for our faculty and graduate students to interact closely with industry partners to address relevant real world questions with ensuing mutual benefits to both sides.

Finally, the attached letter from the Dean of the School of Business (Appendix C) clearly outlines the commitment of the School of Business to the success of M-DTRC and its ongoing financial stability indicating that “As an indication of this commitment, the School will be investing $75K per year in the first five years of the Centre’s operation in the form of a contribution from private donations and/or from the School’s budget. We believe that the proposed budget accompanying the attached proposal is reasonable and projects financial health for the Centre in steady state. However, the School is committed to covering any shortfalls in the Centre’s budget should they occur.”

**Executive Training**
It is envisioned that the **M-DTRC** will leverage the expertise of its faculty members to develop/deliver executive training courses related to digital transformation, online interface design, and evidence based management that would be highly attractive to organizations in both the private and public sectors. Examples of such courses include: Competing in Digital Markets, Creating Value through Internet of Things Products and Services, Evidence-based Decision Making for Managers, Neuroergonomics of Digital Technologies and Smart Products, Creating and Sustaining Evidence-based Organizations,
Selecting & Nurturing Evidence-based Leaders. These courses will be marketed through DeGroote’s Executive Education team and will serve to further bolster our reputation as a leader in this area.

Administration and Governance

The organizational structure of the M-DTRC will follow the McMaster’s Guidelines for the Governance and Review of Research Centres as outlined in the Figure below.

The centre will be led by its Director, who is normally appointed for a 5 year term. The Director establishes an Advisory Committee (AC) whose purpose is to provide advice to the Director with regard to scientific or scholarly priorities and direction for the Centre. The AC is chosen by the Director, and convenes at least twice a year, or more frequently at the discretion of the Director.

The centre Director reports to the Institute’s Governing Board (GB) on an annual basis. The GB comprises the Dean of the school of Business (or designate), the Chairs of the Departments which have a substantive investment in the success of the centre, and one faculty member at large who is active within M-DTRC. The GB, in consultation with the Director, the AC, and members of the Institute, is responsible for constituting an External Review Board (ERB) at least every 5 years, and normally coincident with the final year of the Director’s term.
M-DTRC Governing Board
The Governing Board will consist of:
- Dean of the DeGroote School of Business (Chair)
- Chair of the Information Systems Area, School of Business
- Chair of the Psychology, Neuroscience, and Behaviour Dept., Faculty of Science

M-DTRC Advisory Committee
The Advisory Committee will consist of:
- Dr. Khaled Hassanein (Business), Centre Director (Chair) - TBC
- Dr. Vishwanath Baba (Business)
- Dr. Patrick Bennett (Science)
- Dr. Milena Head (Business)
- Dr. Ranil Sonnadara (Health Sciences and Research & High-Performance Computing Support)
- Dr. Scott Watter (Science)
- Three members from industry who are active in support of M-DTRC selected on a two-year rotating basis.

M-DTRC Team
Core members: The following are members who either participated in our CFI-JELF applications that funded the current M-DTRC infrastructure, took part in recent strategic grant applications (e.g. ORF-RE) or are currently working on collaborative projects covered by the M-DTRC’s proposed mandate.

- Norm Archer, School of Business
- Vishwanath Baba, School of Business
- Patrick Bennett, Faculty of Science
- Goran Calic, School of Business
- Brian Detlor, School of Business
- Tom Doyle, Faculty of Engineering
- Fei Chiang, Faculty of Engineering
- Maryam Ghasemaghaei, School of Business
- Rick D. Hackett, School of Business
- Khaled Hassanein, Director (TBC), School of Business
- Milena Head, School of Business
- Kai Huang, School of Business
- Ali Reza Montazemi, School of Business
- Paul McNicholas, Faculty of Science
- Geoff Norman, Faculty of Health Sciences

1 To be confirmed
• Sukvinder Obhi, Faculty of Science
• Allison Sekuler, Faculty of Science
• Joseph Tan, School of Business
• Scott Watter, Faculty of Science
• Ranil Sonnadara, , Faculty of Health Sciences, Director RHPC
• Yufei Yuan, School of Business
• Manaf Zarqoush, School of Business

Additional Members: It is envisioned that additional members from the school of Business, McMaster and beyond will be added once the centre is operational based on their interests and on the projects that the centre will take part in.
Dear Naresh,

I am pleased to provide this letter as an indication of my strong support for the proposed McMaster Digital Transformation Research Centre (M-DTRC) proposal recently submitted to the University Planning Committee. Additionally, I wish to address questions raised regarding the synergy and complementarity between M-DTRC and the mandate of MacDATA.

MacDATA was initiated to identify synergies and to foster collaboration among the University's various institutes, centres (such as M-DTRC) and researchers involved in the various aspects of data collection, transformation, analysis, and visualizations. Our mission has three general themes 1) visibility - showcasing the scientific developments and successes of McMaster researchers and their students have made on issues related to data locally, nationally, and internationally, 2) integration - coordination and collaboration across disciplines and methodologies to ensure researchers are supported and have opportunities to expand the scope of their research and 3) enabling - promotion of data literacy skills, training, and integration with industry and government.

As the Acting Director of MacDATA I do not feel that there is overlap between our mandate and that of M-DTRC. While I appreciate that both have evolved as a consequence of the impact in the growth of data and the emerging technologies developed to exploit or harness this data, their objectives are however significantly different. First, MacData is a university wide initiative that encourages data related research and training initiatives, such as M-DTRC, within each faculty. Second, MacDATA areas of focus span different fields that reflect the different perspective in each faculty and includes business analytics, data science, digital humanities, bioinformatics, programming and social and government data. In contrast, M-DTRC focuses on evidence-based management, human computer interaction and digital technology adoption and management. As such I see the proposed research and other activities at M-DTRC to be complimentary to those of MacDATA.

I would like to conclude by reiterating my strong support for the M-DTRC proposal and wish to confirm for the University Planning Committee that having carefully examined the M-DTRC proposal and being intimately familiar with the mandate and activities of MacDATA, I have determined that the two are complementary with distinct mandates. I look forward to working with M-DTRC to ensure the success of this innovative and timely research Centre.

Regards,

Dr. Elkafi Hassini
Acting Director, MacDATA
Appendix B: M-DTRC Proposed Budget
## Appendix B: Proposed Budget for the McMaster Digital Transformation Research Centre

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<td><strong>User fees</strong></td>
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<td><strong>Research Contracts</strong></td>
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<td><strong>Training Courses</strong></td>
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### Program Costs

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<tbody>
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<td><strong>Office supplies, telephones, printer/copier</strong></td>
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<td>1000</td>
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<td><strong>Equipment maintenance</strong></td>
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<td>$78,800</td>
<td>$77,800</td>
<td>$77,800</td>
<td>$77,800</td>
</tr>
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</table>

### Administration/Personnel*

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<tr>
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<tbody>
<tr>
<td><strong>Centre Director Stipend</strong></td>
<td>$2,100</td>
<td>$4,200</td>
<td>$4,200</td>
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<td>$4,200</td>
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<tr>
<td><strong>PDF/Lab Manager</strong></td>
<td>$30,000</td>
<td>$61,800</td>
<td>$63,654</td>
<td>$65,564</td>
<td>$67,531</td>
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<tr>
<td><strong>Business Development Manager (part time)</strong></td>
<td>$25,000</td>
<td>$51,500</td>
<td>$53,045</td>
<td>$54,636</td>
<td>$56,275</td>
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<tr>
<td><strong>Admin Assistant (part time)</strong></td>
<td>$20,000</td>
<td>$25,000</td>
<td>$25,750</td>
<td>$26,523</td>
<td>$27,318</td>
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<td><strong>Subtotal</strong></td>
<td>$77,100</td>
<td>$142,500</td>
<td>$146,649</td>
<td>$150,922</td>
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<td>$159,858</td>
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### Total Expenses

<table>
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<tr>
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<tbody>
<tr>
<td><strong>Operating Surpluse/(Deficit)</strong></td>
<td>$156,855</td>
<td>$166,100</td>
<td>$219,777</td>
<td>$156,778</td>
<td>$152,376</td>
<td>$72,842</td>
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<tr>
<td><strong>Cumulative Surplus/(Deficit)</strong></td>
<td>$156,855</td>
<td>$322,955</td>
<td>$542,732</td>
<td>$699,510</td>
<td>$851,885</td>
<td>$924,728</td>
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*labour costs are inclusive of benefits.

3/7/2017
<table>
<thead>
<tr>
<th>Budget Line Item</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The centre will have a starting cash balance of $60K transferred over from its predecessor MeRC</td>
</tr>
<tr>
<td>2</td>
<td>The Faculty has committed to $75K annually for five years. This revenue line is conservative as we believe external funding from industry to be very likely, including a possible naming opportunity</td>
</tr>
<tr>
<td>3</td>
<td>Secured from three successful CFI-JELF grants in 2014, 15 and 16</td>
</tr>
<tr>
<td>4</td>
<td>Assuming 2 NSERC Engage grants at $25K each in year 1 and 4 NSERC Engage grants for each year thereafter</td>
</tr>
<tr>
<td>5</td>
<td>Assuming a user fee of $500 per day. 10 days in year 1, 20 days in year 2 and 25 days thereafter</td>
</tr>
<tr>
<td>6</td>
<td>Assuming 2 research contracts in years 1 and 2 and 6 in each subsequent year. Each contract is estimated at a value of $25K excluding overhead</td>
</tr>
<tr>
<td>7</td>
<td>Assuming 3 one-day courses delivered in year 2, and 6 one-day courses delivered in each subsequent year. Each course will be attended by 10 students at a rate of $800 per student per day</td>
</tr>
<tr>
<td>8</td>
<td>Costs of office supplies, etc.</td>
</tr>
<tr>
<td>9</td>
<td>Not expecting major spending on infrastructure in first 6 years since we just obtained the equipment and it is under warranty. These expenses are partially offset through IOF funds from CFI grants</td>
</tr>
<tr>
<td>10</td>
<td>Project costs for participant fees, consumables- exclusive of PDF time</td>
</tr>
<tr>
<td>11</td>
<td>Develop 3 courses in year 1 paying instructors $2K per course developed. Thereafter, courses will cost either $2500 to deliver existing courses or $4500 to develop and deliver new courses. A 35% of Revenue expense is added to cover the costs of promotion, food, etc.</td>
</tr>
<tr>
<td>12</td>
<td>To attend meetings, deliver invited talks, etc.</td>
</tr>
<tr>
<td>13</td>
<td>To host an annual event inviting academics and practitioners to meet to discuss latest research findings, challenges facing industry and promote the centre</td>
</tr>
<tr>
<td>14</td>
<td>Standard stipend for research centre directors</td>
</tr>
<tr>
<td>15</td>
<td>To help design and run experiments, help write grant proposals, engage business partners and run the day to day operations of the centre</td>
</tr>
<tr>
<td>16</td>
<td>To help engage business partners for research contracts or strategic grants</td>
</tr>
<tr>
<td>17</td>
<td>To help centre members with administrative tasks, scheduling participants for experiments, and supporting the annual event</td>
</tr>
</tbody>
</table>
Appendix C: Letter from Dean of the School of Business
March 6, 2017

Dr. R. Baker  
Vice-President, Research  
McMaster University

Dear Dr. Baker,

I am forwarding a proposal for establishing the McMaster Digital Transformation Research Centre in the School of Business. The proposal has my firm endorsement and that of Dr. Agarwal, Associate Dean Graduate Studies and Research.

Our Strategic Plan 2015 – 2020 identifies two areas of focus, healthcare and digital innovation. Through our recently launched EMBA in Digital Transformation and Health Leadership Academy, we have attempted to strengthen our educational programs in these two focus areas. The proposed McMaster Digital Transformation Research Centre will help us move our research enterprise in this direction. The Centre will serve to integrate the recent successes of our faculty in attracting SSHRC, CFI and ORF-RI funding for setting up the Evidence Based Management Lab, the Flexible NeuroIS User Experience Lab and the Advanced Human Computer Interaction Lab. Consistent with the McMaster Strategic Research Plan, the proposed Centre will promote inter-disciplinary and collaborative research programs with potential for involving researchers from across Faculties.

The School strongly supports the establishment of this Centre and is committed to its on-going success. As an indication of this commitment, the School will be investing $75K per year in the first five years of the Centre’s operation in the form of a contribution from private donations and/or from the School’s budget. We believe that the proposed budget accompanying the attached proposal is reasonable and projects financial health for the Centre in steady state. However, the School is committed to covering any shortfalls in the Centre’s budget should they occur.

Finally, the governance and administrative structure of the proposed Centre, including the aforementioned Labs, satisfies all the requirements of the McMaster Guidelines for the Governance and Review of Research Institutes, Centres.
The attached proposal is being submitted for consideration and approval by your Committee for Review of Centres/Institutes. Please let us know if you require any further information.

Best Regards,

Dr. Leonard Waverman  
Dean Faculty of Business

Attachment: DTRC Proposal
For more information contact:

Dr. Khaled Hassanein
DeGroote School of Business
(905) 525-9140 ext. 28130
hassank@mcmaster.ca
www.degroote.mcmaster.ca
MEMO

TO: University Planning Committee

FROM: Robert Baker

RE: Termination of the McMaster Brain-Body Institute at St. Joseph’s Healthcare Hamilton

DATE: March 6, 2017

I wish to recommend the termination of the McMaster Brain-Body Institute at St. Joseph’s Healthcare Hamilton (BBI) as of April 30, 2017.

This Institute was officially established as a joint hospital/university research institute through McMaster Board of Governors in 2008. One of the factors that have led to the diminishment of the Institute’s relevance is financial considerations that have signaled the need to terminate the BBI. Dr. John Bienenstock, Director of the Institute since its inception in 2001 is in agreement.

A letter from Dr. Paul O’Byrne, Dean and Vice-President, Faculty of Health Sciences and Dr. David Higgins, President, St. Joseph’s Healthcare Hamilton is attached with additional details.

The Committee on Research Centres and Institutes has also reviewed the termination request and agrees with the above recommendation.

attach.
February 2017

Dr. Rob Baker  
Vice-President, Research  
Chair, Committee on Research Institutes  
c/o Gilmour Hall, Room 208

Re: Termination of the McMaster Brain-Body Institute at St. Joseph’s Healthcare Hamilton

Dear Dr. Baker,

The McMaster Brain-Body Institute at St. Joseph’s Healthcare Hamilton (BBI) was officially established as a joint hospital/university research institute via McMaster’s Board of Governors in 2008. The proposal for the Institute listed its mission being “To link clinical and basic scientists from diverse backgrounds to explore how the brain and nervous system interact with bodily systems in the regulation of health and disease.” Dr. John Bienenstock has been the Director of the Institute since its inception in 2001 (the BBI operated as an unofficial Institute at the hospital from 2001-2008).

While Dr. Bienenstock and his group are to be commended for their work in establishing the BBI and conducting high-quality research, other factors have led to the diminishment of the Institute’s relevance. In particular, financial considerations have signaled the need to terminate the BBI. Dr. Bienenstock is in agreement.

Therefore, we are recommending that the BBI be officially terminated according to the University’s guidelines. St. Joseph’s Healthcare Hamilton will also initiate the process to officially terminate the BBI according to its procedures. Dr. Bienenstock’s appointment as Director of the BBI lapsed effective July 1, 2011 and will not be backdated or renewed.

Should you have any questions or concerns, please feel free to contact either of us.

Sincerely,

Dr. Paul O’Byrne  
Dean and Vice-President  
Faculty of Health Sciences  
McMaster University

Dr. David Higgins  
President  
St. Joseph’s Healthcare Hamilton

cc: Dr. S. Collins, Associate Dean (Research), Faculty of Health Sciences  
Dr. J. Gauldie, Vice President, Research, St. Joseph’s Healthcare Hamilton  
Dr. N. Kates, Chair, Department of Psychiatry and Behavioural Neurosciences  
Dr. P. Cook, Chief of Psychiatry, St. Joseph’s Healthcare Hamilton
i. Athletics and Recreation – Revised Project

At its meeting on March 30, 2017, the Planning and Resources Committee reviewed and approved a recommendation from the University Planning Committee regarding the revised athletic and recreation project. The project received strong support from the McMaster Students Union and in March 2017, a successful undergraduate referendum was held, approving the fee proposal for the project. Details of the project are contained in attachment I of the circulated report.

It is now recommended,

that Board of Governors approve components of the Athletics and Recreation Phase 1 Space Expansion Business Case, involving 1a) expansion to the Pulse and an additional gym (62,814 GSF of both new and renovated space), and 1b) additional student activity space (an additional 40,000 GSF) totalling 102,814 GSF of both new and renovated space supported by an approved 40 year Central Bank Loan at the University’s weighted average cost of capital (currently 5.75%) at a total project cost of $59.3 million, inclusive of net HST.

ii. Hourly Pension Plan Valuation

On March 30, the Planning and Resources Committee reviewed and approved the results of the actuarial valuation as at July 1, 2016 for the Contributory Pension Plan for Hourly Rated Employees of McMaster University Including Divinity College. The University is required to file the report with the Canada Revenue Agency and Financial Services Commission of Ontario by March 31, 2017, and it has been submitted subject to Board approval. Details of the valuation are contained in attachment II of the material.

It is now recommended,

that the Board of Governors approve that the results of the Actuarial Valuation for Funding Purposes as at July 1, 2016 for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including McMaster Divinity College be confirmed with the Financial Services Commission of Ontario and the Canada Revenue Agency, which includes application of the November 2016 solvency rules.
iii. Strategic Mandate Agreement – Report Back

McMaster’s Strategic Mandate Agreement Report Back was presented to the Planning and Resources Committee at its meeting on February 16, 2017. The material contains information related to the University’s progress on objectives outlined in its 2014 Strategic Mandate Agreement with the provincial government. The item is presented for information and the report is contained in attachment III.

Board of Governors – FOR APPROVAL/INFORMATION
April 20, 2017
Athletics & Recreation Complex Expansion
Business Case
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Authority Signatures

Include the signatures of the project executive sponsor and other project sponsors, indicating that they agree with the proposed business case.

_________________________                _______________________
Executive Sponsor              Date
David Wilkinson
Provost and Vice-President (Academic)

March 10th, 2017

_________________________                _______________________
Project Sponsor              Date
Sean Van Koughnett
Associate Vice-President (Students & Learning and Dean of Students)

March 10th, 2017

_________________________                _______________________
Project Sponsor              Date
Glen Grunwald
Director, Athletics & Recreation
Revised Business Case Rationale

This project received approval from the University in the fall of 2016. The student fee referendum held in January 2017 resulted in 56% of students voting for one of the two expansion options as their first choice; however, using a ranked ballot system there was a 10 vote differential (3,910 to 3,900) between the number of “no” votes and the most preferred expansion option. Therefore, the referendum failed.

Given the strong support for the larger of the two expansion options, concern from students about the fee increase associated with this project, and feedback related to the complexity of the voting options, two main changes have been made to the business case:

1) The preferred expansion option (1a + 1b) will be preserved, while the 2nd expansion option (1a only) will be eliminated. The expansion of both fitness space at DBAC and the Student Activity Building at IWC (1a + 1b) was the option preferred by more students in the January referendum.

2) The Provost and VP Administration have made a commitment to the MSU’s Student Representative Assembly of $10 million towards project costs. The business case below has been updated to reflect this commitment and adjustment to student fees. In the original proposal, the capital fee increase was $3.95/unit and in the new proposal the capital fee increase is $2.99/unit. For a student with a full course load, the fee increase has been reduced by 24%, from $118.50 to $87.70.

Please note that the University capital contribution of $10M consists of two parts:

a. $5 million from the University Fund, provided over the first five years of the project.

b. $5M from the capital reserve, which represents a discount on the original project loan. This will be provided over the initial five years of the project rather than spread out over the 40 year term loan.

Business Case Conclusion & Recommendations

Approve an expansion and addition to the McMaster Athletics & Recreation Complex, which supports the vision and redevelopment strategy contained in a study prepared by Perkins + Will as part of McMaster’s initiative to enhance the student experience and meet capacity needs.

Support this Business Case prepared for the University Planning Committee, Planning and Resources Committee, and the Board of Governors regarding a Phase 1 project (Phase 1a and 1b detailed in later sections) based on a $10 million University contribution and a student fee funding model to support student athletic and recreation additions and enhancements and to provide additional student learning space whereby post construction operating costs will be supported by the University as common space costs distributed to activity units (Faculties) using the budget model. This Business Case is based on a 40-
year Central Bank loan funded by student fees and some community revenues. Student fees in this business case are subject to a March 2017 referendum.

Recommendation for Planning and Resources Committee:

That the University Planning Committee and the Planning and Resources Committee approve, for recommendation to the Board of Governors, components of the Athletics and Recreation Phase 1 Space Expansion Business Case, involving 1a) expansion to the Pulse and an additional gym (62,814 GSF of both new and renovated space), and 1b) additional student activity space (an additional 40,000 GSF) totalling 102,814 GSF of both new and renovated space supported by an approved 40 year Central Bank Loan at the University's weighted average cost of capital (currently 5.75%); for which the business case and Central Bank loan approvals are contingent upon a successful March 2017 student fees referendum supporting the total project (both 1a and 1b) at a total project cost of $59.3 million, inclusive of net HST.

A March 2017 student referendum for full-time undergraduate students will be refocused on an increase to the existing DBAC fee to achieve Phase 1a and 1b projects (expanded Pulse, new gym and student activity space) representing $59.3 million in capital costs and 100% of the athletic and recreation (Pulse and Gym) operating costs; this increase will be levied to students at the time of completion in 2020/21.

Appendices are provided to demonstrate the operating costs (proforma revenues and expenses) for 1a and 1b together. In addition to proformas, loan amortization schedules, operating costs, and cash outflows are provided.
Executive Summary

In 2016, Perkins + Will Architects, in association with Councilman Hunsaker, Smith + Anderson, Turner & Townsend, were engaged by McMaster University Athletics & Recreation (A&R) to identify re-development strategies and convey a short- and long-term vision for growth for the entire McMaster Athletics & Recreation Complex (ARC) in support of our student experience. The goal of the project is an enhanced experience for all students addressing specific needs associated with student well-being, recreation and intercollegiate athletics. Since 2007, when the David Braley Athletic Centre (DBAC) was opened, the student population has more than doubled. The need for redevelopment strategies is a direct response to the challenges of aging facilities and not meeting current or growing needs and expectations of our students. The current lack of capacity has resulted in overcrowding and an inability to provide quality varsity and recreational programming; this has a significant negative impact on the student experience. Working with the consultants a number of opportunities to maximize the use of the A&R footprint for increased capacity and new functionality within the complex have been identified.

Our vision is to be the healthiest campus in Canada where health and fitness becomes core to daily student life. The ARC strategy includes the delivery of additional and needed comfortable student spaces, allows for diversity and inclusiveness, integrates academics and athletics, enhances and connects student learning with physical activity and engagement space, expands recreational programming, and provides quality performance facilities. In August 2016, the consultants provided a final report that identified four potential phases totalling $158.9 million. The fourth phase (student residence) recommended by Perkins+Will has not been incorporated as part of the long-term strategy nor included in this business case. Construction costs for the first 3 phases totalling $139.1 million are included in Table 1.

Table 1: Redevelopment Phases ARC Strategy

<table>
<thead>
<tr>
<th>Phase 1 - $50.8 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) David Braley Athletic Centre (DBAC) Pulse Fitness Expansion and Additional Gym, totalling 62,814 Gross Square Feet (GSF) at a construction cost of $21.3 million</td>
</tr>
<tr>
<td>b) Ivor Wynne Centre (IWC) Student Community Space Expansion, totally 40,000 GSF at a construction cost of $18.3 million</td>
</tr>
<tr>
<td>c) Pool Renovations: Upgrades to existing pool associated with 7,220 GSF at a construction cost of $2.9 million</td>
</tr>
<tr>
<td>d) Major Retrofitting: Lockers, storage expansion, new corridor affecting 45,600 GSF at a construction cost of $8.3 million</td>
</tr>
</tbody>
</table>

Deferred phase 1 items (for later consideration)**
Notes:

Construction costs are adjusted for inflation to the date of tender ~2018

**1c) is physically adjacent to 1b), and construction costs were estimated based on completing both projects at the same time. Completing 1c) after 1b) will impact is construction costs and the accessibility of the facility during the renovation period. If funds become available, consideration should be given to completing 1c) at the same time as 1b).

<table>
<thead>
<tr>
<th>Phase 2 - $50.4 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) New Pool affecting 97,000 GSF at a construction cost of $42.23 million</td>
</tr>
<tr>
<td>b) New Student Gym and major retrofitting totalling 23,190 GSF at a construction cost of $8.1 million</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase 3 – $37.9 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) New Field House &amp; High Performance Centre totalling 111,000 GSF at a construction costs of $25.8 million</td>
</tr>
<tr>
<td>b) Covered Parking totalling 71,700 GSF at a construction cost of $12.1 million</td>
</tr>
</tbody>
</table>

A copy of the Facility Assessment and Master Plan study referred to is a separate attachment that complements this business case and is available upon request.

Based on the business case analysis, it is recommended that we proceed with Phase 1a and 1b of the redevelopment strategy contingent on the March 2017 student referendum, which reflects the additional $10 million University contribution and the resulting adjustment to the student capital fee required to support the project. The referendum question also asks undergraduate students to eliminate the Pulse user fee in favour of an increase to the A&R Activity fee.

An executive summary of these projects are as follows:

Pulse Fitness and Gym Expansion: The current Pulse Fitness space is limited in size and at peak hours the Pulse is unable to accommodate members resulting in some members having to wait for others to finish their workout prior to being let in. The plan is to double the size of the Pulse to accommodate all students and most other members at all times. The current gyms are also in high demand and heavily used. These constraints have impacted A&Rs ability to meet demands to support recreation, intramurals, varsity, social, and community sports. This phase 1 project plan is to build one additional Gym at this time to meet these demands. The Pulse Fitness and Gym renovations affect 62,814 GSF representing both new and renovated space. The Pulse Fitness and Gym are key staples of healthy living on campus and is positively correlated with student satisfaction and improved health conditions.
Student Community Space Expansion: There is currently insufficient student community and informal collaborative space for students on campus. The McMaster University Student Centre (MUSC) remains overcrowded and over utilized despite recently providing increased seating. The ARC Student Community Space Expansion will support collaborative student life space needs and promote healthy active living. The space will potentially feature multi-purpose event spaces for students, a peer support centre (run by the McMaster Student Union (MSU)), multi-faith space, food collective centre, recreational practise space (dance groups, marching band), movie theatre (for clubs and services), nap centre/student lounge space, and un-programmed collaborative student space where students can work on projects, study or just eat and socialize with friends. This space will amount an additional 40,000 GSF.

Section 1: The Strategic Context

1 Business Needs and Desired Outcomes

1.1 Strategic Environment

1.1.1 Organizational Overview

McMaster University is committed to a transformative approach to advancing human and societal health and wellbeing, meaning as the institution delivers on its social obligations, both through the discovery, communication and preservation of knowledge and through the production of thoughtful, creative and resilient global citizens, it will also undergo significant changes to itself. These changes must relate to the University’s commitment to “developing a distinctive, personalized, engaging and sustainable student experience” and should focus on institutional values, including:

**The Cultivation of Human Potential:** “We are an institution devoted to the cultivation of human potential, which we believe cannot be realized by individuals in isolation from one another, from their history or their imagined future, from the society which surrounds them, or from the physical universe which sustains them.” (Forward With Integrity, p. 4)

**Diversity and Inclusion:** “The importance of promoting and supporting diversity within our student body is also crucial; our campus must be a welcoming and supportive environment for all students, whether they come from overseas or more locally, and regardless of their ethnic origin, background, gender, sexual orientation, religious beliefs, or political alliances.” (Forward With Integrity: The Next Phase, p. 5)
Learning Outside of the Classroom: “Experiential components deliver obvious benefits in terms of the quality of the learning experience and the level of engagement felt by students.” (Forward With Integrity, p. 7)

Social Learning: “[The] quality and richness of our life together on this planet is the point of education. This physical space is therefore highly significant; it is literally the ground of our coming together and the emblem of our deeper commonality, kinship and shared aspirations.” (Patrick Deane, Spring 2016 Convocation Speech)

Partnerships with Students: “Since the good of students, graduate as well as undergraduate, is at the heart of this initiative, students must be drawn even more deeply into [the University’s] discussions...” (Forward With Integrity, p. 14)

Student Health and Wellbeing: “We envision a community that recognizes improving the health of our campus is a shared commitment. We strive to foster a healthy, supportive and inclusive educational environment and one of our primary goals is to create a culture of caring and support: ‘we care for the whole student and we care for one another’. We as a campus recognize that student well-being and good student mental health are critical foundations for student success.” (Student Mental Health & Well-Being Strategy).

The Athletics & Recreation Major Expansion Project arises from and responds to each of these institutional values. The Project was developed in partnership with students, for students—the McMaster Students Union has been involved in all stages of planning and will continue to support the Project through its execution by providing input and guidance on the use, design and eventual governance of the space. The Project focuses on inclusion of all students with varying backgrounds and abilities, delivering on the University’s commitment to create an environment that is welcoming and supportive of all students and that celebrates the abundance of our community. The Project creates more opportunities for co-curricular, social learning by increasing the space available on campus for sports and recreational activities, and it makes student-led initiatives in un-programmed space more possible. The Project focuses on accessibility and healthy active living, which contribute to improved student experiences, better mental health and wellbeing.
1.1.2 Detailed Description of the Business Need & Drivers for Change

Pulse Fitness and Gym Expansion:

Student interest in athletic and recreational space at McMaster University exceeds the capacity of existing facilities on campus. According to the National Student Affairs Professional Association’s (NAPSA) Recreation Benchmarking Study conducted in 2014 (742 respondents for McMaster University), both users (64%) and non-users (36%) of the facilities indicated that overcrowding was a problem and that accessibility to the space needed improvement. Respondents indicated the need for more cardio and fitness classes (67%) and more weights (63%).

The NAPSA survey responses were reinforced by Perkins + Will Architects as they conducted tours and interviews with staff while developing a facility assessment and master plan study in 2016. The study observed, “Sharing undersized facilities is a challenge to meet the needs of all students, varsity teams, faculty, staff, and the community.” While initial designs for the current facilities were based on an undergraduate enrolment of 14,600 students, McMaster University now has over 22,000 undergraduates—the added volume puts pressure on the facilities, especially during peak workout times (11:00 am – 8:00 pm). With over 10,000 undergraduate Pulse members in the 2015/2016 academic year, it is no surprise that student enrollment has outpaced the capacity of existing facilities.

The proposed expansion (1a) will increase space available for fitness programming by a factor of 2.2. The current gross square footage will be increased from 17,575 to 39,301 GSF and will provide three additional group exercise spaces. The new space will make it possible to create different equipment zones overlooking the football field, thus increasing user access to cardio machines and weights. The Business Plan includes $1.5M for new equipment in this space.

In addition to overcrowding at the Pulse, the current facilities struggle to meet student needs for gym space. Sport Hall and Burridge Gym are both programmed over 80% of the time, meaning they are in use for varsity practices, intramurals, recreational drop-ins and occasional external rentals. These numbers increase to over 90% during peak hours (8 am – 10 pm). When the gyms are not occupied by formal programming, they are open for and consistently used as recreational time. The addition of a new gym is included in the proposed expansion (1a), which will add 12,833 GSF to the Project.
The proposed expansion and renovation will not only improve the quality of services available for current users but will also increase capacity and thus encourage participation amongst current nonusers. Additionally, by eliminating the existing Pulse membership fee and instead applying a reduced amount to the existing A&R compulsory fee for all students, the cost per student to access the Pulse will decrease from $144 per eight months per student (current Pulse membership) to $105 per year per student (proposed increase to the Activity Fee). This, too, should increase participation and respond to feedback from the NAPSA survey highlighting affordability as a deterrent to participation for 47% of non-users.

The elimination of the existing membership fee for the Pulse and replacement with an increase to the mandatory Athletics & Recreation Activity Fee will be presented along with a proposed continuation of and increase to the existing David Braley Athletic Centre Fee in the March 2017 MSU referendum. **Note:** The proposed expansion will not be able to proceed without the approval of these fee increases by the undergraduate student body.

**Student Community Space Expansion**

McMaster University is in need of additional unprogrammed student space. In a 2016 survey conducted by the MSU, 80% of the 273 respondents indicated a need for new space to study, work on projects, eat and socialize. Additionally, the MSU has identified a list of student needs that cannot be accommodated due to a lack of available space. The establishment of a peer support centre, a multi-faith prayer room, napping pods, an event/entertainment space, an entrepreneurship incubator and an off-campus student lounge will be considered as part of the detailed design phase.

The McMaster University Student Centre (MUSC) opened in 2002 to address student needs for unprogrammed space, but it was designed for a student population of 15,000 undergraduates; as mentioned above, undergraduate enrolment is now well over 22,000. Recent renovations to the MUSC and other spaces on campus have increased seating and study space for students—the MUSC spent over $1.1M on renovations in the summer of 2016, which increased seating capacity in the building by 180 seats. While changes like these alleviate some of the pressure for study and social space, the gap between campus resources and the needs of a growing student population remains significant and demands a large-scale, student-led solution.
The proposed student community space (1b) will add 40,000 GSF to the Athletics & Recreation Complex. Initial planning for the space has been conducted in partnership with the MSU. If the referendum passes (1a and 1b), a committee with representatives from both the University and the MSU will be established to build detailed plans for the space and to codify its management.

1.1.3 Business Outcomes – Financial Highlights

Detailed Operating Revenue and Cost analysis (proformas) are provided in the Appendices. A summary of the Capital Costs are provided in Table 2 below.

<table>
<thead>
<tr>
<th></th>
<th>Phase 1a DBAC Expansion (new and renovated)</th>
<th>Phase 1b Student Community Space (new)</th>
<th>Phase 1a and 1b DBAC Expansion + Student Community Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Square Feet</td>
<td>62,814</td>
<td>40,000</td>
<td>102,814</td>
</tr>
<tr>
<td>Construction Costs (note 1)</td>
<td>$21,339,751</td>
<td>$18,300,525</td>
<td>$39,640,276</td>
</tr>
<tr>
<td>Soft Costs (note 2)</td>
<td>$5,548,335</td>
<td>$4,758,137</td>
<td>$10,306,472</td>
</tr>
<tr>
<td>Subtotal Construction</td>
<td>$26,888,086</td>
<td>$23,058,662</td>
<td>$49,946,748</td>
</tr>
<tr>
<td>Furniture and Equipment (note 3)</td>
<td>$5,767,950</td>
<td>$1,830,053</td>
<td>$7,598,003</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$32,656,036</td>
<td>$24,888,714</td>
<td>$57,544,750</td>
</tr>
<tr>
<td>Bridge Financing Costs (note 4)</td>
<td>$1,330,258</td>
<td>$1,063,288</td>
<td>$1,918,145</td>
</tr>
<tr>
<td>Total Capital Costs</td>
<td>$33,986,294</td>
<td>$25,952,002</td>
<td>$59,462,908</td>
</tr>
<tr>
<td>Construction Cost/Sq. Ft</td>
<td>$335.73</td>
<td>$457.51</td>
<td>$385.55</td>
</tr>
<tr>
<td>Total Capital Cost</td>
<td>$541.06</td>
<td>$648.80</td>
<td>$578.35</td>
</tr>
</tbody>
</table>

Notes:

1. Construction costs provided by Turner & Townsend – August 2016. Estimate includes a 15% gross up for the General Contractor Fee. Includes insurance, mobilization, demolition. Construction costs increased by 3% per year to construction.

2. Soft Costs based on 26% of capital costs and includes administration costs, contingency, other contracts (hazardous materials, IT, security, signage, etc.), professional services, permit fees, Net HST.

3. Pulse & Gym and Student Community Space – Pulse and Gym furniture and equipment is based on 20% of capital costs plus $1.5 million for cardio equipment. Student space is based on 10% of capital costs.

4. Bridge financing costs based on 2% of estimated cash flows during construction period.

Phase 1a Pulse Fitness and Gym Expansion:
Revenue generation will come from the existing DBAC fee charged to students and an increased fee to be implemented when the new expansion is complete in 2020/21. Undergraduate students currently pay an existing fee of $141.60 per full-time unit load or $4.72 per unit to finance the previous 2007 capital expansion and half of the operating costs. This mortgage is projected to be paid in 2023 resulting in $104 per full time unit load becoming available for the expansion. This Business Case assumes that this levy will continue along a new levy to support the proposed Pulse and Gym space expansion (to be approved March 2017 for implementation in 2020/21) when the expansion is completed and ready for use by students.

Students will be responsible for paying 100% of the facilities and operating costs associated with the Pulse and Gym expansion estimated at $1.8 million annually.

Revenue generated from community memberships of $50,000 per year will continue to be committed to the Business Case and are reasonably assumed over the 40 year proforma appendix analysis (extremely conservative fee growth at 50% of cost inflation has been factored into this revenue line).

Central bank loan re-payments represent 40% of running costs during the first 9 years of the business case (reflecting a 40 year loan period). Facilities operating costs have been incorporated into the plan and are consistent to the charges for other buildings on campus. Additional staffing, supplies, and required equipment have also been included in addition to bridge financing costs. The total cost for this expansion is $33.9 million (as shown in Table 2 above).
Phase 1b Student Community Space Expansion in addition to the Pulse Fitness and Gym Expansion:

Students will be provided with an option to fund the Student Community Space Expansion in addition to the Phase 1a Pulse Fitness and Gym Expansion. Revenue generation will continue to come from the existing DBAC fee charged to students and an additional fee increase implemented upon the completion of the expansions in 2020/21. The Business Case assumes that this levy will continue to support the proposed expansion in addition to an increase of $89.70 per full-time unit (from $118.50 per full-time unit load prior to the additional University support) or $2.99 per unit in 2020/21 (from $3.95 per unit). Additional staffing, supplies and required furniture have been included in addition to bridge financing costs. The total cost of this expansion is $26 million for a combined expansion total of $59.5 million (as shown in Table 2 above).

Students will be responsible for paying 100% of the facilities and operating costs for 1a) expansion estimated at $1.9 million annually commencing in 2022 (refer to Appendix 1a and 1b Proforma).

The expanded student space will be treated as University Student “Common Space” under the budget model resulting in the operating costs of the space being distributed to Faculties. The consolidated fully loaded impact approximates $1.1 million in University supported contribution annually commencing in 2022 (noting costs in 2021 are not based on 12 months of operation), (refer to Appendix 1a and 1b Proforma).

Refer to Graph 1 below for the split in operating cost support based on the above:

![Expansion Operating Cost Support](image)
The revised business case builds in an additional University capital contribution of $10 million. The University contribution consists of two parts, first, $5M from the University Fund provided over the first five years of the project. Secondly, $5M from the McMaster Capital Reserve Fund representing a discount on the original project loan, provided over the first five years of the project rather than spread over the 40 year term loan.

The additional University contributions to the project result in changes to the original project funding support sources as follows:

1.2 Strategic Fit

1.2.1 Pulse Fitness and Gym Expansion

In addition to some benefits already highlighted, the proposed expansion aligns with President Deane’s mission of personal growth and enhancement of the undergraduate experience and student success.

The proposed expansion aligns with A&R’s vision of “striving for excellence” by providing the opportunity for all students to have access to participate in sports, exercise and maintain a healthy lifestyle, as a result, we help create one of the healthiest campus’ in the world. The Student Community Space Expansion supports our vision for facilitating student learning, engagement and collaboration outside of the classroom, while accommodating the diverse needs of our students and community.
The proposed expansion opens access to the student body further aligning to the University’s branding directions of health, promoting healthy lifestyles, mental health and wellness, and physical activity integrated in each student's learning years at McMaster.

### 1.2.2 Prioritized Requirements (High Level)

The Athletics and Recreation team have reviewed all options proposed by the consultant’s report and have evaluated highest level needs as items that address current capacity constraints. This means other items, some that have been on our capital plan for several years like the swimming pool, have not been recommended at this time. Ideally third party funding opportunities will arise to address items deferred (refer to Table 3 Priority Summary):

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Priority</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>DBAC Pulse Expansion and Gym</td>
<td>High</td>
<td>Recommended</td>
</tr>
<tr>
<td>1b</td>
<td>IWC Student Community Space Expansion</td>
<td>High</td>
<td>Recommended</td>
</tr>
<tr>
<td>1c</td>
<td>Pool Renovations</td>
<td>Med</td>
<td>Deferred</td>
</tr>
<tr>
<td>1d</td>
<td>Major Retrofitting</td>
<td>Med</td>
<td>Deferred</td>
</tr>
<tr>
<td>2a</td>
<td>New Pool</td>
<td>Med</td>
<td>Deferred</td>
</tr>
<tr>
<td>2b</td>
<td>New Student Gym &amp; Major Retrofitting</td>
<td>Med</td>
<td>Deferred</td>
</tr>
<tr>
<td>3a</td>
<td>New Field House &amp; High Performance Centre</td>
<td>Med</td>
<td>Deferred</td>
</tr>
<tr>
<td>3b</td>
<td>Covered Parking</td>
<td>Low</td>
<td>Deferred</td>
</tr>
<tr>
<td>4</td>
<td>Student Residence</td>
<td>Low</td>
<td>Deferred</td>
</tr>
</tbody>
</table>

### 1.2.3 Key Assumptions

Key assumptions were made to develop the business case proformas including:

- Conservative student growth: incorporating planned undergraduate growth targeted 2016 to 2021 supporting the LLC business case, then a 0.5% UG student growth rate from 2022 to 2024, and 0% thereafter;

- Fee Inflation rate of 1.75% per year (typically fees increase between 1.25% and 3% per year);

- Cost escalation or inflation of 2.0% per year until 2040, then 2.5% thereafter (consistent with multi-year financial projection outlook and historical trends);
Facilities operating costs based on the University budget model cost per square foot inflated per year using the cost escalation assumption; and

Mortgage Central Bank Loan rate will equal the University’s approved weighted average cost of capital (currently 5.75%).

Other costs such as total capital project costs come from facilities (refer to Table 2), amortization schedule, total mortgage costs, net present value analysis, pro forma modelling, cash flows, simple payback period, and project impact to McMaster Net Asset position come from both Student and Financial Affairs.

1.3 Scope

1.3.1 Boundaries

The scope of this project is very clearly defined. It will include Phase 1a Pulse Fitness and Gym Expansion and Phase 1b the Student Community Space and exclude any remaining phases, including upgrades to the current pool environment as identified by the consultants. It will also exclude, at this time, any major retrofitting for potential new study space, classroom space, storage expansion and locker layout and expansion also included in Phase 1.

Although the redevelopment plan addressed two options for the pool (Phase 1c – Repair and Phase 2a – New Build) there is no financing strategy to support either. The study concluded that the IWC Pool requires significant investment to improve its physical and environmental quality. Repair of the pool tanks and room repair is estimated at $3.2 million while the cost of a new pool is estimated at $42.2 million. Repurposing the existing pool into potential study space and the build of an additional gym would add $8.1 million to the cost. Overall, a new build remains the preferred option. Athletics and Recreation is currently working with Government Relations on securing funding from the federal government’s Canada New Building Fund in support of this initiative. In addition, at this time there is no plan for additional lockers due to funding constraints. To support this initiative, we are exploring potential fundraising opportunities that would allow for naming options. Due to the uncertainty of additional external revenue sources Phases beyond 1a and 1b are deferred and not included in the current Business Case. Athletics and Recreation will, however, continue to pursue grants and donor funds in these areas.

Business plans to support the additional phases of the redevelopment strategy will be developed as funding sources are identified, which will go to Planning and Resources Committee for approval at a future date.
Section 2: Analysis and Recommendation

2 Preliminary Options Analysis

2.1 List the Possible Options

- Option 1 — Phase 1a Pulse Fitness and Gym Expansion Only (62,814 GSF) and will include a Mandatory Pulse Membership Fee. We have removed this option for the revised business case purposes in March 2017. The strategy for the March referendum is to focus on the full Phase 1a) and 1b) scope with the additional University contribution. Phase 1a and 1b: Pulse Fitness and Gym (62,814 GSF) and Student Community Space (40,000 GSF) and will include a Mandatory Pulse Membership Fee.

2.1.1 The Status Quo

The baseline status quo means no space expansions, resulting in maintaining the Pulse and gym designed for an undergraduate enrolment of 14,600 students in 2007. Continued overcrowding will worsen based on targeted growth plans to support LLC and pressure for un-programmed student community space will only increase. Students may vote to approve the Pulse and Gym Expansions only as the two options presented leaving us the challenge to further accommodate un-programmed space in our existing buildings to respond to student common space demands.

2.2 Screening of Options

- Refer to Table 4 below:

<table>
<thead>
<tr>
<th>Screening Criteria</th>
<th>Status Quo</th>
<th>Option 1: 1a</th>
<th>Option 2: 1a and 1b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic fit and business needs</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potential achievability</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Potential affordability</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Supports Student Common Space Needs</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Cost of Additional University “Common Space”</td>
<td><strong>No Change</strong></td>
<td><strong>No change</strong></td>
<td><strong>$1.1 million</strong></td>
</tr>
</tbody>
</table>
2.3 Advantages and Disadvantages of Options

Refer to Table 5 summary below:

<table>
<thead>
<tr>
<th>Status Quo</th>
<th>Expansion Option: 1a + 1b</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>Affordable</td>
<td>No additional student space</td>
</tr>
<tr>
<td>Financially viable</td>
<td>Pulse remains overcrowded</td>
</tr>
<tr>
<td>No charge to fees needed</td>
<td></td>
</tr>
<tr>
<td>No Athletics &amp; Recreation mortgage by 2023</td>
<td></td>
</tr>
<tr>
<td>Positive impact to Net Assets</td>
<td></td>
</tr>
</tbody>
</table>

2.4 Recommendation

Based on the screening criteria along with the advantages and disadvantages of each option it is recommended that Phase 1a and 1b be approved by the University Planning Committee and Planning and Resource Committee, for approval by the Board of Governors, contingent on the outcome of the student referendum. Overall, Phase 1a and 1b are optimal to meeting both physical health needs and access to facilities for the students, as well as providing additional greatly needed common space for students.
Section 3: Management and Capacity

3 Managing the Investment

3.1 Governance and Oversight
Athletics and Recreation successfully run the Pulse and gym areas using an existing infrastructure and trained professional staff. The Student Activity Space Expansion will be a collaborative effort between the University (Student Affairs/Athletics & Recreation) and the MSU. A Memorandum of Understanding will be prepared between the MSU and the University outlining the guiding principles for the operations and usage of the space and potential revenue generation strategies. If this project is approved by students via referendum in March 2017, a detailed functional design will be initiated by McMaster and the MSU and involving student input.

3.1.1 Contracting and Procurement
The combined 1a and 1b project, if approved, will follow the normal capital projects approach. The project will be overseen by Facilities Services using a project account for the approved cost. The approvals for awards will follow the execution of instruments by-law obtaining Planning and Resource Committee (PRC) approval for any items over $2 million and further Board of Governors approval for items over $10 million. The cash flow requirements during construction and the final Central Bank loan upon completion will be managed by Financial Affairs. The status of the loan and repayments are disclosed annually to the PRC on the Central Bank Loan report.

3.1.2 Implementation Plan
The Associate Vice-President (Students & Learning) & Dean of Students and the Director of Athletics & Recreation have worked very closely with the MSU to identify expansion priorities in support of student life and promoting a healthy lifestyle. The Business Case to support components of Phase 1 have been reviewed and endorsed by the MSU. If the revised levy is approved, work with the MSU will be initiated on the functional design of the Student Community Space, including any new programming ideas. Planning will occur in 2017 with construction commencing in 2018 and completion by September 2020.
3.1.3 Project Review Strategy

There will be ongoing review and monitoring of this major expansion project by Facilities Services in collaboration with Athletics and Recreation to ensure that the project remains in scope and the budget is met. Changes in scope may be required if the budget cannot be met.

3.2 Risk Management Strategy

3.2.1 Risk Summary

<table>
<thead>
<tr>
<th>Risk</th>
<th>Probability</th>
<th>Impact</th>
<th>Mitigation</th>
<th>Contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student enrollment targets are not met</td>
<td>Low</td>
<td>Low because 80% of planned growth has been used until 2021, only 0.5% growth 2022 to 2024, and 0% thereafter for the 40 year schedule</td>
<td>AVP (Students &amp; Learning) &amp; Dean of Students is responsible for managing enrollment targets. If necessary reduced revenues will be managed through cost reductions</td>
<td>N/A</td>
</tr>
<tr>
<td>Students do not support any of the options presented for fee increases</td>
<td>Low</td>
<td>Low because the AVP (Students &amp; Learning) &amp; Dean of Students has worked collaboratively with the MSU to ensure that needs are being met</td>
<td>There are no mitigation strategies. This project will not move ahead without student approval</td>
<td>N/A</td>
</tr>
<tr>
<td>Project cost runs over budget</td>
<td>Medium</td>
<td>Medium because the scope would be readdressed to reduce cost.</td>
<td>The budget will be closely monitored for scope and budget</td>
<td>15%</td>
</tr>
<tr>
<td>Project is not completed on time</td>
<td>Medium</td>
<td>New fee collection may need to be pushed out another year</td>
<td>Facilities Services will monitor and manage timeline using contract recourse for delay where possible</td>
<td>None</td>
</tr>
</tbody>
</table>

3.3 Performance Measurement Strategy

- NASPA Recreation Benchmarking Survey Comparison
- National Intramural-Recreational Sports Association (NIRSA) metrics in comparison to other universities
- Increase in Usage Statistics by non-users – more students adopt a healthier life-style
- Waiting time for use of the Pulse and equipment is reduced, less crowding
- Student Community Space is used to meet diverse needs of students in leisure and learning activities
- The MUSC is less crowded as students gravitate to the new Student Community Space
- Increased engagement by off-campus students
- Student Satisfaction Surveys
- Increased retention
Appendix 1a (Pulse Expansion and Additional Gym Only) Removed as an option for this Revised Business Case – only the combined Phase 1a) and 1b) will move forward to the March 2017 referendum.
Appendix 1a and 1b Pulse Expansion and Additional Gym, plus Student Space Expansion
Revised to reflect the additional $10 million project contribution from the University
## Business Case | Athletics: Recreation | Phase 1 Space Expansion

### Appendix 1a and 1b (Pulse Expansion and Additional Gym, plus Student Space Expansion) Proforma 2016-2023

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>University Central Bank Loan Rate = Weighted Average Cost of Capital</td>
<td>5.75%</td>
<td>1.78%</td>
<td>1.78%</td>
<td>1.78%</td>
<td>1.78%</td>
<td>1.78%</td>
<td>1.78%</td>
<td>1.78%</td>
<td>1.78%</td>
</tr>
<tr>
<td>Student Growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost inflation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing DBAC Capital Fee - Undergrad (per unit) - 2016-2017</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing DBAC Capital Fee - New DBAC Expansion Only - Student Community Space</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td>$1,785</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing DBAC Capital Fee - Grad (per term) - 2016-2017</td>
<td>$13,110</td>
<td>$13,110</td>
<td>$13,110</td>
<td>$13,110</td>
<td>$13,110</td>
<td>$13,110</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Expansion - 2014-2015</td>
<td>15,963</td>
<td>21,000</td>
<td>21,300</td>
<td>21,600</td>
<td>21,900</td>
<td>22,200</td>
<td>22,500</td>
<td>22,800</td>
<td>23,100</td>
</tr>
<tr>
<td>Incremental Facilities Cost - New DBAC Expansion</td>
<td>$1,054,856</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental Facilities Cost - Student Community Space</td>
<td>$1,054,856</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New DBAC Expansion - Pulse &amp; Gym Expansion Size (sq ft)</td>
<td>67,814</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Community Space (sq ft)</td>
<td>40,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Capital Cost</td>
<td>$53,462,908</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Income Revenue (Annual)

- **Student Fees (Existing DBAC Capital Fee) - Undergrad**: $2,790,600
- **Student Fees Expansion Capital Fee - Undergrad**: $2,973,600
- **Graduate Student Fees (Existing DBAC Capital Fee) - Cost infl., inc. rate**: $1,115,600
- **Community Memberships (static over 40 years conservative)**: $50,000
- **University Student "Common Space" Budget Model Space Cost Distributed**: $2,000,000
- **University Contributions ($5 million Capital Fund and/or $5 million University Fund and/or $5 million University Fund)**: $2,000,000
- **Total Revenue**: $2,954,600

### Outflow Expenses (Annual)

- **Mortgage Payable (Existing DBAC)**: $1,521,710
- **Facilities Cost (Existing DBAC)**: $929,750
- **Facilities Cost (DBAC Expansion)**: $152,710
- **Equipment Provision**: $104,856
- ** melding**: $104,856
- **Supplies & Maintenance**: $204,000
- **Mortgage Payable (DBAC Expansion = Student Community Space)**: $3,449,507
- **University Student "Common Space" Budget Model Space Cost Distributed**: $702,174
- **Total Costs**: $2,462,465

### Net Surplus or Deficit

- **Net Surplus or Deficit**: $486,135
- **Ending Position - appropriation**: $305,218
- **Outstanding Mortgage Balance, end of year (based on 40-year Mortgage)**: $32,582,420

### Midwestern University Net Asset Improvement or Reduction

- **Midwestern University Net Asset Improvement or Reduction**: $52,210,542

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Full Yr Oper: $1,900,054

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### Appendix 1a and 1b (Pulse Expansion and Additional Gym, plus Student Space Expansion) Proforma 2024-2032

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<tr>
<th>Assumptions</th>
<th>2024</th>
<th>2025</th>
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<tr>
<td>**Business Case</td>
<td>[Athletics: Recreation</td>
<td>Space Expansion]**</td>
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<tr>
<td><strong>Appendix 1a and 1b Proforma</strong></td>
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<tr>
<td><strong>New DIAC Expansion - Pulse, Gym, Studio Space + Student Community Space</strong></td>
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<tr>
<td>University Current Bank Loan Rate * Weighted Average Cost of Capital</td>
<td>5.75%</td>
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<tr>
<td><strong>GDIAC Capital Fee Increase (likely 1.25% to 3% per year depending on market)</strong></td>
<td>1.75%</td>
<td>1.75%</td>
<td>1.75%</td>
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<tr>
<td><strong>Cost Inflation</strong></td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
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<td><strong>Expansion Capital Fee - New DIAC Expansion Only - Student Community Space</strong></td>
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<td>$1,099</td>
<td>$1,099</td>
<td>$1,099</td>
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<td>$1,099</td>
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<td><strong>Student Community Space (sq. ft)</strong></td>
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<tr>
<td><strong>Total Capital Cost</strong></td>
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<td><strong>Incurring Revenue (Annual)</strong></td>
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<tr>
<td><strong>Graduate Student Fees (Existing DIAC Capital Fee) - Cost Incl. Inc. rate</strong></td>
<td>$134,586</td>
<td>$134,586</td>
<td>$134,586</td>
<td>$134,586</td>
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<td>$134,586</td>
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<tr>
<td><strong>Community Memberships (static over 40 years conservative)</strong></td>
<td>$50,000</td>
<td>$50,000</td>
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<tr>
<td><strong>University Student &quot;Common Space&quot; Budget Model Space Cost Distributed</strong></td>
<td>$1,117,730</td>
<td>$1,117,730</td>
<td>$1,117,730</td>
<td>$1,117,730</td>
<td>$1,117,730</td>
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<tr>
<td><strong>University Contributions ($5 million; Capital Fund/over $5 million; University Fund)</strong></td>
<td>$7,007,909</td>
<td>$7,007,909</td>
<td>$7,007,909</td>
<td>$7,007,909</td>
<td>$7,007,909</td>
<td>$7,007,909</td>
<td>$7,007,909</td>
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<tr>
<td><strong>Total Revenue</strong></td>
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<td>$7,702,909</td>
<td>$7,702,909</td>
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<td>$7,702,909</td>
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<td><strong>Costs</strong></td>
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<tr>
<td><strong>Facilities Cost (Existing DIAC)</strong></td>
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<td>$1,045,486</td>
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<td><strong>Equipment Provision</strong></td>
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<td><strong>Staffing</strong></td>
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<tr>
<td><strong>Mortgage Payable (DIAC Expansion + Student Community Space)</strong></td>
<td>$3,446,578</td>
<td>$3,446,578</td>
<td>$3,446,578</td>
<td>$3,446,578</td>
<td>$3,446,578</td>
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</tr>
<tr>
<td><strong>University Student &quot;Common Space&quot; Budget Model Space Cost Distributed</strong></td>
<td>$1,117,730</td>
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<tr>
<td><strong>University Contributions ($5 million; Capital Fund/over $5 million; University Fund)</strong></td>
<td>$7,007,909</td>
<td>$7,007,909</td>
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<tr>
<td><strong>Total Costs</strong></td>
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<td>$7,707,909</td>
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<tr>
<td><strong>Net Surplus or Deficit</strong></td>
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<td>-$685,000</td>
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<td>-$685,000</td>
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<tr>
<td><strong>Outstanding Mortgage Balance, end of year (based on 40-year Mortgage)</strong></td>
<td>-$51,975,330</td>
<td>-$51,975,330</td>
<td>-$51,975,330</td>
<td>-$51,975,330</td>
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<tr>
<td><strong>McMaster University Net Asset Improvement or Reduction</strong></td>
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<td>-$52,239,332</td>
<td>-$52,239,332</td>
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Appendix 1a and 1b (Pulse Expansion and Additional Gym, plus Student Space Expansion) Proforma 2033-2041

<table>
<thead>
<tr>
<th>Appendix 1a and 1b Proforma</th>
<th>New DBAC Expansion - Pulse, Gym, Studio Space + Student Community Space</th>
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<tbody>
<tr>
<td><strong>University Central Bank Loan Rate</strong></td>
<td>5.75%</td>
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<td><strong>Assumptions</strong></td>
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<tr>
<td><strong>Student Growth</strong></td>
<td>3.75%</td>
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<tr>
<td><strong>Cost Inflation</strong></td>
<td>2.00%</td>
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<tr>
<td><strong>Existing DBAC Capital Fee - Undergrad (per unit) - 2016-2017</strong></td>
<td>$4.72</td>
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<tr>
<td><strong>New DBAC Expansion Fee - Student Community</strong></td>
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<tr>
<td><strong>Existing DBAC Capital Fee - Grad (per term) - 2016-2017</strong></td>
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<tr>
<td><strong>Student (FTE) - 2016-2019</strong></td>
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<tr>
<td><strong>Incremental Facilities Cost - New DBAC Expansion</strong></td>
<td>$1,095,858</td>
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<tr>
<td><strong>Incremental Facilities Cost - Student Community Space</strong></td>
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<tr>
<td><strong>New DBAC Expansion - Pulse &amp; Gym Expansion Size (sq ft)</strong></td>
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<td><strong>Student Community Space (sq ft)</strong></td>
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<td><strong>Total Capital Cost</strong></td>
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<th><strong>Income Revenue (Annual)</strong></th>
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<td><strong>Student Fees (Existing DBAC Capital Fee) - Undergrad</strong></td>
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<td><strong>Student Fees (Expansion Capital Fee) - Undergrad</strong></td>
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<tr>
<td><strong>Graduate Student Fees (Existing DBAC Capital Fee) - Cost infl. Inc. rate</strong></td>
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<tr>
<td><strong>Community Memberships (Static over 40 years conservative)</strong></td>
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<tr>
<td><strong>University Student &quot;Common Space&quot; Budget Model Space Cost Distributed</strong></td>
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<tr>
<td><strong>University Contributions ($5 million: Capital Fund/over $5RYS) + $5 million: University Fund</strong></td>
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<td><strong>Total Revenue</strong></td>
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<th><strong>Outflow Expenses (Annual)</strong></th>
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<tr>
<td><strong>Mortgage Payable (Existing DBAC)</strong></td>
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<tr>
<td><strong>Facilities Cost (Existing DBAC)</strong></td>
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<tr>
<td><strong>Equipment Provision</strong></td>
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<tr>
<td><strong>Staying</strong></td>
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<td><strong>Supplies &amp; Maintenance</strong></td>
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<td><strong>Mortgage Payable (DBAC Expansion + Student Community Space)</strong></td>
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<td><strong>University Student &quot;Common Space&quot; Budget Model Space Cost Distributed</strong></td>
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<td><strong>Net Surplus or Deficit</strong></td>
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<th><strong>Ending Position: appropriation</strong></th>
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<td><strong>Outstanding Mortgage Balance, end of year (based on 40-year Mortgage)</strong></td>
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<tr>
<td><strong>McMaster University Net Asset Improvement or Reduction</strong></td>
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### Appendix 1a and 1b (Pulse Expansion and Additional Gym, plus Student Space Expansion) Proforma 2042-2050

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<tr>
<td>Student Fees (Existing DBAC Fee) - Undergrad</td>
<td>$4,887,908</td>
<td>$4,972,836</td>
<td>$5,059,861</td>
<td>$5,148,808</td>
<td>$5,239,506</td>
<td>$5,330,179</td>
<td>$5,423,657</td>
<td>$5,518,368</td>
<td>$5,614,939</td>
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<td>$2,909,822</td>
<td>$2,960,744</td>
<td>$3,012,557</td>
<td>$3,065,276</td>
<td>$3,118,919</td>
<td>$3,173,500</td>
<td>$3,229,036</td>
<td>$3,285,544</td>
<td>$3,343,043</td>
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<td>Graduate Student Fees (Existing DBAC Fee) - Cost Infl. Inc. rate</td>
<td>$193,837</td>
<td>$198,683</td>
<td>$203,650</td>
<td>$208,742</td>
<td>$213,960</td>
<td>$219,309</td>
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<td>$236,172</td>
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<td>Community Memberships (Statutory over 40 years conservative)</td>
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<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
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<td>$50,000</td>
</tr>
<tr>
<td>University Student &quot;Common Space&quot; Budget Model Space Cost Distributed</td>
<td>$1,612,802</td>
<td>$1,652,384</td>
<td>$1,693,694</td>
<td>$1,736,036</td>
<td>$1,779,437</td>
<td>$1,823,923</td>
<td>$1,869,521</td>
<td>$1,916,299</td>
<td>$1,964,166</td>
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<tr>
<td>University Contributions (55 million Capital Fund/over YRS) + 55 million University Fund</td>
<td>$9,853,050</td>
<td>$9,854,647</td>
<td>$10,019,762</td>
<td>$10,208,643</td>
<td>$10,400,822</td>
<td>$10,596,911</td>
<td>$10,796,807</td>
<td>$11,000,583</td>
<td>$11,208,318</td>
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<td><strong>Total Revenue</strong></td>
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<tr>
<td>Mortgage Payable (Existing DBAC)</td>
<td>$1,688,839</td>
<td>$1,710,593</td>
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<td>$1,842,085</td>
<td>$1,888,138</td>
<td>$1,935,941</td>
<td>$1,983,725</td>
<td>$2,035,818</td>
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<td>Facilities Cost (Existing DBAC)</td>
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<td>$1,633,509</td>
<td>$1,664,597</td>
<td>$1,705,699</td>
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<td>$1,883,779</td>
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<td>$567,546</td>
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<td>$596,278</td>
<td>$611,183</td>
<td>$626,685</td>
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<td>Equipment Provision</td>
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<td>$431,427</td>
<td>$442,213</td>
<td>$453,268</td>
<td>$466,200</td>
<td>$478,215</td>
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<td>$500,329</td>
<td>$512,831</td>
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<td>University Student &quot;Common Space&quot; Budget Model Space Cost Distributed</td>
<td>$1,612,802</td>
<td>$1,652,384</td>
<td>$1,693,694</td>
<td>$1,736,036</td>
<td>$1,779,437</td>
<td>$1,823,923</td>
<td>$1,869,521</td>
<td>$1,916,299</td>
<td>$1,964,166</td>
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<tr>
<td><strong>Total Costs</strong></td>
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<tr>
<td><strong>Net Surplus or Deficit</strong></td>
<td>$71,413</td>
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<td>McMaster University Net Asset Improvement orReduction</td>
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<td>-$5,646,766</td>
<td>-$3,754,125</td>
<td>-$1,717,595</td>
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## Appendix 1a and 1b (Pulse Expansion and Additional Gym, plus Student Space Expansion) Proforma 2051-2060

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<th>Year</th>
<th>2051</th>
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<th>2060</th>
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</thead>
<tbody>
<tr>
<td><strong>New DBAC Expansion - Pulse, Gym, Studio Space + Student Community Space</strong></td>
<td></td>
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</tr>
<tr>
<td>DBAC Capital Fee (increase: likely 1.5% to 3% per year depending on market (CI))</td>
<td>1.75%</td>
<td>1.75%</td>
<td>1.75%</td>
<td>1.75%</td>
<td>1.75%</td>
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<td>1.75%</td>
<td>1.75%</td>
<td>1.75%</td>
</tr>
<tr>
<td>Cost Inflation</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td><strong>Existing DBAC Capital Fee - Undergrad (per unit) - 2016-2017</strong></td>
<td>$4.72</td>
<td>$53.53</td>
<td>$53.57</td>
<td>$262.48</td>
<td>$267.07</td>
<td>$271.75</td>
<td>$275.66</td>
<td>$275.67</td>
<td>$280.57</td>
<td>$288.20</td>
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<tr>
<td><strong>Expansion Capital Fee - New DBAC Expansion Only + Student Community Space</strong></td>
<td>$7.99</td>
<td>$150.51</td>
<td>$153.59</td>
<td>$158.28</td>
<td>$159.61</td>
<td>$161.79</td>
<td>$164.63</td>
<td>$167.11</td>
<td>$170.44</td>
<td>$175.42</td>
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<tr>
<td><strong>Costs Per Term - 2016-2017</strong></td>
<td>$12.65</td>
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<tr>
<td>Incremental Facilities Cost - New DBAC Expansion</td>
<td>$1,034,856</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental Facilities Cost - Student Community Space</td>
<td>$1,055,265</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental DBAC Expansion - Pulse &amp; Gym Expansion (per unit)</td>
<td>$52,854</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Community Space (sq ft)</td>
<td>40,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Total Capital Cost</strong></td>
<td>$50,462,908</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Outflows (Annual)

- **Student Fees (Existing DBAC Capital Fee): Undergrad**
- **Student Fees (Expansion Capital Fee): Undergrad**
- **Graduate Student Fees (Existing DBAC Capital Fee): Cost inc. line rate**
- **Community Membership (static over 40 years conservative)**
- **University Student "Common Space" Budget Model Space Cost Distributed (NETS in Budget Model/Book)**
- **University Contributions (55 million Capital Fund/overSTIRs + 55 million University Fund)**

### Total Revenue

$14,420,091

### Total Costs

$11,107,674

### Net Surplus or Deficit

$3,312,417

### Outstanding Mortgage Balance, end of year (based on 45-year Mortgage)

$23,710,062

### McMaster University Net Asset Improvement or Reduction

$-27,280,478

### Notes

1. **Business Case**: Athletics: Recreation | Phase 1 Space Expansion
2. **Pulse Expansion and Additional Gym, plus Student Space Expansion**
3. **Proforma 2051-2060**
4. **Outflows (Annual)**
   - Mortgage Payable (Existing DBAC)
   - Facilities Cost (Existing DBAC)
   - Facilities Cost (DBAC Expansion)
   - Equipment Provision
   - Staffing
   - Supplies & Maintenance
   - Mortgage Payable (DBAC Expansion + Student Community Space)
   - University Student "Common Space" Budget Model Space Cost Distributed
5. **Total Costs**
   - $11,107,674
   - $11,299,126
   - $11,495,365
   - $11,695,009
   - $11,902,682
   - $12,110,010
   - $12,310,020
   - $12,510,020
6. **Net Surplus or Deficit**
   - $3,312,417
   - $3,315,876
   - $3,561,721
   - $3,833,893
   - $4,050,520
   - $4,286,400
   - $4,599,244
   - $4,689,163
7. **Outstanding Mortgage Balance, end of year (based on 45-year Mortgage)**
   - $23,710,062
8. **McMaster University Net Asset Improvement or Reduction**
   - $-27,280,478
   - $-24,857,960
   - $-32,291,662
   - $-13,575,330
   - $-16,702,269
   - $-51,665,323
   - $-10,457,053
   - $-7,007,810
   - $-9,496,694
   - $731,477
# Appendix 1a and 1b Amortization Schedule

## Appendix 1a and 1b Pulse Expansion, Additional Gym Loan, and Student Community Space Expansion Amortization Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Opening Balance</th>
<th>Interest</th>
<th>Payment</th>
<th>Closing Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 1, 2021</td>
<td>(53,582,430)</td>
<td></td>
<td></td>
<td>(53,582,430)</td>
</tr>
<tr>
<td>Oct 1, 2022</td>
<td>(52,513,833)</td>
<td>3,080,909</td>
<td>3,449,387</td>
<td>(52,213,853)</td>
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<td>Oct 1, 2023</td>
<td>(52,824,041)</td>
<td>2,937,382</td>
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<td>(52,411,837)</td>
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<td>Oct 1, 2024</td>
<td>(52,411,837)</td>
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<td>3,449,387</td>
<td>(51,975,930)</td>
</tr>
<tr>
<td>Oct 1, 2025</td>
<td>(51,975,930)</td>
<td>2,988,615</td>
<td>3,449,387</td>
<td>(51,514,959)</td>
</tr>
<tr>
<td>Oct 1, 2026</td>
<td>(51,514,959)</td>
<td>2,962,110</td>
<td>3,449,387</td>
<td>(51,027,882)</td>
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<tr>
<td>Oct 1, 2027</td>
<td>(51,027,882)</td>
<td>2,934,858</td>
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<td>(50,511,976)</td>
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<tr>
<td>Oct 1, 2028</td>
<td>(50,511,976)</td>
<td>2,906,459</td>
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<td>(49,986,827)</td>
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<tr>
<td>Oct 1, 2029</td>
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<td>2,873,095</td>
<td>3,449,387</td>
<td>(49,390,133)</td>
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<td>Oct 1, 2030</td>
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<td>3,449,387</td>
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<tr>
<td>Oct 1, 2031</td>
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<td>(48,135,993)</td>
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<tr>
<td>Oct 1, 2032</td>
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<td>2,767,820</td>
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<td>(47,454,226)</td>
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<tr>
<td>Oct 1, 2033</td>
<td>(47,454,226)</td>
<td>2,728,618</td>
<td>3,449,387</td>
<td>(46,733,257)</td>
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<td>Oct 1, 2034</td>
<td>(46,733,257)</td>
<td>2,687,162</td>
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<td>(46,005,892)</td>
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<tr>
<td>Oct 1, 2035</td>
<td>(45,970,832)</td>
<td>2,643,323</td>
<td>3,449,387</td>
<td>(45,146,568)</td>
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<tr>
<td>Oct 1, 2036</td>
<td>(45,146,568)</td>
<td>2,598,985</td>
<td>3,449,387</td>
<td>(44,311,944)</td>
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<tr>
<td>Oct 1, 2037</td>
<td>(44,311,944)</td>
<td>2,547,973</td>
<td>3,449,387</td>
<td>(43,410,294)</td>
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<tr>
<td>Oct 1, 2038</td>
<td>(43,410,294)</td>
<td>2,496,092</td>
<td>3,449,387</td>
<td>(42,595,399)</td>
</tr>
<tr>
<td>Oct 1, 2039</td>
<td>(42,595,399)</td>
<td>2,441,266</td>
<td>3,449,387</td>
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<tr>
<td>Oct 1, 2040</td>
<td>(41,448,777)</td>
<td>2,383,287</td>
<td>3,449,387</td>
<td>(40,382,178)</td>
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</tbody>
</table>

## Appendix 1b: Loan Amortization Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Opening Balance</th>
<th>Interest</th>
<th>Payment</th>
<th>Closing Balance</th>
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</thead>
<tbody>
<tr>
<td>Oct 1, 2041</td>
<td>(40,382,178)</td>
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<td>(40,382,178)</td>
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<tr>
<td>Oct 1, 2042</td>
<td>(39,254,566)</td>
<td>2,231,975</td>
<td>3,449,387</td>
<td>(35,062,117)</td>
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<tr>
<td>Oct 1, 2043</td>
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<td>2,188,572</td>
<td>3,449,387</td>
<td>(33,601,022)</td>
</tr>
<tr>
<td>Oct 1, 2044</td>
<td>(36,801,022)</td>
<td>2,116,063</td>
<td>3,449,387</td>
<td>(33,601,022)</td>
</tr>
<tr>
<td>Oct 1, 2045</td>
<td>(35,467,578)</td>
<td>2,039,386</td>
<td>3,449,387</td>
<td>(31,957,377)</td>
</tr>
<tr>
<td>Oct 1, 2046</td>
<td>(34,057,377)</td>
<td>1,938,289</td>
<td>3,449,387</td>
<td>(30,356,089)</td>
</tr>
<tr>
<td>Oct 1, 2047</td>
<td>(32,566,089)</td>
<td>1,872,350</td>
<td>3,449,387</td>
<td>(29,098,022)</td>
</tr>
<tr>
<td>Oct 1, 2048</td>
<td>(30,599,022)</td>
<td>1,811,871</td>
<td>3,449,387</td>
<td>(29,331,336)</td>
</tr>
<tr>
<td>Oct 1, 2049</td>
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<td>1,755,977</td>
<td>3,449,387</td>
<td>(27,557,726)</td>
</tr>
<tr>
<td>Oct 1, 2050</td>
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<td>1,694,596</td>
<td>3,449,387</td>
<td>(25,692,708)</td>
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<tr>
<td>Oct 1, 2051</td>
<td>(25,692,708)</td>
<td>1,633,331</td>
<td>3,449,387</td>
<td>(23,720,542)</td>
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<tr>
<td>Oct 1, 2052</td>
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<td>(21,334,791)</td>
</tr>
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<td>(19,429,205)</td>
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<tr>
<td>Oct 1, 2054</td>
<td>(19,429,205)</td>
<td>1,417,179</td>
<td>3,449,387</td>
<td>(17,060,797)</td>
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<tr>
<td>Oct 1, 2055</td>
<td>(17,060,797)</td>
<td>1,340,391</td>
<td>3,449,387</td>
<td>(14,630,216)</td>
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<td>Oct 1, 2056</td>
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<td>1,263,241</td>
<td>3,449,387</td>
<td>(12,021,930)</td>
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<td>Oct 1, 2057</td>
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<td>1,186,261</td>
<td>3,449,387</td>
<td>(9,563,641)</td>
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<td>Oct 1, 2058</td>
<td>(9,563,641)</td>
<td>1,110,852</td>
<td>3,449,387</td>
<td>(6,146,674)</td>
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<tr>
<td>Oct 1, 2059</td>
<td>(6,146,674)</td>
<td>1,036,934</td>
<td>3,449,387</td>
<td>(2,622,021)</td>
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<td>Oct 1, 2060</td>
<td>(3,449,387)</td>
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</tbody>
</table>
## Appendix 1a and 1b Operating Costs Combined

### Appendix 1a Incremental Operating Costs

<table>
<thead>
<tr>
<th>Net Expansion Space</th>
<th>$</th>
<th>sq.ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>0.76</td>
<td>29,869</td>
</tr>
<tr>
<td>Logistics and Mail Services</td>
<td>0.38</td>
<td>14,934</td>
</tr>
<tr>
<td>Custodial Services</td>
<td>2.13</td>
<td>83,711</td>
</tr>
<tr>
<td>Facilities Maintenance Service</td>
<td>3.00</td>
<td>117,903</td>
</tr>
<tr>
<td>Design &amp; construction</td>
<td>0.36</td>
<td>14,148</td>
</tr>
<tr>
<td>Grounds</td>
<td>0.45</td>
<td>17,685</td>
</tr>
<tr>
<td>Facilities Central Admin OH</td>
<td>1.39</td>
<td>54,628</td>
</tr>
<tr>
<td>Utilities</td>
<td>11.01</td>
<td>432,704</td>
</tr>
<tr>
<td>Renovation Contingency</td>
<td>0.46</td>
<td>18,078</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19.94</strong></td>
<td><strong>783,662</strong></td>
</tr>
</tbody>
</table>

Deferred Maintenance: $4.88 | 191,780
Total Facilities Rate: $14.82 | 975,451
With Inflation to 2021: $1,084,556
Year 2021 = 8 / 12s: $689,904

### Appendix 1b Incremental Operating Costs

<table>
<thead>
<tr>
<th>Expansion Space</th>
<th>$</th>
<th>sq.ft.</th>
</tr>
</thead>
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<td>Buildings</td>
<td>0.76</td>
<td>30,400</td>
</tr>
<tr>
<td>Logistics and Mail Services</td>
<td>0.38</td>
<td>15,200</td>
</tr>
<tr>
<td>Custodial Services</td>
<td>2.13</td>
<td>85,200</td>
</tr>
<tr>
<td>Facilities Maintenance Service</td>
<td>3.00</td>
<td>120,000</td>
</tr>
<tr>
<td>Design &amp; construction</td>
<td>0.36</td>
<td>14,400</td>
</tr>
<tr>
<td>Grounds</td>
<td>0.45</td>
<td>18,000</td>
</tr>
<tr>
<td>Facilities Central Admin OH</td>
<td>1.39</td>
<td>55,600</td>
</tr>
<tr>
<td>Utilities</td>
<td>11.01</td>
<td>440,400</td>
</tr>
<tr>
<td>Renovation Contingency</td>
<td>0.46</td>
<td>18,400</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19.94</strong></td>
<td><strong>797,600</strong></td>
</tr>
</tbody>
</table>

Deferred Maintenance: $4.88 | 195,200
Total Facilities Rate: $14.82 | 992,800
With Inflation to 2021: $1,053,262
Year 2021 = 8 / 12s: $702,174

### Appendix 1a and 1b Combined Operating Costs

<table>
<thead>
<tr>
<th>Net Expansion Space</th>
<th>79,301</th>
<th>sq.ft.</th>
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</thead>
<tbody>
<tr>
<td>Buildings</td>
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<td>60,269</td>
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<tr>
<td>Logistics and Mail Services</td>
<td>0.38</td>
<td>30,134</td>
</tr>
<tr>
<td>Custodial Services</td>
<td>2.13</td>
<td>168,511</td>
</tr>
<tr>
<td>Facilities Maintenance Service</td>
<td>3.00</td>
<td>237,903</td>
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<tr>
<td>Design &amp; construction</td>
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<td>Grounds</td>
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<td>35,685</td>
</tr>
<tr>
<td>Facilities Central Admin OH</td>
<td>1.39</td>
<td>110,228</td>
</tr>
<tr>
<td>Utilities</td>
<td>11.01</td>
<td>873,104</td>
</tr>
<tr>
<td>Renovation Contingency</td>
<td>0.46</td>
<td>36,478</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19.94</strong></td>
<td><strong>1,581,262</strong></td>
</tr>
</tbody>
</table>

Deferred Maintenance: $4.88 | 336,989
Total Facilities Rate: $24.82 | 1,968,251
With Inflation to 2021: $2,088,117
Year 2021 = 8 / 12s: $1,392,078.20
### Appendix 1a and 1b Cash Flow

#### Cashflow Schedule - Pulse and Student Space

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td>49,946,748</td>
<td>2,497,337</td>
<td>4,994,675</td>
<td>29,968,049</td>
<td>20,084,690</td>
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<tr>
<td><strong>Furniture</strong></td>
<td>7,298,003</td>
<td>321,283</td>
<td>2,743,018</td>
<td>2,816,178</td>
<td>5,880,479</td>
</tr>
<tr>
<td><strong>Funding Available (Proforma)</strong></td>
<td>2,457,237</td>
<td>4,673,292</td>
<td>27,225,031</td>
<td>17,268,512</td>
<td>51,664,272</td>
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<tr>
<td><strong>Bridge Financing</strong></td>
<td>59,947</td>
<td>144,414</td>
<td>640,857</td>
<td>902,688</td>
<td>1,737,905</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td>2,547,284</td>
<td>4,817,805</td>
<td>27,865,888</td>
<td>18,171,200</td>
<td>53,402,177</td>
</tr>
</tbody>
</table>

**Capital Costs Including Financing Costs**: 59,282,655

**Estimated Cash outflow %**
- 2016/17 - 5%
- 2017/18 - 10%
- 2018/19 - 60%
- 2019/20 - 25%
Recap of Detailed Assumptions

Sources of Revenue

1. **Student Fees (Existing DBAC Capital Fee) – Undergraduates:** The existing DBAC fee approved in 2003 will continue to be a significant source of revenue for the Pulse and Gym expansion once the existing DBAC mortgage is paid in 2023. The current DBAC fee of $141.60 ($4.72 per unit) is assumed to grow at a rate of 1.5% throughout the 40 year proforma period. The annual mortgage payment associated with the previous DBAC expansion is $1,531,710 and once retired (in 2023) all fees, along with other revenues will be pooled to cover operating costs and the new mortgage related to the Phase 1 approved expansion scope.

2. **Student Fees (Expansion Capital Fee) – Undergraduates:**

   **Phase 1a and 1b DBAC Expansion + Student Community Space** - The cost of the Pulse and Gym expansion in addition to the Student Community Space totals $59.4 million. An increase to the current DBAC fee of $89.70 (from $118.50 in the original business case) or $2.99 per unit (formerly $3.95 per unit) will be implemented in year 2021 after completion if this option is successful in the referendum. This fee will increase by approximately 1.75% yearly.

3. **Graduate Student Fees (Existing DBAC Capital Fee) – Graduates:** Graduate students pay $12.19 per term per student. Total fees projected in 2017 total $117,000. This fee is assumed to increase at the same rate as cost inflation.

4. **Community Membership** – An amount of $50,000 will be allocated from Community memberships yearly to assist in the financing of the plan.

5. **Rental Income** – this revenue line has been left blank for both sets of proforma’s. Although rental income is possible it is difficult to predict and the year-over-year variability of this income makes it more conservative to leave out of the projections. If rental (or event) income were substantial it would be determined by Athletics and Recreation, in conjunction with Student Affairs, on how best to apply those funds (either programmes or additional loan repayment to accelerate loan retirement).
6. University Contributions – Capital Funding and Ongoing Facilities Operating Costs

An additional upfront project contribution from the University is included in the form of $10 million. The University contribution consists of two parts, first, a $1 million per year for five years additional contribution from the University Fund into the McMaster Capital Reserve Fund that will be specifically dedicated to this project (noting the University Fund makes an annual contribution to capital, which will be increased by $1 million for five years in direct support of this project). Secondly, another $1 million per year for five years will be contributed from the McMaster Capital Reserve Fund representing a discount on the original project loan being provided over the initial five years of the project rather than spread over the 40 year term loan. The cost of the yearly facilities operating costs relating to the Pulse and the Gym will continue to be paid by the students and are included in the business plan. The facilities operating costs relating to the Student Community Space “common space” will be distributed to activity units in the Budget Model (activity units are Faculties). This amount is estimated to be $1.1 million commencing in 2022.

Expenditures

1. **Mortgage Payable (Existing DBAC):** $1,531,710 payable is allocated to the existing DBAC mortgage based off a previously approved 15-year amortization schedule. This mortgage will be paid off by year 2023, with the final year payable equal to $646,163.

2. **Mortgage Payable (DBAC Expansion and Student Community Space):** $3,437,982 payable is allocated to the new mortgage based on a 40 year amortization schedule. This mortgage will be paid in the year 2060.

3. **Facilities Operating Costs**

   **Existing DBAC Expansion (2007)** - The Business Case incorporates 50% of the facilities operating costs for the existing DBAC expansion. Students agreed to pay 50% of these costs with the University paying the other 50%. These costs will continue to be paid by the existing DBAC fee estimated at $984 thousand in 2017.

   **Pulse and Gym Expansion** – The Business Case incorporates 100% of the facilities operating costs relating to Pulse Gym Expansion. The calculation is based on the incremental space addition of 39,301 GSF. The proposal being brought forward to students includes full payment of these costs estimated at $1 million. These costs have been incorporated in the calculation for the increase needed in the
DBAC fee.

**Student Community Space** – The Business Case incorporates 100% of the facilities operating costs relating to the Student Space Community Space as a University funded cost.

4. **Incremental Operating Costs (Pulse and Gym Expansion):** Incremental costs associated with the expansion of the Pulse and gym. Below are the expenses that are anticipated to increase in year 2021.

   i. **Staffing:** Additional $275,000 is anticipated in staffing expenses which will increase at the (cost) inflationary rate of 2.0% per year.

   ii. **Supplies and Maintenance:** Additional $200,000 is anticipated in supplies and maintenance expenses which will increase at the (cost) inflationary rate of 2.0% per year.

   iii. **Equipment Replacement:** An annual provision of $260k is included under Option 1 relating to DBAC Expansion. This annual provision is increased to $360k under Option 2.
March 14, 2017

To: Planning and Resources Committee

From: Senior Manager, Total Rewards, Human Resources
Sponsor: AVP (Administration) & CFO

Subject: 2016 Hourly Pension Plan Valuation

---

**Background**

In accordance with the requirements of the Ontario Pension Benefits Act and Regulations thereunder, as well as the Income Tax Act, McMaster University is required to submit an actuarial valuation for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including Divinity College (the “Hourly Pension Plan”) as at July 1, 2016. This valuation is due to be filed with the Financial Services Commission of Ontario (FSCO) and the Canada Revenue Agency (CRA) by March 31, 2017. This memo provides the Planning and Resources Committee with details of the most recent valuation, including the funded status of the Hourly Pension Plan and resultant funding requirements.

The Regulations to the Pension Benefits Act were amended in May 2011, and further amended in November 2013, May 2014 and November 2016. The amendments include solvency funding relief measures that were introduced for pension plans in the broader public sector. In accordance with these amendments, McMaster’s Hourly Pension Plan received both Stage 1 and Stage 2 Solvency Relief. The Amendments of November 2016 introduced further solvency funding relief measures. The University has elected to apply these solvency funding relief measures, consistent with its past practice obtaining Stage 1 and 2 relief, with direct impact on the Hourly Pension Plan’s July 1, 2016 Actuarial Valuation.

**2016 Valuation Report**

The Hourly Pension Plan Retirement Committee (the “Hourly Committee”) reviewed and recommended for approval the actuarial methods and assumptions which would be used in the July 1, 2016 report during its meeting on November 8, 2016. At its subsequent meeting on February 27, 2017, the Hourly Committee reviewed the summary Report on the Actuarial Valuation for Funding Purposes outlining the financial position of the Plan as at July 1, 2016, and funding requirements. The draft valuation report is provided as Attachment A.

The highlights of the report are outlined below:

**Changes since the Prior Valuation**

- Increased employee contribution rates for all employee groups achieved through collective bargaining. Current Employee Contribution Rates on Regular Annual Salary are 6.5% of the annual wage rate up to YMPE, and 8.75% in excess of YMPE. Rates for all employee groups will increase to 7% of the annual wage rate up to the YMPE, and 10% in excess of the YMPE effective July 15, 2018.
- Changes in actuarial assumptions based on market, actual trend information, and/or prescribed rates defined by acceptable actuarial methodology:
  - Reduction in the Going Concern discount rate from 5.5% per year to 5.00% per year.
  - Reduction in pensionable earnings increases from 3.50% to 3.25%.
  - Decrease on interest on employee contributions from 5.75% to 5.00%.
  - Reduction in the solvency discount rate from 3.10% per year to 1.70% per year for first 10 years and from 4.3% to 3.1% per year thereafter (prescribed approach).
Temporary Solvency Funding Relief For Ontario Universities

- Change the annuity proxy from 3.49% per year on Solvency and Wind-up to 2.76% per year (prescribed approach).
- Change the solvency mortality table from UP94 generational to CPM2014 with fully generational improvements using CPM Scale B to reflect longer life expectancy of the Members.

Current Service Cost and Funding Requirements

- Using the revised assumptions, the Plan reported a $20.4 million deficit on a solvency basis (versus $16.1 million in 2014) attributable to the decrease in interest rates.
- The plan reported a $1.6 million Going Concern surplus (versus a $5.6 million Going Concern deficit in 2014) due to stronger asset returns than liability growth since the last valuation.
- The current service cost as a percentage of employee contributions has increased from 116% to 138% due to changes in the demographics of the plan and changes in assumptions.
- In addition to the Current Service Cost, the University will be required to pay $371 thousand in Special Payments for the period July 1, 2016 to June 30, 2017. In addition, the University will be required to pay $1.2 million per year in Special Payments from July 1, 2017 to June 30, 2019.
- Departmental benefit charges for the Hourly Pension Plan, as approved by the Budget Committee, have been levied at 340% of employee contributions since May 1, 2010. This levy is reviewed annually and additional funding sources beyond increasing the levy may be necessary as more active members retire from the closed hourly plan.

Filing

- The July 2016 actuarial valuation must be filed with the Financial Services Commission of Ontario (“FSCO”) and the CRA by March 31, 2017. The next valuation of the Plan will be required as of July 1, 2019.

The Hourly Pension Plan Retirement Committee discussed the results with its actuary, Mercer, and recommends to the Planning and Resources Committee that the 2016 Actuarial Valuation Report be submitted to FSCO and the CRA, including the application of the updated November 2016 solvency rules.

Recommendation

That the Planning and Resources Committee approve, for recommendation to the Board of Governors, that the results of the Actuarial Valuation for Funding Purposes as at July 1, 2016 for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including McMaster Divinity College be filed with the Financial Services Commission of Ontario and the Canada Revenue Agency, which includes application of the November 2016 solvency rules.

Planning and Resources Committee – FOR APPROVAL
March 14, 2017
THE CONTRIBUTORY PENSION PLAN FOR
HOURLY-RATED EMPLOYEES OF
MCMASTER UNIVERSITY INCLUDING
MCMASTER DIVINITY COLLEGE
REPORT ON THE ACTUARIAL VALUATION FOR
FUNDING PURPOSES AS AT JULY 1, 2016

MARCH 2017

DRAFT

Financial Services Commission of Ontario Registration Number: 0215418
Canada Revenue Agency Registration Number: 0215418
Note to reader regarding actuarial valuations:

This valuation report may not be relied upon for any purpose other than those explicitly noted in the Introduction, nor may it be relied upon by any party other than the parties noted in the Introduction. Mercer is not responsible for the consequences of any other use. A valuation report is a snapshot of a plan’s estimated financial condition at a particular point in time; it does not predict a pension plan’s future financial condition or its ability to pay benefits in the future. If maintained indefinitely, a plan’s total cost will depend on a number of factors, including the amount of benefits the plan pays, the number of people paid benefits, the amount of plan expenses, and the amount earned on any assets invested to pay the benefits. These amounts and other variables are uncertain and unknowable at the valuation date. The content of the report may not be modified, incorporated into or used in other material, sold or otherwise provided, in whole or in part, to any other person or entity, without Mercer’s permission. All parts of this report, including any documents incorporated by reference, are integral to understanding and explaining its contents; no part may be taken out of context, used, or relied upon without reference to the report as a whole.

To prepare the results in this report, actuarial assumptions are used to model a single scenario from a range of possibilities for each valuation basis. The results based on that single scenario are included in this report. However, the future is uncertain and the plan’s actual experience will differ from those assumptions; these differences may be significant or material. Different assumptions or scenarios within the range of possibilities may also be reasonable, and results based on those assumptions would be different. Furthermore, actuarial assumptions may be changed from one valuation to the next because of changes in regulatory and professional requirements, developments in case law, plan experience, changes in expectations about the future, and other factors.

The valuation results shown in this report also illustrate the sensitivity to one of the key actuarial assumptions, the discount rate. We note that the results presented herein rely on many assumptions, all of which are subject to uncertainty, with a broad range of possible outcomes, and the results are sensitive to all the assumptions used in the valuation.

Should the plan be wound up, the going concern funded status and solvency financial position, if different from the wind-up financial position, become irrelevant. The hypothetical wind-up financial position estimates the financial position of the plan assuming it is wound up on the valuation date. Emerging experience will affect the wind-up financial position of the plan assuming it is wound up in the future. In fact, even if the plan were wound up on the valuation date, the financial position would continue to fluctuate until the benefits are fully settled.

Decisions about benefit changes, granting new benefits, investment policy, funding policy, benefit security, and/or benefit-related issues should not be made solely on the basis of this valuation, but only after careful consideration of alternative economic, financial, demographic, and societal factors, including financial scenarios that assume future sustained investment losses.

Funding calculations reflect our understanding of the requirements of the Pension Benefits Act of Ontario, the Income Tax Act, and related regulations that are effective as of the valuation date. Mercer is not a law firm, and the analysis presented in this report is not intended to be a legal opinion. You should consider securing the advice of legal counsel with respect to any legal matters related to this report.
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2. Introduction ............................................................................................................... 2
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Appendix B: Plan Assets
Appendix C: Methods and Assumptions – Going-Concern
Appendix D: Methods and Assumptions – Hypothetical Wind-up and Solvency
Appendix E: Membership Data
Appendix F: Summary of Plan Provisions
Appendix G: Employer Certification
Summary of Results ($000)

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoothed value of assets</td>
<td>$53,452</td>
<td>$41,068</td>
</tr>
<tr>
<td>Actuarial liability</td>
<td>51,871</td>
<td>46,637</td>
</tr>
<tr>
<td>Funding excess (shortfall)</td>
<td>$1,581</td>
<td>($5,569)</td>
</tr>
</tbody>
</table>

Solvency and Wind-Up Financial Position

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of assets</td>
<td>$52,761</td>
<td>$42,310</td>
</tr>
<tr>
<td>Less: Termination expenses and in-transit items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total wind-up liabilities</td>
<td>73,210</td>
<td>58,429</td>
</tr>
<tr>
<td>Solvency and wind-up excess (shortfall)</td>
<td>($20,449)</td>
<td>($16,119)</td>
</tr>
<tr>
<td>Transfer ratio</td>
<td>0.72</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Funding Requirements (annualised)\(^1\)

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total current service cost</td>
<td>$1,262</td>
<td>$1,393</td>
</tr>
<tr>
<td>Less: Estimated Member contributions</td>
<td>(531)</td>
<td>(644)</td>
</tr>
<tr>
<td>University current service cost</td>
<td>$731</td>
<td>$749</td>
</tr>
<tr>
<td>University current service cost as a percentage of members’ contributions</td>
<td>138%</td>
<td>116%</td>
</tr>
</tbody>
</table>

Minimum special payments

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td>-</td>
<td>$543</td>
</tr>
<tr>
<td>2014/2015</td>
<td>-</td>
<td>$587</td>
</tr>
<tr>
<td>2015/2016</td>
<td>-</td>
<td>$587</td>
</tr>
<tr>
<td>2016/2017</td>
<td></td>
<td>$371</td>
</tr>
<tr>
<td>2017/2018</td>
<td>$1,165</td>
<td></td>
</tr>
<tr>
<td>2018/2019</td>
<td>$1,165</td>
<td></td>
</tr>
</tbody>
</table>

Estimated minimum university contribution for year:

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td></td>
<td>$1,292</td>
</tr>
<tr>
<td>2014/2015</td>
<td></td>
<td>$1,337</td>
</tr>
<tr>
<td>2015/2016</td>
<td></td>
<td>$1,337</td>
</tr>
<tr>
<td>2016/2017</td>
<td>$1,102</td>
<td></td>
</tr>
<tr>
<td>2017/2018</td>
<td>$1,823</td>
<td></td>
</tr>
<tr>
<td>2018/2019</td>
<td>$1,757</td>
<td></td>
</tr>
</tbody>
</table>

Estimated maximum university contribution for the Plan year following the valuation date

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td>$21,180</td>
<td>$16,868</td>
</tr>
</tbody>
</table>

Next required valuation date

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/2014</td>
<td>July 1, 2019</td>
<td>July 1, 2016</td>
</tr>
</tbody>
</table>

\(^1\) Provided for reference purposes only. Contributions must be remitted to the Plan in accordance with the Minimum Funding Requirements and Maximum Eligible Contributions sections of this report.
Introduction

To McMaster University
At the request of McMaster University (the “University”), we have conducted an actuarial valuation of The Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including McMaster Divinity College (the “Plan”), sponsored by the University, as at the valuation date, July 1, 2016. We are pleased to present the results of the valuation.

Purpose
The purpose of this valuation is to determine:

β The funded status of the Plan as at July 1, 2016 on going concern, hypothetical wind-up and solvency bases,

β The minimum required funding contributions from July 1, 2016 in accordance with the Pension Benefits Act of Ontario and in accordance with the solvency funding relief measures applicable to pension plans in the broader public sector; and

β The maximum permissible funding contributions from July 1, 2016 in accordance with the Income Tax Act.

Funding Relief
The Regulations to the Pension Benefits Act were amended in May 2011 and further amended in November 2013, in May 2014 and in November 2016. The amendments include the solvency funding relief measures that were introduced for pension plans in the broader public sector. The solvency funding relief measures introduced in November 2016 allow the administrator of the plan to:

- defer the start of any new going concern special payment schedules by up to twelve months;
- make solvency special payments in each month not less than an amount which represents interest on 75% of the solvency deficiency as at the date of the first valuation report following the Stage 2 valuation report plus amortization of the remaining 25% of that solvency deficiency over 7 years;
- file the next funding valuation report with an effective date which is three years after the valuation date.

The University has elected to apply these solvency funding relief measures.
The information contained in this report was prepared for the internal use of the University and for filing with the Financial Services Commission of Ontario and with the Canada Revenue Agency, in connection with our actuarial valuation of the Plan. This report will be filed with the Financial Services Commission of Ontario and with the Canada Revenue Agency. This report is not intended or suitable for any other purpose.

In accordance with pension benefits legislation, the next actuarial valuation of the Plan will be required as at a date not later than July 1, 2019, or as at the date of an earlier amendment to the Plan.

**Terms of Engagement**

In accordance with our terms of engagement with the University our actuarial valuation of the Plan is based on the following material terms:

- It has been prepared in accordance with applicable pension legislation and actuarial standards of practice Canada.
- As instructed by the University, we have reflected a margin for adverse deviations in our going-concern valuation by reducing the going-concern discount rate by 0.25% per year.
- We have reflected the University’s decisions for determining the solvency funding requirements, summarized as follows:
  - The same plan wind-up scenario was hypothesized by both hypothetical wind-up and solvency valuations;
  - Although permissible, no benefits were excluded from the solvency liabilities;
  - The solvency financial position was determined on a market value basis;
  - Solvency relief measures have been applied as described above in the Funding Relief section.

See the Valuation Results – Solvency section of the report for more information.

**Events since the Last Valuation at July 1, 2013**

There have been no special events since the last valuation date.

This valuation reflects the provisions of the Plan as at July 1, 2016. The Plan has not been amended since the date of the previous valuation, and we are not aware of any pending definitive or virtually definitive amendments coming into effect during the period covered by this report. The Plan provisions are summarized in Appendix F.

**Assumptions**

We have used the same going concern valuation assumptions and methods as were used for the previous valuation, except for the following:

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Current valuation</th>
<th>Previous valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount rate:</td>
<td>5.00%</td>
<td>5.50%</td>
</tr>
<tr>
<td>Pensionable earnings increase</td>
<td>3.25%</td>
<td>3.50%</td>
</tr>
</tbody>
</table>
The hypothetical wind-up and solvency assumptions have been updated to reflect market conditions at the valuation date.

A summary of the going concern, and hypothetical wind-up and solvency assumptions are provided in Appendices C and D, respectively.

**Regulatory Environment and Actuarial Standards**

There have been a number of changes to the Act and regulations which impact the funding of the Plan.

The Government of Ontario has announced its intentions to make changes to the funding requirements for pension plans registered in Ontario. Since then Bill 120 received Royal assent. However, the intended changes to the funding requirements which impact the funding of single-employer pension plans will be contained in regulations which have not yet been adopted.

At its meeting on June 9, 2015, the Actuarial Standards Board (ASB) decided to promulgate the use of the following mortality table with respect to the computation of pension commuted values (“CIA CV Standard”), effective October 1, 2015: *Mortality rates equal to the 2014 Canadian Pensioners Mortality Table (CPM2014) combined with mortality improvement scale CPM Improvement Scale B (CPM-B)*. The change affects the mortality assumption used to value the solvency and wind-up liabilities for benefits assumed to be settled through a lump sum transfer. The financial impact of the change in the CIA CV Standard has been reflected in this actuarial valuation on a solvency and hypothetical wind-up basis.

**Subsequent Events**

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. Our valuation reflects the financial position of the Plan as of the valuation date and does not take into account any experience after the valuation date.

**Impact of Case Law**

This report has been prepared on the assumption that all claims on the Plan after the valuation date will be in respect of benefits payable to members of the Plan determined in accordance with the Plan terms and that all Plan assets are available to provide for these benefits. It is possible that court and regulatory decisions and changes in legislation could give rise to additional entitlements to benefits under the Plan and cause the results in this report to change. By way of example, we bring your attention to the following decisions:

- The Ontario Court of Appeal’s 2003 decision in *Aegon Canada Inc. and Transamerica Life Canada versus ING Canada Inc.* restricted the use of original plan surplus where two or more pension plans were merged.
- The Supreme Court of Canada’s 2004 decision in *Monsanto Canada Inc. versus Superintendent of Financial Services* upheld the requirement, with retroactive effect, to distribute surplus on partial plan wind-up under the *Pension Benefits Act (Ontario)*.
We are not in a position to assess the impact that such decisions or changes could have on the assumption that all plan assets on the valuation date are available to provide for benefits determined in accordance with the Plan terms. If such a claim arises subsequent to the date of this report, the consequences will be dealt with in a subsequent report. We are making no representation as to likelihood of such a claim.
Valuation Results – Going-Concern

Financial Status

A going concern valuation compares the relationship between the value of Plan assets and the present value of expected future benefit cash flows in respect of accrued service, assuming the Plan will be maintained indefinitely.

The results of the current valuation, compared with those from the previous valuation, are summarized as follows:

<table>
<thead>
<tr>
<th>Financial Position – Going-Concern Basis ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.07.16</td>
</tr>
<tr>
<td>Assets</td>
</tr>
<tr>
<td>Market value of assets</td>
</tr>
<tr>
<td>Asset smoothing adjustment</td>
</tr>
<tr>
<td>In-transits</td>
</tr>
<tr>
<td>Smoothed value of assets</td>
</tr>
</tbody>
</table>

| Going concern funding target   |                                   |                                   |
| Active members                 | $23,260                            | $22,583                            |
| Pensioners and survivors       | 27,155                             | 23,500                             |
| Deferred pensioners            | 1,426                              | 554                                |
| Pending members                | 30                                 | -                                  |
| Total                          | $51,871                            | $46,637                            |
| Funding excess (shortfall)     | $1,581                             | ($5,569)                           |

The going concern funding target includes a provision for adverse deviations.
Reconciliation of Financial Status ($000)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount ($000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding excess (shortfall) as at previous valuation</td>
<td>($5,569)</td>
</tr>
<tr>
<td>Interest on funding excess (funding shortfall) at 5.50% per year</td>
<td>(970)</td>
</tr>
<tr>
<td>Employer’s special payments, with interest</td>
<td>2,058</td>
</tr>
<tr>
<td>Expected funding excess (funding shortfall)</td>
<td>($4,481)</td>
</tr>
<tr>
<td>Net experience gains (losses)</td>
<td></td>
</tr>
<tr>
<td>β Net Investment return</td>
<td>7,556</td>
</tr>
<tr>
<td>β Increases in pensionable earnings</td>
<td>1,123</td>
</tr>
<tr>
<td>β Indexation</td>
<td>(1,235)</td>
</tr>
<tr>
<td>β Mortality</td>
<td>514</td>
</tr>
<tr>
<td>β Retirement</td>
<td>(344)</td>
</tr>
<tr>
<td>β Termination</td>
<td>338</td>
</tr>
<tr>
<td>Total experience gains (losses)</td>
<td>7,952</td>
</tr>
<tr>
<td>Impact of changes in assumptions</td>
<td></td>
</tr>
<tr>
<td>β Discount rate</td>
<td>(2,518)</td>
</tr>
<tr>
<td>β Pensionable earnings increase</td>
<td>216</td>
</tr>
<tr>
<td>Total assumption changes impact</td>
<td>(2,302)</td>
</tr>
<tr>
<td>Impact of higher member contributions on excess cost sharing</td>
<td>(465)</td>
</tr>
<tr>
<td>refunds</td>
<td></td>
</tr>
<tr>
<td>Impact of correction to joint and survivor forms of pension</td>
<td>709</td>
</tr>
<tr>
<td>Net impact of other elements of gains and losses</td>
<td>168</td>
</tr>
<tr>
<td>Funding excess (shortfall) as at current valuation</td>
<td>$1,581</td>
</tr>
</tbody>
</table>

* based on smoothed asset value
Current Service Cost
The current service cost is an estimate of the present value of the additional expected future benefit cash flows in respect of pensionable service that will accrue after the valuation date, assuming the Plan will be maintained indefinitely.

The current service cost during the year following the valuation date compared with the corresponding value determined in the previous valuation, is as follows:

<table>
<thead>
<tr>
<th>Employer’s Current Service Cost ($000)</th>
<th>2016/2017</th>
<th>2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total current service cost</td>
<td>1,262</td>
<td>1,393</td>
</tr>
<tr>
<td>Estimated members’ required contributions</td>
<td>(531)</td>
<td>(644)</td>
</tr>
<tr>
<td>Estimated employer’s current service cost</td>
<td>731</td>
<td>749</td>
</tr>
<tr>
<td>Employer’s current service cost expressed as a percentage of members’ required contributions</td>
<td>138%</td>
<td>116%</td>
</tr>
</tbody>
</table>

The key factors that have caused a change in the employer’s current service cost since the previous valuation are summarized in the following table:

<table>
<thead>
<tr>
<th>Changes in Employer’s Current Service Cost</th>
<th>116%</th>
<th>138%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer’s current service cost as at previous valuation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic changes</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Changes in assumptions</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Coding updates</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Employer’s current service cost as at current valuation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discount Rate Sensitivity
The following table summarizes the effect on the going concern funding target and current service cost shown in this report of using a discount rate which is 1% lower than that used in the valuation.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Valuation Basis</th>
<th>Reduce Discount Rate by 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going-concern funding target</td>
<td>$51,871</td>
<td>$58,776</td>
</tr>
<tr>
<td>Current service cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Total current service cost</td>
<td>$1,262</td>
<td>$1,506</td>
</tr>
<tr>
<td>• Estimated members’ required contributions</td>
<td>(531)</td>
<td>(531)</td>
</tr>
<tr>
<td>• Estimated employer’s current service cost</td>
<td>$731</td>
<td>$975</td>
</tr>
</tbody>
</table>
Valuation Results - HypotheticalWind-up

**Financial Position**

When conducting a hypothetical wind-up valuation, we determine the relationship between the respective values of the Plan’s assets and its liabilities assuming the Plan is wound up and settled on the valuation date, assuming benefits are settled in accordance with the Act and under circumstances producing the maximum wind-up liabilities on the valuation date.

The hypothetical wind-up financial position as of the valuation date, compared with that at the previous valuation, is as follows:

<table>
<thead>
<tr>
<th>Hypothetical Wind-up Position ($000)</th>
<th>01.07.16</th>
<th>01.07.13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market value of assets</td>
<td>$52,848</td>
<td>$42,351</td>
</tr>
<tr>
<td>In transits</td>
<td>63</td>
<td>109</td>
</tr>
<tr>
<td>Termination expense provision</td>
<td>(150)</td>
<td>(150)</td>
</tr>
<tr>
<td>Wind-up assets</td>
<td>$52,761</td>
<td>$42,310</td>
</tr>
<tr>
<td>Present value of accrued benefits for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>active members</td>
<td>$36,289</td>
<td>$30,454</td>
</tr>
<tr>
<td>pensioners and survivors</td>
<td>34,520</td>
<td>27,215</td>
</tr>
<tr>
<td>deferred pensioners</td>
<td>2,371</td>
<td>760</td>
</tr>
<tr>
<td>Pending Liability</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Total wind-up liability</td>
<td>$73,210</td>
<td>$58,429</td>
</tr>
<tr>
<td>Wind-up excess (shortfall)</td>
<td>($20,449)</td>
<td>($16,119)</td>
</tr>
</tbody>
</table>

**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.
Wind-up Incremental Cost

The wind-up incremental cost is an estimate of the present value of the projected change in the hypothetical wind-up liabilities from the valuation date until the next scheduled valuation date, adjusted for the benefit payments expected to be made in that period.

The hypothetical wind-up incremental cost determined in this valuation, is as follows:

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of years covered by report</td>
<td>3 years</td>
<td>3 years</td>
</tr>
<tr>
<td>Total hypothetical wind-up liabilities at the valuation date (A)</td>
<td>$73,210</td>
<td>$58,429</td>
</tr>
<tr>
<td>Present value of projected hypothetical wind-up liability at the next required valuation (including expected new entrants) plus benefit payments until the next required valuation (B)</td>
<td>$79,064</td>
<td>$63,802</td>
</tr>
<tr>
<td>Hypothetical wind-up incremental cost (B – A)</td>
<td>$5,854</td>
<td>$5,373</td>
</tr>
</tbody>
</table>

The incremental cost is not an appropriate measure of the contributions that would be required to maintain the financial position of the Plan on a hypothetical wind-up basis unchanged from the valuation date to the next required valuation date, if actual experience is exactly in accordance with the going-concern valuation assumptions. This is because it does not reflect the fact that the expected return on plan assets (based on the going concern assumptions) is greater than the discount rate used to determine the hypothetical wind-up liabilities.

Discount Rate Sensitivity

The following table summarizes the effect on the hypothetical wind-up liabilities shown in this report of using a discount rate which is 1% lower than that used in the valuation:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Valuation Basis</th>
<th>Reduce Discount Rate by 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total hypothetical wind-up liability</td>
<td>$73,210</td>
<td>$84,206</td>
</tr>
</tbody>
</table>
# Valuation Results – Solvency

## Overview

The Act also requires the financial position of the Plan to be determined on a solvency basis. The financial position on a solvency basis is determined in a similar manner to the Hypothetical Wind-up Basis, except for the following:

<table>
<thead>
<tr>
<th>Exceptions</th>
<th>Reflected in valuation based on the terms of engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>The circumstance under which the Plan is assumed to be wound-up could differ for the solvency and hypothetical wind-up valuations.</td>
<td>Same circumstances were assumed for the solvency valuation as were assumed for the hypothetical wind-up.</td>
</tr>
<tr>
<td>Certain benefits can be excluded from the solvency financial position. These include: (a) any escalated adjustment (e.g. indexing), (b) certain plant closure benefits, (c) certain permanent layoff benefits, (d) special allowances other than funded special allowances, (e) consent benefits other than funded consent benefits, (f) prospective benefit increases, (g) potential early retirement window benefit values, and (h) pension benefits and ancillary benefits payable under a qualifying annuity contract.</td>
<td>No benefits were excluded from the solvency liabilities shown in this valuation.</td>
</tr>
<tr>
<td>The financial position on the solvency basis needs to be adjusted for any Prior Year Credit Balance.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>The solvency financial position can be determined by smoothing assets and the solvency discount rate over a period of up to 5 years.</td>
<td>Smoothing was not used.</td>
</tr>
<tr>
<td>The benefit rate increases coming into effect after the valuation date can be reflected in the solvency valuation.</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Exceptions | Reflected in valuation based on the terms of engagement
---|---
In accordance with actuarial standards, the termination expense provision used for the hypothetical wind-up valuation includes a reduction in the value of the Plan’s assets resulting from their liquidation and a provision for the related transaction fees. Since the solvency valuation is based on the market value of assets and not the liquidated value of assets, these adjustments can be excluded from the solvency termination expense provision. | The termination expense provision used in the solvency valuation is $150,000, which is the same as the provision used for the hypothetical wind-up valuation.

Financial Position
The financial position on a solvency basis is the same as the financial position on the Hypothetical Wind-up basis shown in the previous section. The transfer ratio is 72%, compared to 73% at the previous valuation.
6

Minimum Funding Requirements

The Act prescribes the minimum contributions that the University must make to the Plan. The minimum contributions in respect of a defined benefit component of a pension are comprised of going concern current service cost and special payments to fund any going concern or solvency shortfalls.

The University has elected to make use of the solvency relief measures for pension plans in the broader public sector. Accordingly, the minimum monthly contribution requirements determined herein reflect the requirements under the solvency funding relief regulation for pension plans in the broader public sector announced in November 2016.

On the basis of the assumptions and methods described in this report, the rule for determining the minimum required employer monthly contributions, as well as an estimate of the employer contributions, from the valuation date until the next required valuation are as follows:

<table>
<thead>
<tr>
<th>Period beginning</th>
<th>Employer’s contribution rule</th>
<th>Estimated employer’s contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monthly current service cost</td>
<td>Explicit monthly expense allowance</td>
</tr>
<tr>
<td>July 1, 2016 – June 30, 2017</td>
<td>138%</td>
<td>$0</td>
</tr>
<tr>
<td>July 1, 2017 – June 30, 2018</td>
<td>138%</td>
<td>$0</td>
</tr>
<tr>
<td>July 1, 2018 – June 30, 2019</td>
<td>138%</td>
<td>$0</td>
</tr>
</tbody>
</table>

The estimated contribution amounts above are based on projected member’s required contributions. Therefore the actual employer’s current service cost will be different from the above estimates and, as such, the contribution requirements should be monitored closely to ensure contributions are made in accordance with the Act.

The development of the minimum special payments is summarized in Appendix A.

Other Considerations

Differences Between Valuation Bases

There is no provision in the minimum funding requirements to fund the difference between the hypothetical wind-up and solvency shortfalls, if any.

\(^2\) Expressed as a percentage of members’ required contributions.
In addition, although minimum funding requirements do include a requirement to fund the going concern current service cost, there is no requirement to fund the expected growth in the hypothetical wind-up or solvency liability after the valuation date, which could be greater than the going concern current service cost.

**Timing of Contributions**

Funding contributions are due on a monthly basis. Contributions for current service cost must be made within 30 days following the month to which they apply. Special payment contributions must be made in the month to which they apply.

**Retroactive Contributions**

The Company must contribute the excess, if any, of the minimum contribution recommended in this report over contributions actually made in respect of the period following the valuation date. This contribution, along with an allowance for interest, is due no later than 60 days following the date this report is filed.

**Payment of Benefits**

The Act imposes certain restrictions on the payment of lump sums from the Plan when the transfer ratio revealed in an actuarial valuation is less than one. If the transfer ratio shown in this report is less than one, the plan administrator should ensure that the monthly special payments are sufficient to meet the requirements of the Act to allow for the full payment of benefits, and otherwise should take the prescribed actions.

Additional restrictions are imposed when:

1. The transfer ratio revealed in the most recently filed actuarial valuation is less than one and the administrator knows or ‘ought to know’ that the transfer ratio of the Plan has declined by 10% or more since the date the last valuation was filed.

2. The transfer ratio revealed in the most recently filed actuarial valuation is greater than or equal to one and the administrator knows or ‘ought to know’ that the transfer ratio of the Plan has declined to less than 0.9 since the date the last valuation was filed.

As such, the administrator should monitor the transfer ratio of the Plan and, if necessary, take the prescribed actions.

**Letters of Credit**

Minimum funding requirements in respect of solvency deficiencies that otherwise require monthly contributions to the pension fund may be met, in the alternative, by establishing an irrevocable letter of credit subject to the conditions established by the Act. Required solvency special payments in excess of those met by a letter of credit must be met by monthly contributions to the pension fund.
Maximum Eligible Contributions

The Income Tax Act (the “ITA”) limits the amount of employer contributions that can be remitted to the defined benefit component of a registered pension plan.

In accordance with Section 147.2 of the ITA and Income Tax Regulation 8516, for a plan which is underfunded on either a going concern or on a hypothetical wind-up basis the maximum permitted contributions are equal to the employer’s current service cost, including the explicit expense allowance if applicable, plus the greater of the going concern funding shortfall and hypothetical wind-up shortfall.

For a plan which is fully funded on both going concern and hypothetical wind-up bases, the employer can remit a contribution equal to the employer’s current service cost, including the explicit expense allowance if applicable, as long as the surplus in the plan does not exceed a prescribed threshold. Specifically, in accordance with Section 147.2 of the ITA, for a plan which is fully funded on both going concern and hypothetical wind-up bases, the plan may not retain its registered status if the employer makes a contribution while the going concern funding excess exceeds 25% of the going concern funding target.

Notwithstanding the above, any contributions that are required to be made in accordance with pension benefits legislation are eligible contributions in accordance with Section 147.2 of the ITA and can be remitted.

Schedule of Maximum Contributions

The University is permitted to fully fund the greater of the going concern and hypothetical wind-up shortfalls; $20,449,000, as well as make current service cost contributions. The portion of this contribution representing the payment of the hypothetical wind-up shortfall can be increased with interest at 2.42% per year from the valuation date to the date the payment is made, and must be reduced by the amount of any deficit funding made from the valuation date to the date the payment is made.
Assuming the University contributes the greater of the going concern and hypothetical wind-up shortfall of $20,449,000 as of the valuation date, the rule for determining the estimated maximum eligible annual contributions, as well as an estimate of the maximum eligible contributions until the next valuation, are as follows:

<table>
<thead>
<tr>
<th>Year beginning</th>
<th>Monthly current service cost</th>
<th>Monthly expense allowance</th>
<th>Deficit Funding</th>
<th>Estimated employer’s contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1, 2016</td>
<td>138%</td>
<td>$0</td>
<td>n/a</td>
<td>$60,956</td>
</tr>
<tr>
<td>July 1, 2017</td>
<td>138%</td>
<td>$0</td>
<td>n/a</td>
<td>$54,860</td>
</tr>
<tr>
<td>July 1, 2018</td>
<td>138%</td>
<td>$0</td>
<td>n/a</td>
<td>$49,374</td>
</tr>
</tbody>
</table>

The employer’s current service cost in the above table was estimated based on projected members’ required contributions. The actual employer’s current service cost will be different from these estimates and, as such, the contribution requirements should be monitored closely to ensure compliance with the ITA.

---

3 Expressed as a percentage of members’ required contributions.
Actuarial Opinion

In my opinion, for the purposes of this valuation,

β The membership data on which the valuation is based are sufficient and reliable.

β The assumptions are appropriate.

β The methods employed in the valuation are appropriate.

This report has been prepared, and my opinion given, in accordance with accepted actuarial practice in Canada. It has also been prepared in accordance with the funding and solvency standards set by the Pension Benefits Act of Ontario.

DRAFT

Lorraine Gignac
Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries

Date
### Prescribed Disclosure

#### Definitions

The Act defines a number of terms as follows:

<table>
<thead>
<tr>
<th>Defined Term</th>
<th>Description</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Ratio</td>
<td>The ratio of:</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>(a) solvency assets minus the lesser of the Prior Year Credit Balance and the minimum required employer contributions until the next required valuation; to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) the sum of the solvency liabilities and liabilities for benefits, other than benefits payable under qualifying annuity contracts that were excluded in calculating the solvency liabilities.</td>
<td></td>
</tr>
<tr>
<td>Prior Year Credit Balance</td>
<td>Accumulated excess of contributions made to the pension plan in excess of the minimum required contributions (note: only applies if the University chooses to treat the excess contributions as a Prior Year Credit Balance).</td>
<td>$0</td>
</tr>
<tr>
<td>Solvency Assets</td>
<td>Market value of assets including accrued or receivable income and excluding the value of any qualifying annuity contracts</td>
<td>$52,911,000</td>
</tr>
<tr>
<td>Solvency Asset Adjustment</td>
<td>The sum of:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) the difference between smoothed value of assets and the market value of assets;</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>(b) the present value of any going concern special payments (including those identified in this report) to the end of the solvency amortization period;</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>(c) the present value of any previously scheduled solvency special payments (excluding those identified in this report)</td>
<td>$0</td>
</tr>
<tr>
<td>Solvency Liabilities</td>
<td>Liabilities determined as if the plan had been wound up on the valuation date, including liabilities for plant closure benefits or permanent layoff benefits that would be immediately payable if the employer’s business were discontinued on the valuation date of the report, but excluding liabilities for, (a) any escalated adjustment, (b) excluded plant closure benefits, (c) excluded permanent layoff benefits, (d) special allowances other than funded special allowances, (e) consent benefits other than funded consent benefits, (f) prospective benefit increases, (g) potential early retirement window benefit values, and (h) pension benefits and ancillary benefits payable under a qualifying annuity contract.</td>
<td>$73,210,000</td>
</tr>
</tbody>
</table>
REPORT ON THE ACTUARIAL VALUATION FOR FUNDING PURPOSES AS AT JULY 1, 2016

THE CONTRIBUTORY PENSION PLAN FOR HOURLY-RATED EMPLOYEES OF MCMASTER UNIVERSITY INCLUDING MCMASTER DIVINITY COLLEGE

<table>
<thead>
<tr>
<th>Defined Term</th>
<th>Description</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency Liability Adjustment</td>
<td>The amount by which Solvency Liabilities are adjusted as a result of using a solvency valuation interest rate that is the average of market interest rates calculated over the period of time used in the determination of the smoothed value of assets.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solvency Deficiency</td>
<td>The amount, if any, by which the sum of: (a) the solvency liabilities  (b) the solvency liability adjustment (c) the prior year credit balance (d) the solvency assets net estimated termination expenses (e) the solvency asset adjustment</td>
<td>$73,210,000</td>
</tr>
<tr>
<td></td>
<td>Exceeds the sum of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(d) the solvency assets net estimated termination expenses $52,761,000 (e) the solvency asset adjustment $0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solvency Deficiency $20,449,000</td>
<td></td>
</tr>
</tbody>
</table>

**Timing of Next Required Valuation**

In accordance with the Act the next valuation of the Plan would be required at an effective date within one year of the current valuation date if:

- The ratio of solvency assets to solvency liabilities is less than 85%.
- The employer elected to exclude plant closure or permanent lay-off benefits under Section 5(18) of the regulations, and has not rescinded that election.

Otherwise, the next valuation of the Plan would be required at an effective date no later than three years after the current valuation date.

In accordance with the solvency funding relief measures for pension plans in the broader public sector, the next valuation of the Plan will be required as of July 1, 2019.

---

4 In accordance with accepted actuarial practice, the market value of plan assets was adjusted for any in-transit benefit payments, contributions, and other in-transit cash flows, and reduced by a provision for estimated termination expenses payable from the Plan’s assets that may reasonably be expected to be incurred in terminating the Plan and to be charged to the Plan.
Special Payments

Based on the results of this valuation, the Plan is not fully funded.

The University has elected to make use of the solvency relief measures for pension plans in the broader public sector. Accordingly, the minimum monthly contribution requirements determined herein reflect the provisions of the solvency funding relief regulation issued in November 2016.

As such, special payments must be made as follows:

<table>
<thead>
<tr>
<th>Type of payment</th>
<th>Start date</th>
<th>End date</th>
<th>Monthly Special Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency</td>
<td>July 1, 2016</td>
<td>June 30, 2017</td>
<td>$30,929</td>
</tr>
<tr>
<td>Solvency</td>
<td>July 1, 2017</td>
<td>June 30, 2024</td>
<td>$97,091</td>
</tr>
</tbody>
</table>

As the Plan does not have a going concern deficit, going concern special payments revealed in the previous valuation are no longer required.

Pursuant to the solvency funding relief measures for pension plans in the broader public sector, the minimum solvency special payments are calculated as follows:

- a. Solvency Assets
- b. Solvency liabilities
- c. Solvency asset adjustment (present value of going-concern special payments)
- d. solvency ratio
- e. 1- solvency ratio
- f. solvency ratio + 25% * (1- solvency ratio)
- g. modified solvency liabilities
- h. modified solvency deficit
- i. modified solvency special payments
- j. solvency liabilities less modified solvency liabilities
- k. interest on solvency liabilities in excess of modified solvency liabilities
- l. solvency assets + solvency asset adjustment less modified solvency liabilities
- m. interest on solvency assets + solvency asset adjustment in excess of modified solvency liabilities
- n. excess interest
- o. solvency special payments

* to cover interest on solvency shortfall as at July 1, 2016

MERCER
### Pension Benefit Guarantee Fund (PBGF) Assessment

The PBGF assessment base and liabilities are derived as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency assets</td>
<td>$52,911,000</td>
</tr>
<tr>
<td>PBGF liabilities</td>
<td>$73,210,000</td>
</tr>
<tr>
<td>Solvency liabilities</td>
<td>$73,210,000</td>
</tr>
<tr>
<td>Ontario asset ratio</td>
<td>100% (d)</td>
</tr>
<tr>
<td>Ontario portion of the fund</td>
<td>$52,911,000</td>
</tr>
<tr>
<td>PBGF assessment base</td>
<td>$20,299,000</td>
</tr>
<tr>
<td>Amount of additional liability for plant closure and/or permanent layoff benefits which is not funded and subject to the 2% assessment pursuant to s.37(4)</td>
<td>$0 (g)</td>
</tr>
</tbody>
</table>
APPENDIX B

Plan Assets
The pension fund is held in trust by CIBC Mellon. In preparing this report, we have relied upon fund statements prepared by CIBC Mellon without further audit. Customarily, this information would not be verified by a plan’s actuary. We have reviewed the information for internal consistency and we have no reason to doubt its substantial accuracy.

Reconciliation of Market Value of Plan Assets
The pension fund transactions since the last valuation are summarized in the following table:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>As at July 1</td>
<td>$42,351</td>
<td>$48,905</td>
<td>$52,399</td>
</tr>
<tr>
<td>PLUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members’ contributions</td>
<td>$550</td>
<td>$546</td>
<td>$534</td>
</tr>
<tr>
<td>University’s contributions</td>
<td>$1,253</td>
<td>$1,157</td>
<td>$1,177</td>
</tr>
<tr>
<td>Investment income</td>
<td>$1,340</td>
<td>$1,480</td>
<td>$1,516</td>
</tr>
<tr>
<td>Net capital gains (losses)</td>
<td>$6,072</td>
<td>$2,902</td>
<td>$45</td>
</tr>
<tr>
<td></td>
<td>$9,215</td>
<td>$6,085</td>
<td>$3,272</td>
</tr>
<tr>
<td>LESS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pensions paid</td>
<td>$2,177</td>
<td>$2,296</td>
<td>$2,389</td>
</tr>
<tr>
<td>Lump-sums paid</td>
<td>$160</td>
<td>$77</td>
<td>$173</td>
</tr>
<tr>
<td>Administration fees</td>
<td>$324</td>
<td>$218</td>
<td>$261</td>
</tr>
<tr>
<td></td>
<td>$2,661</td>
<td>$2,591</td>
<td>$2,823</td>
</tr>
<tr>
<td>As at June 30</td>
<td>$48,905</td>
<td>$52,399</td>
<td>$52,848</td>
</tr>
<tr>
<td>Gross rate of return(^5)</td>
<td>17.7%</td>
<td>9.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Rate of return net of expenses(^5)</td>
<td>16.8%</td>
<td>8.6%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

\(^5\) Assuming mid-period cash flows.
The market value of assets shown in the above table is adjusted to reflect in-transit amounts as follows ($000):

<table>
<thead>
<tr>
<th>Description</th>
<th>Current valuation</th>
<th>Previous valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of invested assets</td>
<td>$52,848</td>
<td>$42,351</td>
</tr>
<tr>
<td>In-transit amounts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members’ contributions</td>
<td>$38</td>
<td>$43</td>
</tr>
<tr>
<td>University’s contributions</td>
<td>$91</td>
<td>$134</td>
</tr>
<tr>
<td>Expenses</td>
<td>($1)</td>
<td>($45)</td>
</tr>
<tr>
<td>Benefit payments</td>
<td>($65)</td>
<td>($23)</td>
</tr>
<tr>
<td>Market value of assets adjusted for in-transit amounts</td>
<td>$52,911</td>
<td>$42,460</td>
</tr>
</tbody>
</table>

We have tested the pensions paid, the lump-sums paid 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.

**Investment Policy**

The plan administrator has adopted a statement of investment policy and procedures. This policy is intended to provide guidelines for the manager(s) as to the level of risk that is consistent with the Plan’s investment objectives. A significant component of this investment policy is the asset mix.

The plan administrator is solely responsible for selecting the plan’s investment policies, asset allocations, and individual investments.

The constraints on the asset mix and the actual asset mix at the valuation date are provided for information purposes:

<table>
<thead>
<tr>
<th>Investment Policy</th>
<th>Minimum</th>
<th>Target</th>
<th>Maximum</th>
<th>Actual Asset Mix as at July 1, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian equities</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>18.9%</td>
</tr>
<tr>
<td>US equities</td>
<td>8%</td>
<td>18%</td>
<td>28%</td>
<td>23.9%</td>
</tr>
<tr>
<td>Non-North American equities</td>
<td>7%</td>
<td>17%</td>
<td>27%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Bonds</td>
<td>25%</td>
<td>45%</td>
<td>65%</td>
<td>36.9%</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

100% 100.0%
APPENDIX C

Methods and Assumptions – Going-Concern

Valuation of Assets

For this valuation, we have continued to use an adjusted market-value method to determine the smoothed value of assets. Under this method, all investment gains (losses) are spread over 3 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. To the extent that more capital gains than losses will arise over the long term, the smoothed value will tend to be lower than the market value.

The smoothed value of the assets at July 1, 2016, was derived as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of assets at July 1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>$42,351</td>
<td>$48,905</td>
<td>$52,399</td>
</tr>
<tr>
<td>Payment into Plan</td>
<td>1,803</td>
<td>1,703</td>
<td>1,711</td>
</tr>
<tr>
<td>Payment out of Plan*</td>
<td>(2,337)</td>
<td>(2,373)</td>
<td>(2,562)</td>
</tr>
<tr>
<td>Expected interest</td>
<td>2,315</td>
<td>2,671</td>
<td>2,859</td>
</tr>
<tr>
<td>Investment experience gains/(losses)</td>
<td>4,773</td>
<td>1,493</td>
<td>(1,559)</td>
</tr>
<tr>
<td>Market value of assets at June 30&lt;sup&gt;th&lt;/sup&gt;</td>
<td>$48,905</td>
<td>$52,399</td>
<td>$52,848</td>
</tr>
</tbody>
</table>

* other than administration fees
The smoothed value of assets shown in the above table is adjusted to reflect in-transit amounts as follows:

<table>
<thead>
<tr>
<th>In-transit amounts</th>
<th>Current valuation</th>
<th>Previous valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members’ contributions</td>
<td>$38</td>
<td>$43</td>
</tr>
<tr>
<td>University’s contributions</td>
<td>$91</td>
<td>$134</td>
</tr>
<tr>
<td>Expenses</td>
<td>($1)</td>
<td>($45)</td>
</tr>
<tr>
<td>Benefit payments</td>
<td>($65)</td>
<td>($23)</td>
</tr>
<tr>
<td>Smoothed value of assets, adjusted for in-transit amounts</td>
<td>$53,452</td>
<td>$41,068</td>
</tr>
</tbody>
</table>
Going Concern Funding Target
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 present value of benefit cash flows expected to be paid in respect of service accrued prior to the valuation date, based on projected final average earnings. This is referred to as the funding target. For each individual plan member, two times the accumulated contributions with interest are established as a minimum actuarial liability.

The funding excess or funding shortfall, as the case may be, is the difference between the market or smoothed value of assets and the funding target. A funding excess on a market value basis indicates that the current market value of assets and expected investment earnings are expected to be sufficient to meet the cash flows in respect of benefits accrued to the valuation date as well as expected expenses – assuming the plan is maintained indefinitely. A funding shortfall on a market value basis indicates the opposite – that the current market value of the assets is not expected to be sufficient to meet the plan’s cash flow requirements in respect of accrued benefits, absent additional contributions.

As required under the Act, a funding shortfall will be amortized over no more than 15 years through special payments. 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.

The actuarial funding method used for the purposes of this valuation produces a reasonable matching of contributions with accruing benefits. Because benefits are recognized as they accrue, the actuarial funding method provides an effective funding target for a plan that is maintained indefinitely.

Current Service Cost
The current service cost is the present value of projected benefits to be paid under the plan with respect to service expected to accrue during the period until the next valuation.

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/or 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 distribution of the group remains constant.
Actuarial Assumptions – Going Concern Basis

The present value of future benefit payment cash flows 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. Emerging experience will result in gains or losses that will be revealed and considered in future actuarial valuations.

The table below shows the various assumptions used in the current valuation in comparison with those used in the previous valuation.

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Current valuation</th>
<th>Previous valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount rate:</td>
<td>5.00%</td>
<td>5.50%</td>
</tr>
<tr>
<td>Inflation:</td>
<td>2.00%</td>
<td>2.00%</td>
</tr>
<tr>
<td>ITA limit / YMPE increases:</td>
<td>2.50%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Pensionable earnings increases:</td>
<td>3.25%</td>
<td>3.50%</td>
</tr>
<tr>
<td>Post retirement pension increases:</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Interest on employee contributions:</td>
<td>5.00%</td>
<td>5.75%</td>
</tr>
<tr>
<td>Retirement rates:</td>
<td>20% where first eligible for an unreduced pension, remainder at age 64</td>
<td>20% where first eligible for an unreduced pension, remainder at age 64</td>
</tr>
<tr>
<td>Termination rates:</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Mortality rates:</td>
<td>115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)</td>
<td>115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)</td>
</tr>
<tr>
<td>Mortality improvements:</td>
<td>Fully generational using CPM Improvement Scale B (CPM-B)</td>
<td>Fully generational using CPM Improvement Scale B (CPM-B)</td>
</tr>
<tr>
<td>Disability rates:</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

The assumptions are best-estimate with the exception that the discount rate includes a margin for adverse deviations, as shown below.

**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 rate of pay on July 1, 2016, and assumed that such pensionable earnings will increase at the assumed rate.
Rationale for Assumptions
A rationale for each of the assumptions used in the current valuation is provided below.

Discount Rate
We have discounted the expected benefit payment cash flows using the expected investment return on the market value of the fund net of fees and less a margin for adverse deviations. Other bases for discounting the expected benefit payment cash flows may be appropriate, particularly for purposes other than those specifically identified in this valuation report.

The discount rate is comprised of the following:

- Estimated returns for each major asset class consistent with market conditions on the valuation date and the target asset mix specified in the Plan’s investment policy.
- Additional returns assumed to be achievable due to active equity management, equal to the fees related to active equity management. Such fees were determined by the difference between the provision for total investment expenses and the hypothetical fees that would be incurred for passive management of all assets.
- Implicit provision for investment expenses determined as the average rate of investment expenses paid from the fund over the last 3 years
- Implicit provision for non-investment expenses determined as the average rate of non-investment expenses paid from the fund over the last 3 years
- A margin for adverse deviations of 0.25%

The discount rate was developed as follows:

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumed investment return</td>
<td>5.50%</td>
</tr>
<tr>
<td>Active management</td>
<td>0.25%</td>
</tr>
<tr>
<td>Implicit expense provision</td>
<td>(0.50%)</td>
</tr>
<tr>
<td>Margin for adverse deviation</td>
<td>(0.25%)</td>
</tr>
<tr>
<td><strong>Net discount rate</strong></td>
<td><strong>5.00%</strong></td>
</tr>
</tbody>
</table>

Inflation
The inflation assumption is based on the mid-point of the Bank of Canada’s inflation target range of between 1% and 3%.

Income Tax Act Pension Limit and Year’s Maximum Pensionable Earnings
The assumption is based on historical real economic growth and the underlying inflation assumption.

Pensionable Earnings
The assumption is based on general wage growth assumptions increased by our best estimate of future merit and promotional increases over general wage growth considering University expectations.

Post Retirement Pension Increases
The assumption is based on the Plan formula and inflation assumption above.

Retirement Rates
The assumption is based on the Plan provisions and our experience with similar plans and employee groups.
Termination Rates

Use of a different assumption would not have a material impact on the valuation.

Mortality Rates

The assumption for the mortality rates is based on the Canadian Pensioners’ Mortality (CPM) study published by the Canadian Institute of Actuaries in February 2014.

Due to the size of the Plan, specific data on plan mortality experience is insufficient to determine the mortality rates. The CPM mortality rates from the public sector have been adjusted after considering plan-specific characteristics, such as the type of employment, the industry experience, the pension and employment income for the plan members, and data in the CPM study.

There is broad consensus among actuaries and other longevity experts that mortality improvement will continue in the future, but the degree of future mortality improvement is uncertain. The mortality improvement scale published in the CPM study represents one reasonable outlook for future improvement. We have used the CPM mortality improvement scale B without adjustment.

Based on the assumption used, the life expectancy of a member age 65 at the valuation date is 21.8 years for males and 23.6 years for females.

Interest on Employee Contributions

The assumption is based on Plan terms and the underlying the investment return assumption.
APPENDIX D

Methods and Assumptions – Hypothetical Wind-up and Solvency

Hypothetical Wind-up Basis

The Canadian Institute of Actuaries requires actuaries to report the financial position of a pension plan on the assumption that the plan is wound up on the effective date of the valuation, with benefits determined on the assumption that the pension plan has neither a surplus nor a deficit. For the purposes of the hypothetical wind-up valuation, the plan wind-up is assumed to occur in circumstances that maximize the actuarial liability.

To determine the actuarial liability on the hypothetical wind-up basis, we have valued those benefits that would have been paid had the Plan been wound up on the valuation date, with all members fully vested in their accrued benefits.

There are no benefits under the plan contingent upon the circumstances of the plan wind-up or contingent upon other factors. In particular, there are no additional benefits that would be immediately payable if the employer’s business were discontinued on the valuation date. Therefore, it was not necessary to postulate a scenario upon which the hypothetical wind-up valuation is made. Therefore, no benefits payable on plan wind-up were excluded from our calculations.

Upon plan wind-up members are given options for the method of settling their benefit entitlements. The options vary by eligibility and by province of employment, but in general, involve either a lump sum transfer or an immediate or deferred pension.

The value of benefits assumed to be settled through a lump sum transfer is based on the assumptions described in Section 3500 – Pension Commuted Values of the Canadian Institute of Actuaries’ Standards of Practice applicable for July 1, 2016.

Benefits provided as an immediate or deferred pension are assumed to be settled through the purchase of annuities based on an estimate of the cost of purchasing annuities.

However, it may not be possible to settle the liabilities through the purchase of annuities due to the size of the Plan and the limited annuity market in Canada. In accordance with the Canadian Institute of Actuaries Educational Note: Assumptions for Hypothetical Wind-up and Solvency Valuations with Effective Dates Between December 31, 2015 and December 30, 2016 (the “Educational Note”), we have assumed that the settlement of such liabilities would be priced on the same basis as the smaller group annuities that are available in the market.
The Educational Note provides guidance on estimating the cost of annuity purchases assuming a typical group of annuitants. That is, no adjustments for sub- or super-standard mortality are considered. However, it is expected that insurers will consider plan experience and certain plan-specific characteristics when determining the mortality basis for a particular group. The Educational Note states that the actuary would be expected to make an adjustment to the regular annuity purchase assumptions where there is demonstrated substandard or super-standard mortality or where an insurer might be expected to assume so. In such cases, the actuary would be expected to make an adjustment to the mortality assumption in a manner consistent with the underlying annuity purchase basis. Given the uncertainty surrounding the actual mortality basis that would be typical of a group annuity purchase, it is reasonable to assume that there is a range of bases that can be expected not to be materially different from the actual mortality basis. Therefore, an adjustment to the regular annuity purchase assumptions would be warranted when the plan’s assumed basis falls outside that range.

In this context, we have determined that no adjustment to the mortality rates used in the regular annuity purchase assumptions is required.

We have not included a provision for adverse deviation in the solvency and hypothetical wind-up valuations.
The assumptions are as follows:

<table>
<thead>
<tr>
<th>Form of benefit settlement elected by member</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lump sum</td>
<td>70% of active and deferred members under age 55 and 50% of active and deferred members over age 55 elect to receive their benefit entitlement in a lump sum</td>
</tr>
<tr>
<td>Annuity purchase</td>
<td>All remaining members are assumed to elect to receive their benefit entitlement in the form of a deferred or immediate pension. These benefits are assumed to be settled through the purchase of deferred or immediate annuities from a life insurance company.</td>
</tr>
</tbody>
</table>

**Basis for benefits assumed to be settled through a lump sum**

<table>
<thead>
<tr>
<th>Mortality rates:</th>
<th>100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B blending 50% male mortality and 50% female mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest rate:</td>
<td>1.70% per year for 10 years, 3.10% per year thereafter</td>
</tr>
</tbody>
</table>

**Basis for benefits assumed to be settled through the purchase of an annuity**

<table>
<thead>
<tr>
<th>Mortality rates:</th>
<th>100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment to mortality rates:</td>
<td>No adjustment</td>
</tr>
<tr>
<td>Interest rate:</td>
<td>2.76% per year</td>
</tr>
</tbody>
</table>

**Retirement age**

<table>
<thead>
<tr>
<th>Maximum value:</th>
<th>Members are assumed to retire at the age which maximizes the value of their entitlement from the Plan based on the eligibility requirements which have been met at the valuation date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grow-in:</td>
<td>The benefit entitlement and assumed retirement age of Ontario members whose age plus service equal at least 55 at the valuation date, reflect their entitlement to grow into early retirement subsidies</td>
</tr>
</tbody>
</table>

**Other assumptions**

<table>
<thead>
<tr>
<th>Special payments</th>
<th>Discounted at the average interest rate of 2.42% per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final average earnings:</td>
<td>Based on actual pensionable earnings over the averaging period</td>
</tr>
<tr>
<td>Family composition:</td>
<td>Same as for going concern valuation</td>
</tr>
<tr>
<td>Maximum pension limit:</td>
<td>$2,890.00</td>
</tr>
<tr>
<td>Termination expenses:</td>
<td>$150,000</td>
</tr>
</tbody>
</table>

To determine the hypothetical wind-up position of the Plan, a provision has been made for estimated termination expenses payable from the Plan’s assets in respect of actuarial and administration expenses that may reasonably be expected to be incurred in terminating the Plan and to be charged to the Plan.

Because the settlement of all benefits on wind-up is assumed to occur on the valuation date and is assumed to be uncontested, the provision for termination expenses does not include custodial, investment management, auditing, consulting, and legal expenses that would be incurred between the wind-up date and the settlement date or due to the terms of a wind-up being contested.
Expenses associated with the distribution of any surplus assets that might arise on an actual wind-up are also not included in the estimated termination expense provisions.

In determining the provision for termination expenses payable from the Plan’s assets, we have assumed that the plan sponsor would not be solvent on the wind-up date. We have also assumed, without analysis, that the Plan’s terms as well as applicable legislation and court decisions would permit the relevant expenses to be paid from the Plan.

Actual fees incurred on an actual plan wind-up may differ materially from the estimates disclosed in this report.

**Incremental Cost**

In order to determine the incremental cost, we estimate the hypothetical wind-up liabilities at the next valuation date. We have assumed that the cost of settling benefits by way of a lump sum or purchasing annuities remains consistent with the assumptions described above. Since the projected hypothetical wind-up liabilities will depend on the membership in the Plan at the next valuation date, we must make assumptions about how the Plan membership will evolve over the period until the next valuation.

We have assumed that the Plan membership will evolve in a manner consistent with the going concern assumptions as follows:

- Members terminate, retire, and die consistent with the termination, retirement, and mortality rates used for the going concern valuation.
- Pensionable earnings, the Income Tax Act pension limit, and the Year’s Maximum Pensionable Earnings increase in accordance with the related going concern assumptions.
- Active members accrue pensionable service in accordance with the terms of the Plan.
- Cost of living adjustments are consistent with the inflation assumption used for the going concern valuation.

**Solvency Basis**

In determining the financial position of the Plan on the solvency basis, we have used the same assumptions and methodology as were used for determining the financial position of the Plan on the hypothetical wind-up basis.

The solvency position is determined in accordance with the requirements of the Act.
APPENDIX E

Membership Data

Analysis of Membership Data

The actuarial valuation is based on membership data as at July 1, 2016, provided by McMaster 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.

If the data supplied are not sufficient and reliable for its intended purpose, the results of our calculation may differ significantly from the results that would be obtained with such data. Although Mercer has reviewed the suitability of the data for its intended use in accordance with accepted actuarial practice in Canada, Mercer has not verified or audited any of the data or information provided.

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

<table>
<thead>
<tr>
<th></th>
<th>01.07.2016</th>
<th>01.07.2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active Members</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>178</td>
<td>232</td>
</tr>
<tr>
<td>Total pensionable earnings for the following year</td>
<td>$8,381,396</td>
<td>$10,371,403</td>
</tr>
<tr>
<td>Average pensionable earnings for the following year</td>
<td>$47,086</td>
<td>$44,704</td>
</tr>
<tr>
<td>Average years of pensionable service</td>
<td>16.5</td>
<td>14.1</td>
</tr>
<tr>
<td>Average age</td>
<td>53.4</td>
<td>51.4</td>
</tr>
<tr>
<td><strong>Deferred Pensioners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>58</td>
<td>48</td>
</tr>
<tr>
<td>Total annual pension</td>
<td>$183,384</td>
<td>$80,372</td>
</tr>
<tr>
<td>Average annual pension</td>
<td>$3,162</td>
<td>$1,674</td>
</tr>
<tr>
<td>Average age</td>
<td>52.9</td>
<td>50.8</td>
</tr>
<tr>
<td><strong>Pensioners and Survivors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>290</td>
<td>294</td>
</tr>
<tr>
<td>Total annual lifetime pension</td>
<td>$2,386,871</td>
<td>$2,108,707</td>
</tr>
<tr>
<td>Average annual lifetime pension</td>
<td>$8,231</td>
<td>$7,172</td>
</tr>
<tr>
<td>Average age</td>
<td>73.9</td>
<td>74.1</td>
</tr>
</tbody>
</table>
The membership movement for all categories of membership since the previous actuarial valuation is as follows:

<table>
<thead>
<tr>
<th>Reconciliation of Membership</th>
<th>Actives</th>
<th>Deferred</th>
<th>Vested</th>
<th>Pensioners and Beneficiaries</th>
<th>Pending Termination</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total at 01.07.2013</td>
<td>232</td>
<td>48</td>
<td></td>
<td>294</td>
<td>0</td>
<td>574</td>
</tr>
<tr>
<td>Terminations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>β Transfers/refunds</td>
<td>(3)</td>
<td>(2)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(5)</td>
</tr>
<tr>
<td>β Pending termination</td>
<td>(1)</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>β Deferred pensions</td>
<td>(12)</td>
<td>12</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Deaths</td>
<td>(3)</td>
<td></td>
<td>(40)</td>
<td>-</td>
<td>(43)</td>
<td></td>
</tr>
<tr>
<td>Retirements</td>
<td>(35)</td>
<td>-</td>
<td>35</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Beneficiaries</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Expired pensions</td>
<td>-</td>
<td>-</td>
<td>(1)</td>
<td>-</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>Data corrections</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total at 01.07.2016</td>
<td>178</td>
<td>58</td>
<td>290</td>
<td>1</td>
<td>527</td>
<td></td>
</tr>
</tbody>
</table>
The distribution of the active members by age and pensionable service as at the valuation date is summarized as follows:

<table>
<thead>
<tr>
<th>Years of Pensionable Service</th>
<th>0-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 to 24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 to 29</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>30 to 34</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>44,759</td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>35 to 39</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>48,303</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>48,303</td>
<td></td>
</tr>
<tr>
<td>40 to 44</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>52,857</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51,163</td>
<td></td>
</tr>
<tr>
<td>45 to 49</td>
<td>2</td>
<td>2</td>
<td>20</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>37</td>
<td>45,933</td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>*</td>
<td>46,252</td>
<td>39,664</td>
<td>55,747</td>
<td>42,108</td>
<td>45,933</td>
<td></td>
</tr>
<tr>
<td>50 to 54</td>
<td>2</td>
<td>7</td>
<td>17</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>39,542</td>
<td>47,152</td>
<td>37,057</td>
<td></td>
<td>43,660</td>
<td>43,737</td>
<td></td>
</tr>
<tr>
<td>55 to 59</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>45,933</td>
<td>44,336</td>
<td>41,008</td>
<td>50,592</td>
<td>37,088</td>
<td>61,671</td>
<td>46,016</td>
</tr>
<tr>
<td>60 to 64</td>
<td>3</td>
<td>13</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>37,986</td>
<td>47,752</td>
<td>40,435</td>
<td></td>
<td>*</td>
<td>54,353</td>
<td>58,493</td>
<td>50,525</td>
</tr>
<tr>
<td>65+</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>*</td>
<td>54,756</td>
<td></td>
<td></td>
<td></td>
<td>178</td>
<td></td>
</tr>
</tbody>
</table>

* not shown to protect member confidentiality.
The distribution of the inactive members by age as at the valuation date is summarized as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Deferred Pensioners</th>
<th>Pensioners and Survivors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Average Pension</td>
</tr>
<tr>
<td>25 – 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 – 34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 – 39</td>
<td>4</td>
<td>4,764</td>
</tr>
<tr>
<td>40 – 44</td>
<td>8</td>
<td>1,835</td>
</tr>
<tr>
<td>45 – 49</td>
<td>11</td>
<td>3,259</td>
</tr>
<tr>
<td>50 – 54</td>
<td>13</td>
<td>1,928</td>
</tr>
<tr>
<td>55 – 59</td>
<td>10</td>
<td>6,942</td>
</tr>
<tr>
<td>60 – 64</td>
<td>6</td>
<td>2,298</td>
</tr>
<tr>
<td>65 – 69</td>
<td>3</td>
<td>992</td>
</tr>
<tr>
<td>70 – 74</td>
<td>3</td>
<td>855</td>
</tr>
<tr>
<td>75 – 79</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>80 – 84</td>
<td>28</td>
<td>5,345</td>
</tr>
<tr>
<td>85 – 89</td>
<td>29</td>
<td>4,698</td>
</tr>
<tr>
<td>90 – 94</td>
<td>19</td>
<td>4,594</td>
</tr>
<tr>
<td>95 +</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>3,162</td>
</tr>
</tbody>
</table>

* not shown to protect member confidentiality.
APPENDIX F

Summary of Plan Provisions

Mercer has used and relied on the plan documents, including amendments and interpretations of plan provisions, supplied by McMaster University. If any plan provisions supplied are not accurate and complete, the results of any calculation may differ significantly from the results that would be obtained with accurate and complete information. Moreover, plan documents may be susceptible to different interpretations, each of which could be reasonable, and the results of estimates under each of the different interpretations could vary.

This valuation is based on the plan provisions in effect on July 1, 2016. Since the previous valuation, the Plan has not been amended. This summary is not intended as a complete description of the Plan.
The Plan became effective July 1, 1962. Benefits are based on a set formula and are partially paid for by the University.

The Plan was completely closed to new entrants on or after March 15, 2010.

### Employee Contributions

<table>
<thead>
<tr>
<th>Period Beginning</th>
<th>Up to YMPE</th>
<th>In Excess of YMPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1, 2010</td>
<td>3.50%</td>
<td>5.00%</td>
</tr>
<tr>
<td>March 4, 2012</td>
<td>4.50%</td>
<td>6.00%</td>
</tr>
<tr>
<td>September 2, 2012</td>
<td>5.50%</td>
<td>7.00%</td>
</tr>
<tr>
<td>March 3, 2013</td>
<td>6.00%</td>
<td>8.00%</td>
</tr>
<tr>
<td>February 16, 2014</td>
<td>6.50%</td>
<td>8.75%</td>
</tr>
<tr>
<td>July 15, 2018</td>
<td>7.00%</td>
<td>10.00%</td>
</tr>
</tbody>
</table>

### Retirement Dates

- **Normal Retirement Date**
  - The normal retirement date is the first date of the month coincident with or next following the member’s 65th birthday

- **Special Early Retirement Date**
  - A Member whose age plus service equals or exceeds 80 points may retire early without any reduction for early retirement

- **Early Retirement Date**
  - A Member may retire early with a reduced pension at any time during the 10-year period preceding his normal retirement date. The pension payable will be reduced by 0.25% for each month between age 60 and 65 and 0.50% for each month prior to age 60.

- **Postponed Retirement Date**
  - A Member may postpone his actual retirement and commencement of pension (with University consent prior to December 12, 2006), but in any event his pension shall commence no later than the 1st of December of the year of attainment of age 71. He will continue to make contributions and benefits under the Plan and will continue to accrue benefits until such postponed retirement date.
Normal Retirement Pension

a) Service prior to July 1, 1979, the greater of:
   I. 1.0% of 1978 earnings multiplied by years of Plan membership, or
   II. the benefit accrued to June 30, 1979
      PLUS

b) Service from July 1, 1979 to December 31, 1985, 40% of Member contributions in each year
   PLUS

c) One-third of the benefits accrued under (a) and (b) above
   PLUS

d) 20% of the benefits accrued under (a), (b) and (c) above
   PLUS

e) 8% of the benefits accrued under (a), (b), (c) and (d) above
   PLUS

f) 20% of the benefits accrued under (a), (b), (c), (d) and (e) above
   PLUS

g) 1.5% of the benefits accrued under (a), (b), (c), (d), (e) and (f) above
   PLUS

h) Service after December 31, 1985, 1.4% of Final Five Year Average Earnings up to the Average Year’s Maximum Pensionable Earnings and 2.0% of Final Five Year Average Earnings in excess of the Average Year’s Maximum Pensionable Earnings multiplied by years of Credited Service earned after December 31, 1985.

Average Year’s Maximum Pensionable Earnings is calculated using the average YMPE for the final three year period of a Member’s participation in the Plan.

The amount by which twice the Member’s required contributions with interest exceed the commuted value of the Member’s benefit shall be paid to the Member.

Bridge Benefits

A Member who retires early on or after July 1, 2001 is eligible to receive a bridge benefit equal to $12.00 per month per year of credited service accrued to July 1, 2001. Such bridge benefit will be payable commencing on the Member’s early retirement date or age 60, if later. The bridge benefit ceases at age 65 or death, if earlier. Such bridge will be reduced by 0.25% per month for each month commencement occurs prior to 65.

If the Member has attained 80 points at his early retirement date, the bridge benefit will be unreduced.

All pensioners who retired prior to July 1, 2001 and who had not yet attained age 65 at July 1, 2001, will receive a bridge benefit of $12.00 per month per year of credited service accrued to July 1, 1999. The bridge benefit ceases at age 65 or death, if earlier.
Annual Pension Increase

Up until July 1, 2002 pensions in payment were increased from July 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 6% of the rate of return earned on the book value of fixed income securities held by the fund over the previous calendar year, subject to a maximum of that calendar year’s rate of increase in the Consumer Price Index. The July 1, 2002 increase was 2.2%.

After July 1, 2002, pensions in payment would 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 6% of the 5-year average rate of return earned on the market value of the fund, subject to a maximum of the previous calendar year’s rate of increase in the Consumer Price Index. There were no increases provided from January 1, 2003 to January 1, 2007.

Since January 1, 2007, pensions in payment were increased by 2.88%.

Maximum Pension

The total annual pension payable from the Plan upon retirement, death or termination of employment cannot exceed the lesser of:

- 2% of the average of the best three consecutive years of regular annual salary, multiplied by total credited service; and
- $2,890.00 or such other maximum permitted under the Income Tax Act, multiplied by the member’s total credited service.

Death Benefits

Pre-retirement:  
- The death benefit payable is equal to the commuted value of benefits accrued under the Plan.
- The amount by which twice the Member’s required contributions with interest exceeds the commuted value shall be paid to the Member’s spouse or if no spouse exists, to the Member’s designated beneficiary.

Post-retirement:  
- The normal form of payment is a lifetime pension guaranteed for ten years. However, the member may elect to receive an optional form of pension on an actuarial equivalent basis.

Disability Benefits

If a Member becomes totally and permanently disabled, he shall continue to accrue benefits on the basis of his earnings in the twelve month period preceding the onset of disability.

A disabled Member shall not be required to contribute to the Plan.
If a Member terminates employment prior to retirement, he may elect to receive one of the following:

a) A refund of his required contributions, with Net Interest on the Fund if the Member has not participated in the Plan for at least 2 years.

b) A transfer of the commuted value of the Member's pension.

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

In addition to the benefit payable above, the amount by which twice the Member's required contributions with interest exceeds the commuted value of the Member's benefit shall be paid to the Member.

With respect to (b) and (c) above, the transfer must be made to another retirement arrangement or pension plan in the form and manner prescribed by the Canada Revenue Agency and the amounts so transferred must be locked-in to provide retirement benefits commencing no earlier than the Member's early retirement date under the Plan.
APPENDIX G

Employer Certification

With respect to the Report on the Actuarial Valuation for Funding Purposes as at July 1, 2016 of The Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including McMaster Divinity College, I hereby certify that, to the best of my knowledge and belief:

- The valuation reflects the terms of the University’s engagement with the actuary described in Section 2 of this report, particularly the requirement to include a margin of 0.25% in the discount rate used to perform the going concern valuation and the University’s decisions in regards to determining the solvency funding requirements.

- A copy of the official plan documents and of all amendments made up to July 1, 2016, was provided to the actuary and is reflected appropriately in the summary of plan provisions contained herein.

- The asset information summarised in Appendix B is reflective of the Plan’s assets.

- The membership data provided to the actuary included 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, 2016.

- All events subsequent to July 1, 2016 that may have an impact on the Plan have been communicated to the actuary.

Date ___________________________  Signed ___________________________

Name ___________________________

MERCER
# 2015-2016 System Wide Indicators

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Introduction

The 2014-15 to 2016-17 Strategic Mandate Agreements (SMAs) between individual universities and the Ministry of Advanced Education and Skills Development (the ministry) outline the role that each university currently performs in the postsecondary education system and how it will build on its current strengths to achieve its vision and help drive system-wide objectives articulated by the ministry’s Differentiation Policy Framework.

The ministry and the university are committed to continuing to work together to ensure a postsecondary education system that achieves and supports accessibility, high-quality and student-centred learning experiences, social and economic development, financial sustainability and accountability.

As the ministry noted throughout the SMA process, robust metrics and reporting are crucial to achieving greater differentiation, and will lay the foundation for further transformation by providing the evidence base for future discussions and decisions.

In general, the metrics in the 2015-2016 SMA Report Back reflect the system-wide metrics in the ministry’s Differentiation Policy Framework. Colleges and universities also have the opportunity to provide a narrative outlining each institution’s strengths.

The ministry recognizes that many of these metrics are proxy measures and that more robust system wide metrics will be developed in consultation with the sector. The ministry will continue to work with institutions to strengthen transparency and accountability by developing system-wide metrics. SMA Report Backs will be updated in the future as new system-wide metrics become available.

Overview

This year, the deadline for colleges and universities to submit the 2015-2016 SMA Report Back to the ministry is November 15, 2016. The SMA Report Back includes the following features:

- Save as You Go - Users can save the information they enter into the SMA Report Back at any time. Clicking either the save or next button will save the information.
- Review Before You Submit - Users can review all of the information before submitting their institution’s SMA Report Back.
- Save or Print a PDF Copy of the Report Back - Users can save to their computer or print a PDF copy of their institution’s 2015-2016 SMA Report Back at any time.
- Enter Text - Users can input up to 4000 characters (equivalent to approximately 600 words or one single-spaced page) into the text box for each of the SMA Report Back indicators.
- Text Box Formatting - Users can paste text from other sources (Word documents, emails, etc.) into the SMA Report Back text boxes.

Where possible, to help streamline the 2015-2016 SMA Report Back process, the ministry pre-populated McMaster University's 2015-2016 SMA Report Back template with data from a variety of confirmed ministry and institutional sources (e.g., Key Performance Indicators, USER, previous SMA Report Backs, etc.). University users can send questions to Arlene Woolley, Senior Policy Advisor at Arlene.woolley@ontario.ca. Thank you for your continued support of the annual SMA Report Back process.
1. Jobs, Innovation & Economic Development (JIED)

This component highlights McMaster University’s collaborative work with employers, community partners and regions, or at a global level. It establishes the university’s role in fostering social and economic development, and serving the needs of students, the economy and labour market.

The ministry will be consulting institutions on a proposed short list of additional system-wide JIED metrics that have been developed in collaboration with the Ministry of Research and Innovation (MRI), Ontario Centres of Excellence (OCE), and MaRS Data Catalyst.

Through consultations with institutions, the ministry will select new metrics from the short list. These will become part of future SMA Report Backs. The additional metrics will serve as a basis for a narrative on the economic and social contribution of institutions to local communities and to the province.

1a. Graduate Employment Rate

<table>
<thead>
<tr>
<th>Per the KPI results reported from the graduate survey of 2013 graduates:</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The employment rate for 2013 graduates, 6 months after graduation, at McMaster University was:</td>
<td>88.8</td>
</tr>
<tr>
<td>The employment rate for 2012 graduates, 2 years after graduation, at McMaster University was:</td>
<td>94.5</td>
</tr>
</tbody>
</table>

1b. Employment in a Related Job

<table>
<thead>
<tr>
<th>Per the graduate survey of 2013 graduates:</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The respondents that indicated that, 2 years after graduation, their work was closely or somewhat related to the subject matter of the program of study that the respondent completed in 2013 at McMaster University was:</td>
<td>77</td>
</tr>
<tr>
<td>The respondents that indicated that, 2 years after graduation, their work was closely or somewhat related to the skills (i.e. critical thinking, analytical, communication, problem solving) that the respondent developed at McMaster University was:</td>
<td>89</td>
</tr>
</tbody>
</table>

Additional Information

Additional survey tools, caveats and/or other information regarding the data reported above re: Graduate Employment Rates (up to 600 words approx.).

Over 95% of the respondents of a graduate survey, administered during the July 2016 convocation, indicated that McMaster prepared them for employment. About 42% of them had received an offer of employment as a result of attaining their degree at McMaster University.

The 2016 Maclean’s University Reputation Rankings ranked McMaster as the fifth best university in Canada for the categories of Most Innovative and Best Overall. McMaster also ranked third in Ontario in the categories of Leaders of Tomorrow and fourth in Highest Quality. This ranking was based on a national survey of business professionals, high school guidance counsellors, university faculty and senior administrators, asking for their views on quality and innovation. McMaster’s high standing, especially with private sector respondents, has a positive effect on the graduate employment rate of our graduates.

The Times Higher Education 2015 Global Employability University Rankings, which assesses...
universities based on the employability of their graduates, ranked McMaster as the fifth best Canadian University and among the top 100 in the world.

**Highlights**

Please provide highlights of McMaster University’s collaborative work with employers, community partners and regions, or at a global level, to establish the university’s role in fostering social and economic development, and serving the needs of students, the economy and labour market. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx).

1. McMaster is a hub of research and innovation that has high societal and economic impact in the local, provincial and global community. Successful initiatives include:

   • McMaster Innovation Park (MIP) provides specialized facilities and support to over 55 companies, enabling them to successfully bridge the gap from research to commercial application. More than 700 people work at MIP.
   
   • “The Forge” helps student entrepreneurs grow successful businesses. It has incubated over 60 companies; 2 of which are self-sustaining, and another 18 are either making money or have received investment or award money.
   
   • The McMaster Automotive Resource Centre (MARC), a state-of-the-art automotive research centre, houses the industry-scale labs, classrooms and equipment needed to develop the vehicles of the future. It is home to about 500 researchers, faculty and students and has partnerships with companies such as Chrysler, Ford, GM and ArcelorMittal Dofasco. In 2015-16, research conducted through the Canada Excellence Research Chair in Hybrid Powertrain trained 45 graduate students, 10 undergraduates and 7 postdoctoral fellows, and secured funding to enhance the research infrastructure of MARC.
   
   • The McMaster Manufacturing Research Institute (MMRI), one of Canada’s most advanced and best equipped research laboratories, undertakes high-profile applied research in cooperation with industrial partners, and provides education and training to graduate and undergraduate students.
   
   • The McMaster Fraunhofer Biomedical Engineering and Advanced Manufacturing Project Centre (BEAM), undertakes research in technologies for cell therapy and point-of-care diagnostics. It will train 18 postdoctoral fellows, 12 graduate and more than 30 undergraduate students over 5 years.
   
   • The Population Health Research Institute (PHRI), a collaborative initiative with Hamilton Health Sciences, is a world leader in large clinical trials and population studies, supporting advances in population health on a global scale.

2. McMaster students have access to opportunities to connect and/or work with community partners or employers to apply what they learn in the classroom in a research or work environment. The fact that in 2015, 89% of McMaster graduates were employed six months after graduation and 95% were employed after two years demonstrate their preparedness for the labour market. Successful initiatives include:

   • The Michael G. DeGroote Institute for Infectious Disease Research, a multidisciplinary team of world-class scientists is training the next generation of infectious disease researchers and clinicians.
   
   • “Industry Link”, a mentorship initiative of the Medical Sciences graduate program connects
current McMaster students with health science industry leaders.
- The McMaster Research Shop pilot program provides graduate students with work and networking opportunities to develop the skills needed to succeed in the workplace.
- Each year, the Indigenous Learners Health Sciences (ASHS) office, in collaboration with community partners delivers an Inter-professional Day in Aboriginal Health. The curriculum was developed by the Six Nations Family Health Team, comprising Western and Traditional Medicine Practitioners, and includes a site visit to Six Nations of the Grand River.
- The Action Research Commons Hamilton (ARCH) is a gathering place for researchers, students, area residents, and others to collaborate and conduct community-engaged research.
- McMaster offers co-op and internship programs to connect students to employers in their desired field, and hosts annual career fairs that promote students and young alumni to employers.

3. McMaster’s Community Engagement Strategic Plan (2015-16), focuses on developing community-driven research, education, and service partnerships, and brings together interdisciplinary and cross-sectoral working groups on themes such as Poverty & Inclusion, and Healthy Spaces & Communities.

2. Teaching and Learning

2a. Teaching and Learning - Student Satisfaction
The metrics in this component capture McMaster University’s strength in program delivery methods that expand learning options for students, and improve their learning experience and career preparedness. This may include, but is not limited to, experiential learning, online learning, entrepreneurial learning, work integrated learning, and international exchange opportunities.

<table>
<thead>
<tr>
<th>2a. Student Satisfaction:</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per the 2014 National Survey of Student Engagement (NSSE), the undergraduate student satisfaction rate (total of excellent and good responses) at McMaster University (MAC) for NSSE question “How would you evaluate your entire educational experience at this institution?” for Senior Year respondents.</td>
<td>86.2%</td>
</tr>
<tr>
<td>Per the 2014 National Survey of Student Engagement (NSSE), the undergraduate student satisfaction rate (total of definitely yes and probably yes responses) at McMaster University (MAC) for NSSE question “If you could start over again, would you go to the same institution you are now attending?” for Senior Year respondents.</td>
<td>84.9%</td>
</tr>
</tbody>
</table>

Additional Information
Additional survey tools, caveats and/or other information regarding the data reported above related to measuring student satisfaction (up to 600 words approx.).

In the 2016 Maclean’s University Rankings, McMaster ranked third in Ontario in overall reputational and in Student Satisfaction in the category of Medical Doctoral Universities.

Additional methods used to measure student satisfaction include:
- An undergraduate in-program survey, distributed in the fall of 2015;
• An undergraduate graduate survey, distributed in the Winter of 2016, to all graduating undergraduate students;
• The Canadian Graduate Professional Student Survey;
• CBIE Survey of International Students in Canada;
• The First Generation Student Services Survey; and course evaluations.

**Highlights**

Please provide highlights of McMaster University’s activity in 2015-2016 that contributed to maintaining or improving student satisfaction. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.).

1. The McMaster Institute for Innovation and Excellence in Teaching and Learning (now named the MacPherson Institute), which facilitates the development and use of advanced pedagogies, engages students to serve as apprentices and collaborators to improve the student experience. Collaborative programs with Faculties include:

   • MacChangers: An extracurricular activity that provides resources, coaching and support to small interdisciplinary teams of students to work collaboratively to develop innovative ideas and solutions intended to contribute to positive change locally or globally.
   • The Student Scholar Program: A program that provides students interested in pedagogical research and innovation with opportunities to contribute to the design and development of new courses, create new resources for staff/faculty and students, and collaborate with the MacPherson Institute on teaching and learning research projects.

2. McMaster is known for pioneering inquiry and problem-based approaches to learning, which have been adopted worldwide. McMaster’s Learning Portfolio (LP) program continues the University’s tradition of developing and implementing innovative pedagogy. Through the LP program, students set goals and reflect on curricular and co-curricular activities, integrating all of their experiences into a single platform. The LP has been implemented into 17 curricular and co-curricular programs, and the number of users has grown 11% since 2014-15, to 8,237.

3. McMaster is continually reviewing programming to respond to student needs and improve satisfaction. Based on student feedback, recent changes include:

   • The DeGroote School of Business offered additional elective courses during the summer term, including the first fully online course for undergraduate Commerce students.
   • The Physician Assistant Program revised its curriculum to improve professional competencies.
   • The Faculty of Engineering included co-curricular programming by fostering peer-to-peer teaching and learning. An experiential program coordinator works with students to support and integrate learning inside and outside the classroom.
   • The curriculum for “Skills for Career Success in Science” designed to help students think about post-graduate transition, was revised to support students in engaging with the scientific community.

4. McMaster strives to nurture and support students to be as healthy as possible through various programs including:
The 2016 Maclean’s University Rankings indicate that McMaster students ranked the University first in the country in the provision of mental health services. The Arrive and Thrive program is designed to prevent the development of addictive behaviours, through a series of brief interventions among those at risk. The program helps students reduce negative coping strategies (e.g. smoking, alcohol use), while enhancing positive coping and adaptive behaviours. The project is funded by MAESD, through the Mental Health Innovation Fund.

- Dogs At Mac is a wellness program run by the Faculty of Social Sciences, which uses therapy dog assisted interventions with students, faculty and staff. The program also features a social media campaign that uses the popularity of the dogs to promote positive morale on campus.

- “Light Up the Night” and the “Last Lecture” are annual end-of-year events that recognize and celebrate the holistic ways in which students have struggled, learned, and grown over the course of the year. The events aim to set a positive tone at the end of the academic year, and have been recognized with a Canadian Events Industry Award.

### 2b. Teaching and Learning - Graduation Rates

| Per the KPI results reported in 2015-2016, the graduation rate at McMaster University is: | 80.1 |

*The graduation rate shown involves the selection of all First Year, New to the Institution, Undergraduate students from the Fall 2007 enrolment file who were seeking a Bachelors or First Professional degree, for whom an FTE value of 0.4 or greater is recorded, and who also have a valid Student ID number. This subset of year one enrolments is then matched against records of students who received a Bachelors or First Professional degree from the same institution during the period 2007 – 2014 (subsequent 7 years). For students who received two or more degrees during this 7 year period, every effort was made to use the initial degree awarded (based upon the year in which the degree was awarded).

**Additional Information**

Additional survey tools, caveats and/or other information regarding the data reported above related to measuring student satisfaction (up to 600 words approx.).

In the 2016 Maclean’s University Rankings, McMaster University has the third highest 7-year graduation rate compared to all Ontario universities.

Additional methods used to measure the McMaster’s graduation rate in 2015-16 included the Consortium for Student Retention Data Exchange (CSRDE). The CSRDE measures the percentage of undergraduate students that graduate within four to ten years.

**Highlights**

Please provide highlights of McMaster University’s activity in 2015-2016 that contributed to maintaining or improving the graduation rate. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.).
1. McMaster provides assistance to undergraduate students who are at risk of not completing their degrees, including:

   • Academic Reboot is a one day conference that takes place each year over the summer. The program is operated by the University’s Student Success Centre, and teaches and supports upper-year students to more effectively and efficiently manage a university workload. Participants learn time management strategies, note-taking methods, strategic approaches to reading and studying, and receive support in engaging with instructors. The program is intended for students who are on academic probation or struggling academically. As a consequence of participating in this program, learners are more confident in their ability to manage their workload and in the skills and knowledge they are honing through study and class participation.

   • Career counselling is offered to students who are at risk of dropping out of the University as a preventative measure. Students have the opportunity to discuss academic and career options and receive guidance and coaching, and are equipped with tools to assist them in decision-making.

2. McMaster has introduced programming changes to help students graduate on time:

   • Changes were made to the structure of the undergraduate Commerce program to enable students pursuing a Chartered Professional Accountants designation to complete their required coursework without overloading or delaying their graduation.

   • Enrolment cap and entry requirements were removed to eliminate barriers to students interested in a Science program and allow them to enrol in their preferred program directly.

3. Support services for international students intended to improve their graduation rate include:

   • The McMaster English Language Development (MELD) diploma enables international students to improve their English Language skills prior to attending their first year at university, and enhance their academic success. Enrolment in the program has more than doubled from 36 students in 2014-15 to 75 in 2015-16. Around 95% of the 2015-16 intake successfully completed the program and will enrol in first year programs at McMaster in September 2016.

   • Additional support services provided include: student based mentorship programs; additional faculty being made available; extra support for language training; space being made available to celebrate the diversity of religious beliefs; social events for international learners; and student exchange nights.

4. McMaster introduced a “Thesis Completion Boot Camp” to help graduate students complete their Master’s and PhD theses. Participants gain insight into writing style and practice, and develop strategies to write more efficiently and effectively.

2c. Teaching and Learning - Student Retention

Using data from McMaster University (MAC)’s Institutional Consortium for Student Retention Data Exchange (CSRDE) submissions, please provide McMaster University (MAC)’s achieved results:
<table>
<thead>
<tr>
<th>Entering Cohort</th>
<th>2011 Cohort</th>
<th>2012 Cohort</th>
<th>2013 Cohort</th>
<th>2014 Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st to 2nd Year</td>
<td>88.7</td>
<td>90.3</td>
<td>89.9</td>
<td>90.3</td>
</tr>
<tr>
<td>1st to 3rd Year</td>
<td>84.6</td>
<td>85.9</td>
<td>86.0</td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

Please provide highlights of McMaster University’s activity in 2015-2016 that contributed to maintaining or improving the retention rate. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.).

1. The 2013-14 Productivity and Innovation Fund supported the development of Level 1 foundational courses to enhance the first year student experience. McMaster has introduced new and expanded existing Level 1 foundational courses to assist new undergraduate students with the transition to university:

   - A new Level 1 course, “Business I Orientation” was introduced to provide new Business undergraduate students with information and activities to set them up for success. Students build their knowledge of academic regulations, strategies for success, and services available within the University. Additionally, students earn participation marks through engaging and participating in workshops.
   - The Level 1 foundational course, “Life, the University and a bit of Everything”, designed for Social Sciences students, expanded from 100 to 300 students in 2015-16. This course helps students successfully navigate their first year of study and move through their degree. Face-to-face class time is also used to build important university skills, such as critical and reflective thinking, study habits, time management, and conflict resolution.
   - The “Investigating Science: Opportunities and Experiences” course was made available to a larger cohort of Science students. This foundational course prepares students for transition to university by exploring a range of scientific disciplines, with an emphasis on skills development, such as critical thinking and collaboration. Students are introduced to the programs offered in level two enabling them to explore potential areas of interest. Through weekly mini research investigations, the course also ensures that students gain the skills they will need to succeed in any area of science. The course is facilitated by senior student “peer mentors” who develop effective communication and leadership skills for credit in “Peer Mentoring in Science”.

2. The University has implemented mentoring programs that connect senior students with first-year mentees to foster strong peer relationships and improve student engagement, success and retention. Mentors receive training in effective communication, cultural sensitivity, and mental health awareness. The “Art of Leadership: Mentorship Program” enables upper-year Humanities students to make a positive impact on the experience of fellow students new to the University. Mentors have the option of mentoring first year Humanities students or international students whose first language is not English. Mentors also engage in an in-class component where they study the foundations of leadership and cultivate an interest in the mentoring process.

3. McMaster offers orientation sessions to incoming students to prepare them with the skills and knowledge they will require to meet academic expectations.
• The Summer Orientation for Academic Readiness (SOAR) program is a four-week online program operated by the Student Success Centre. It includes blog posts from instructors and students, videos and fact sheets on academic skills, and activities for students to test their knowledge.

• The Outdoor Orientation Student Experience is a four-day camping and canoe trip in northern Ontario specific to exchange students and incoming first year students. In both cases, students have the opportunity to engage in outdoor activities, as well as learn from upper year student leaders on how to succeed academically and personally at university.

4. An early identification and intervention system for at risk Level I students, has been implemented for students in Engineering programs. The intervention is overseen by academic advisors and peer tutors. Overall, these initiatives have resulted in a significant reduction in the Level 1 to Level 2 attrition rates. Specifically, attrition rates have reduced from 25% for the 2008 cohort to under 10% for the 2014 cohort.

2d. Teaching and Learning-Work-Integrated Learning*

As part of the Ontario government’s postsecondary education transformation agenda, the government is interested in expanding work-integrated learning (including co-operative education) to make future Ontario students more career and job ready. Co-ops, internships, work placements and other types of work-integrated, experiential or entrepreneurial learning are already available in colleges and universities, often in partnership with industry.

*DEFINITIONS:

Work-Integrated Learning (WIL) is the process where students learn from experiences in educational and practice settings and integrate those experiences for effective professional practice and employment (adapted from HEQCO, 2012).

A Co-operative Education Program is defined as one that formally integrates a student’s academic studies with work experience. Usually, the student alternates periods of study with experience in career-related fields according to the following criteria (adapted from Canadian Association for Co-Operative Education, http://www.cafce.ca/coop-defined.html , 2012):

• Each work situation is approved by the co-operative education institution as a suitable learning situation;
• The co-operative education student is engaged in productive work rather than merely observing;
• The co-operative education student receives remuneration for the work performed;
• The co-operative education student’s progress on the job is monitored by the cooperative education institution;
• The co-operative education student’s performance on the job is supervised and evaluated by the student’s employer;
• The time spent in periods of work experience must be at least 30 per cent of the time spent in academic study

Based on the definitions provided above, please provide WIL data for the McMaster University (MAC) in 2015-2016:
<table>
<thead>
<tr>
<th>Co-operative Education Program Type</th>
<th>Number of programs at the McMaster University (MAC) with a Co-op Stream</th>
<th>Number of students at the McMaster University (MAC) enrolled in a Co-op program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>53</td>
<td>3831</td>
</tr>
<tr>
<td>Graduate</td>
<td>1</td>
<td>344</td>
</tr>
</tbody>
</table>

**Highlights**

Please provide highlights of McMaster University's activity in 2015-2016 that contributed to providing WIL opportunities for students. Along with co-op, other examples may include internships, mandatory professional practice, field experience, service learning, applied research projects, innovation incubators and other WIL opportunities. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.).

1. Students at McMaster are offered academic programs that engage them in transformative experiential learning experiences and work-integrated learning. For example:
   - In 2015-16, the University added three new Science co-op programs: Environmental Sciences, Earth and Environmental Sciences; and Geography and Environmental Sciences. This increased the Faculty of Sciences total number of programs with a co-operative education option to 14. For each job search cycle, at least 90% of engaged students secure a co-op job.
   - The Master’s program in Biomedical Discovery and Commercialization (BDC) requires a Team Project, an internship in a related field, and culminates in a scholarly paper that demands a rigorous synthesis of the student’s experiential and in-course learning.
   - The Master of Science in Global Health culminates in a symposium where students present and receive critical feedback from policy makers, activists and expert researchers on their research, and a 4-6 week practicum.
   - The new Master of Public Health program offers two community-based practica.
   - The DeGroote School of Business Commerce Internship program is the largest undergraduate business internship program in Ontario, providing students with 12-16 months of WIL. In 2015-16, 119 students secured an internship following their third year of study, an increase over 2014-15, in which 104 students secured a work placement opportunity.
   - Over 2015-16, McMaster’s MBA co-op program expanded its placement opportunities: students in the program had a WIL placement rate of 91%, resulting in 347 co-op work terms.

2. McMaster is committed to providing students with opportunities to engage with a community partner or employer and develop the skills needed to build successful careers:
   - Change Camp Hamilton, led by McMaster’s Office of Community Engagement, is a partnership with the City of Hamilton, Mohawk College, Redeemer University College, and the Social Planning & Research Council of Hamilton. The program connects students, residents, and community organizations to identify actions that support community and city-building. Students are given an opportunity to foster social and economic development, while also building networks and relationships that will keep them in the region after graduation. Over 200 participants were involved in developing 234 action recommendations aligned with the City of Hamilton’s new strategic plan.
- “The Forge” supports student startups at McMaster and runs on-campus programming (workshops, events, competitions) to support student entrepreneurs under the umbrella of “Forge@Mac”.
- MacServe Day of Learning and MacServe Reading Week are two programs that connect students with local, regional and provincial agencies to complete volunteer service and support social development in the host communities. In 2015-16, over 240 students connected with agencies in Hamilton, Montreal, Ottawa, Vancouver, New Orleans (USA), and La Romana (Dominican Republic).
- “Career Field Experience” is an annual externship program offered during the University’s Fall and Winter reading weeks. Through placements that range between 3 and 5 days, the program allows participants to establish or build upon career goals, explore industries, gain practical work-related experience, and apply knowledge in a career field of interest. Follow-up sessions are held at the completion of the program, to help participants leverage their experience as they explore post-university opportunities. Additionally, each student receives a CFE certificate of completion, personalized and customized by the placement.
- Social Sciences students are engaged with employers and community partners in a variety of ways including job shadowing, academic placements, and in undertaking courses which require that 80 hours must be spent working in the community.

### 2e. Teaching and Learning - E-Learning

As part of the Ontario government’s postsecondary education transformation agenda, the government is interested in expanding online learning and technology enabled learning opportunities for students in Ontario. McMaster University is asked to provide information on e-learning courses, programs and registrations in 2015-2016.

Through the development of metrics under the SMAs, the ministry will be developing long-term indicators and updated definitions for online and technology-enabled learning in consultation with the sector. Indicators developed are intended for use in future SMA Report Backs.

In future years, the ministry anticipates collecting more comprehensive data that will profile a broader range of online and technology-enabled learning indicators to ensure students have access to high-quality flexible learning opportunities across the system.

eCampusOntario will be leading the development of eLearning indicators in collaboration with the sector.

**Fully Online Learning* and Synchronous Conferencing***

*DEFINITIONS:

**Courses:**

A **Fully Online Learning (asynchronous) course** is a form of distance learning delivered to individuals with access to the Internet, either at home, work or through an access centre. Although courses may have a set start date and set due dates for assignments, students can otherwise access and participate in courses at times and places of their own choosing. The online component is typically over 80% of the total delivery. For example, a fully online course may include occasional face-to-face meetings, a proctored exam, etc. with the remainder of the content delivered online.
A *Synchronous Conferencing course* is delivered through audio and video conferencing to provide synchronous communications (i.e., at the same time) between an instructor at one site and students at other sites. Conferencing can make use of the public telephone system (ISDN), dedicated wideband networks or the Internet. A course is considered to be offered via synchronous conferencing if 80% or more of the content is delivered this way. For example, a synchronous conferencing course may have occasional face-to-face meetings, a proctored exam, etc. with the remainder of the content delivered through audio and video conferencing.

**Programs:**

A *Fully Online Learning (asynchronous)* program describes a program that offers 80% or more of its courses fully online. For example, if a program consists of 10 courses (8 delivered fully online and 2 delivered via traditional face-to-face) the program is defined as a fully online program.

A *Synchronous Conferencing program* describes a program that offers 80% or more of its courses via synchronous conferencing. For example, if a program consists of 10 courses (8 via synchronous conferencing and 2 via traditional face-to-face) the program is defined as a synchronous conferencing program.

**e-Learning Course, Program and Registration Data Based on the definitions provided above, provide the McMaster University’s eLearning data for 2015-2016:**

<table>
<thead>
<tr>
<th>Course Data</th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ministry-funded, for-credit courses offered through fully online learning</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Number of ministry-funded, for-credit courses offered through synchronous conferencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of ministry-funded, for-credit courses offered in e-Learning format</td>
<td>8</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Data</th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ministry-funded, for-credit programs offered through fully online learning</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Number of ministry-funded, for-credit programs offered through synchronous conferencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of ministry-funded, for-credit programs offered in e-Learning format</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Registrations</th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registrations in ministry-funded, for-credit courses offered through fully online learning</td>
<td>3331</td>
<td>575</td>
</tr>
<tr>
<td>Registrations in ministry-funded, for-credit courses offered through synchronous conferencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of Registrations in ministry-funded, for-credit courses offered in e-Learning format</td>
<td>3331</td>
<td>575</td>
</tr>
</tbody>
</table>
Additional Information

Additional survey tools, caveats and/or other information regarding the data reported above re: above re: e-Learning Course, Program and Registration Data (up to 600 words approx.).

The above eLearning information represents eLearning course and program information as reported in the University’s 2015-16 undergraduate and graduate course calendars.

Highlights

Please provide highlights of McMaster University's activity in 2015-2016 that captures the strength in program delivery methods that expand e-learning options for students, and improve the student’s e-learning experience and career preparedness. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.)

1. McMaster University is developing new programs that incorporate creative e-learning formats for students:

   - The new Master in Child Life and Pediatric Psychosocial Care graduate program is delivered using a creative web-based online learning format, complemented by two residency periods. This mode of delivery is unique in child life education. The blended delivery model broadens the reach of this type of education, and also provides flexibility for working professionals.

   - The Master of Science in Global Health program is delivered through a network of five universities in four continents, and with experts from health sciences, social sciences and business, using digital technology. The program’s unique delivery combines face-to-face classroom experiences, online collaboration in virtual teams, and student exchanges to Maastricht University in the winter term. Using WebEx, Google+ Hangouts and Avenue to Learn, live lectures are delivered to students in the classroom at McMaster while broadcasting to over 200 students in Maastricht University and Manipal University.

2. McMaster’s Bachelor of Technology program will place its Information and Communication Technology (ICT) degree program completely online in both lecture and lab contexts. This innovative high quality collaboration will make the program a leader in delivering blended learning at McMaster.

3. McMaster uses e-learning formats to help students prepare to be successful in career endeavours after graduation:

   - InterviewStream is an online tool that provides students with an opportunity to prepare and practice their interviewing skills well in advance of meeting the interviewer. Students have the option to self-access or request a career advisor’s expert review of their performance. The online platform allows for the development of customized interview questions that can be used for professional school, volunteering and job search interview practice. This is a very popular tool for students.

   - Job Search Essentials is an online course offered exclusively for alumni up to 10 years after graduation. The program runs for 30 days and consists of 3 modules. A different aspect of job search is discussed in each module, and includes an assignment which participants
receive feedback on from the instructor.

- Skills and Experience eDevelopment (SEED) program engages students in skills building and career exploration in a virtual platform by combining self-directed practicums and Student Success Centre career programming. Students work with industry partners to learn how their skills apply in the workforce. This pilot attracted 25 students and 30 employer partners from the creative, green, health care and social services industries. As part of the program, students participate in an online learning portfolio to complete tasks, reflect and record their experience.

Hybrid Learning*

A Hybrid Learning course is a course where face-to-face teaching time is reduced, but not eliminated, to allow students more time for online study. This model comes in a number of formats, however the online component is typically 50-80% of the total course delivery. In this case, a hybrid learning course may have components delivered via traditional face-to-face; however, over 50% of the course delivery should be online.

A Hybrid Learning program is one in which 80% or more of its courses are hybrid learning courses.

Hybrid Learning Highlights
Please highlight one example of McMaster University’s use of Hybrid Learning courses and/or programs.(up to 600 words approx.).

1. McMaster has redesigned high-enrolment courses to include blended formats and incorporate technology-enabled learning:

   - Introduction to Macroeconomics is a traditional high-enrolment service course in the Faculty of Social Sciences with an enrolment level of about 2,500 students per term. In 2015-16, its delivery method was changed to a hybrid model. The course is broken into several broad content modules. Students come to class for one hour per week. The rest of the content is accessed online or by reading the text book. Students use a “weekly schedule” to keep them on task as they read the text book, watch instructor videos, attend the weekly face-to-face session, and complete online homework.

   - The first year foundations course, “Life, the University, and a Bit of Everything”, uses a blended learning model that includes one-hour online modules and 2-hour small group tutorials per week. In 2015-16, the course was modified in response to student feedback and research results and reached a capacity of 300 students. The University is hoping to further increase capacity in 2017-18.

   - An “Introduction to Health Management” course was incorporated into the University’s Master of Business Administration (MBA) program to provide students with a hybrid learning opportunity. This course has eight in-class sessions and five on-line classes. The in-class sessions include a combination of lectures, guest speakers and group discussions, whereas the on-line portion of the course is largely self-directed.

   - Five high enrolment level 1 Science courses in Biology, Chemistry, Physics, Psychology and Environmental Science, are being delivered in a blended format. Using a blended model in core level 1 courses provides students with a much firmer understanding in these important base areas.

2. McMaster is re-designing existing programs to incorporate hybrid learning models. For example,
the Software Engineering Technology (SET) degree completion program is being moved to an online delivery format. In 2015-16, SET offered four synchronous conferencing hybrid courses: Entrepreneurship (over 80% delivered online), Creativity and Decision Making (100% delivered online), Sustainability and Ethics (over 90% delivered online), and Management Principles (over 80% delivered online).

3. McMaster recognizes that hybrid learning models can provide students with more flexibility and enhanced learning environments by enabling the use of innovative new pedagogical approaches. To help support students, the University is actively developing new programs that incorporate blended learning models:

- The new Master in Public Health program includes an elective course on Behavioural Change. The teaching model involves students meeting every three weeks. Between meetings, students communicate through online discussion boards. The first course, offered in spring 2016, received positive reviews and is being offered again in 2016-17.
- “Electronic Devices and Circuits”, a traditionally challenging course in the Faculty of Engineering’s Department of Electrical and Computer Engineering, revised its teaching format to include a greater component of hybrid learning. The core instructional content of these courses was moved online, and face-to-face class time is now devoted to applications and problem solving. This change in the learning model resulted in a dramatic increase in student satisfaction.
- The “LearningSpace” in the Faculty of Health Sciences Centre for Simulation Based Learning (CSBL) allows Faculty programs to digitally record standardized patient encounters. This innovative initiative allows instructors and students to annotate, evaluate, record, and analyze encounters. Sessions can be recorded and reviewed after the simulation-based interaction is completed.

3. Student Population

This component highlights McMaster University’s contributions to improve access and success for underrepresented groups (Aboriginal, first generation, students with disabilities and French-language students).

<table>
<thead>
<tr>
<th>Full-Time Students</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total Full-Time Headcount Enrolment* at McMaster University (MAC) in 2015-2016:</td>
<td>28,413</td>
</tr>
</tbody>
</table>

*DEFINITION: *Headcount is the actual enrolment for Fall 2015 as of November 1, 2015 including full-time undergraduate and graduate students eligible for funding as reported to the ministry for the 2015-2016 fiscal year (enrolment reported in 2015-2016 remains subject to audit and/or correction).


*Please do not include International Students in the calculations below.
Students with Disabilities

*DEFINITION: Students with disabilities is the total number of students with disabilities (excluding apprentices) registered with the Office for Students with Disabilities and reported in Table 1 of the McMaster University (MAC)’s annual report to the ministry for the Accessibility Fund for Students with Disabilities (AFSD).

<table>
<thead>
<tr>
<th>Students with Disabilities</th>
<th># of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total number of Full-Time Students with Disabilities at McMaster University who registered with the Office for Students with Disabilities and received support services in 2015-2016:</td>
<td>1008</td>
<td></td>
</tr>
<tr>
<td>The total indicated above as a comparative % of the McMaster University's 2015-2016 Full-Time Enrolment Headcount:</td>
<td></td>
<td>3.55%</td>
</tr>
</tbody>
</table>

Highlights

Please provide highlights of McMaster University (MAC)’s activity in 2015-2016 that capture contributions to improve access, and success for students with disabilities (up to 600 words approx.).

1. McMaster is committed to ensuring that each student is afforded an academic environment that is dedicated to the advancement of learning and is based on the principles of equitable access and individual dignity. For students with disabilities, McMaster provides a number of accommodations, which includes but is not limited to, a new student transition program, academic supports (including assistance with completing tests and exams, notetaking services, support with assistive technologies, support with learning strategies), the provision of bursary funds for disability and educational needs, and library support services (e.g. provision of textbooks in alternate format, support with sign language and video captioning need etc). All of McMaster’s Faculties work closely with the University’s Student Accessibility Services office to ensure that all students requiring accommodation are identified and appropriate strategies are put in place.

2. “Shifting Gears” is McMaster’s transition program for students with disabilities that provides workshops and orientation sessions over the summer to assist incoming students with their transitional needs. A developmental component of the program, directed at personal and academic growth, provides for weekly drop-in sessions to address questions and individual needs. The program includes a mentoring initiative that matches students with disabilities to upper year volunteer mentors, and monthly activities designed to encourage fellowship and social integration. Academic accommodation planning is also provided.

3. The University has partnered with regional associations to support students with disabilities with their career transitions post-university. For example, Accessible Career Transition (ACT) is a partnership between McMaster’s Student Accessibility Services, the Student Success Centre and LIME Connect that supports career transitions for Students with Disabilities. LIME is a not-for-profit recruitment organization that works with employers to recruit post-secondary students/alumni with disabilities. In 2015-16, events included: on-campus workshops campus, which provided advice to student job seekers, and various recruitment events for students and alumni with disabilities that included a number of employer partners looking to hire students with disabilities.
First Generation Students

*DEFINITION: First Generation is a student whose parent(s)/guardian(s) has/have not attended a postsecondary institution. If a sibling of the student has attended a postsecondary institution, but the parent(s)/guardian(s) have not, the student is still considered a First Generation student.

- Parents/guardians: one or more adults, over the age of 21, who are legally responsible for the care and management of the affairs of the student.
- Postsecondary Attendance: have attended (but have not necessarily obtained a credential from) any institution of higher education in Ontario or elsewhere including outside Canada after high school (includes programs that lead to a postsecondary credential, e.g., degree, diploma, certificate).

<table>
<thead>
<tr>
<th>First Generation Students</th>
<th># of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total number of Full-Time First Generation Students enrolled at McMaster University in 2015-2016:</td>
<td>5222</td>
<td></td>
</tr>
<tr>
<td>The total indicated above as a comparative % of the McMaster University’s 2015-2016 Full-Time Enrolment Headcount:</td>
<td></td>
<td>18.38</td>
</tr>
<tr>
<td>The total number of Part-Time First Generation Students enrolled at McMaster University in 2015-2016:</td>
<td>301</td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

Please provide highlights of McMaster University (MAC)’s activity in 2015-2016 that capture contributions to improve access, and success for first generation students (up to 600 words approx.).

1. McMaster provides a number of supports and services to first generation students over the course of the academic year. This includes, but is not limited to, transitioning programs, peer and mentoring support programs, academic workshops, and life skills sessions. The programs and services focus on the success of the “whole” student. In addition, social activities are organized to allow students to share their experiences with fellow students and interact and ask questions of upper-year peers.

2. In addition, University staff and student leaders work together to offer first generation learners a series of workshops and social activities that address and support their academic, personal, and professional growth and needs. This “road map” of workshops and social events connects First Generation students with one another, as well as non-first generation students, and helps to ensure that first generation learners are exposed to the full range of student services offered at the University.

3. The University has partnered with community organizations to provide joint services that assist first generation students. For example, the Social Sciences Dog Visiting Program, in partnership with the Hamilton-Burlington SPCA, brings certified therapy dogs to campus as a way of helping first year Social Sciences students – particularly those who are first generation students – with their transition into university. The goal is to help students feel more socially connected and act as a “de-stressor” during stressful times of the academic year. This program is being evaluated to assess the benefits in relation to students’ successful transition, social connections, and retention.
Indigenous Learners

* DEFINITION: Indigenous is a collective name for the original people of North America and their descendants. The Canadian Constitution, Constitution Act 1982, recognizes three groups of Indigenous peoples - First Nations, Métis and Inuit. These are three separate peoples with unique heritages, languages, cultural practices and spiritual beliefs.

<table>
<thead>
<tr>
<th>Indigenous Learners</th>
<th># of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total number of Full-Time Indigenous Learners enrolled at McMaster University in 2015-2016:</td>
<td>487</td>
<td></td>
</tr>
<tr>
<td>The total indicated above as a comparative % of the McMaster University (MAC)’s 2015-2016 Enrolment Headcount:</td>
<td></td>
<td>1.71%</td>
</tr>
<tr>
<td>The total number of Part-Time Indigenous Learners enrolled at McMaster University in 2015-2016:</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

Please provide highlights of McMaster University (MAC)’s activity in 2015-2016 that capture contributions to improve access, and success for Indigenous Learners (up to 600 words approx.).

1. McMaster is invested in supporting Indigenous learners and strengthening Indigenous scholarship:

   - McMaster has a strong partnership with Six Nations Polytechnic (SNP) and is a member of a six university consortium that works in co-operation with SNP to assist students seeking university degrees to transition to university. Students enrolled in SNP’s first year Native University Program are eligible to receive a total of five credits; credits achieved with a minimum grade of 60% are transferable into undergraduate degree programs offered at the consortium universities.
   
   - The University has developed new Honours programs in Indigenous Studies. 2015-16 was the first year for the new Honours Indigenous Studies and Combined Honours Indigenous Studies Bachelor of Arts programs. Designed for both Indigenous and non-Indigenous students, these programs allow students to explore the intellectual traditions of many Indigenous peoples, with an emphasis on the Haudenosaunee and Anishinaabe of southern Ontario. Through these programs, students increase their understanding, awareness, and respect for Indigenous knowledge, spirituality, and social/political experience. Students also engage with innovative approaches to learning and scholarship through experiential educational opportunities as a means to develop the professional skills needed to work with Indigenous communities. As of Fall 2016, the program will be housed in a dedicated new space, including a ceremonial meeting room and dedicated outdoor garden, in L.R.Wilson Hall.

2. McMaster works towards improving access and the success of Indigenous learners through a number of programs and initiatives including:

   - An Elders in Residence program provides access to traditional knowledge keepers in a number of areas such as foods, medicines, ceremonial practices, languages, and artistic...
endeavours. Elders from the region provide a supportive and empathetic avenue for one-on-one interactions with students. Additionally, Elders are engaged in a number of course offerings for their particular expertise and wisdom, and provide extra-curricular programming, workshops and demonstrations to engage students.

- Academic skills and career preparation workshops are offered through the Office of Indigenous Student Services (ISS). These workshops focus on study skills such as research techniques, numeracy and academic writing; career preparation, including interview skills, resume building, and networking; and traditional knowledge (i.e. traditional survival skills camp, food preparation, and arts).
- Community building and social activities take place throughout the year and include cultural gatherings, round dances, and a graduation celebration dinner to recognize Indigenous graduates from across all Faculties.
- The ISS provides Indigenous learners from all Faculties with access to a full-time academic counsellor, and nutritional support.
- A peer mentoring program for Indigenous learners, “Yonkwahahivos”, which includes a series of events with Indigenous Community Leaders and invited guests, educates and promotes a deeper understanding of Indigenous knowledge and beliefs.

3. The Indigenous Learners Health Sciences (ASHS) office delivers a two-day Medical School Entrance Interview (MSEI) workshop developed by the Indigenous Physicians Association of Canada (IPAC), to increase the positive performance of Indigenous candidates during the medical school interview. A highly beneficial program, it has been presented in collaboration with IPAC at the 2014 Pacific Region Indigenous Doctors Congress and the 2014 Canadian Conference on Medical Education.

French-Language Students

* DEFINITION: A student is considered a French-language student if he or she meets at least one of the following criteria:

1) His/her mother tongue is, or includes French (the student is a francophone);
2) His/her language of correspondence with the institution is French;
3) He/she was previously enrolled in a French-language education institution; or
4) He/she was enrolled in a postsecondary program delivered at least partially in French.

<table>
<thead>
<tr>
<th>French-Language Students</th>
<th># of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total number of Full-Time French-Language Students enrolled at McMaster University in 2015-2016:</td>
<td>192</td>
<td></td>
</tr>
<tr>
<td>The total indicated above as a comparative % of the McMaster University's 2015-2016 Enrolment Headcount:</td>
<td></td>
<td>0.68%</td>
</tr>
<tr>
<td>The total number of Part-Time French-Language Students enrolled at McMaster University in 2015-2016:</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Highlights

Please provide highlights of McMaster University (MAC)'s activity in 2015-2016 that capture contributions to improve access, and success for French-language students (up to 600 words approx.).
In 2015-16, McMaster began a three-year partnership with the Association of Faculties of Medicine of Canada to launch an initiative called “Franco Doc”. Franco Doc identifies and mobilizes Francophone and Francophile students, prepares and equips them for experiential activities in the community, and recruits them for placements in official language minority communities (OLMC) so they may provide safe health services in French. Francophone students currently enrolled in the Medical Doctorate Program were identified and engaged in community building, with about 80 students having self-identified as Francophone or Francophile. The goal is to identify advisors and mentors with whom students can discuss, in French, such things as their medical education, terminology, the cultural aspects of patient care, and career plans.

Additional Information

Additional survey tools, caveats and/or other information regarding the data reported above related to measuring student satisfaction (up to 600 words approx.).

Note that the November 1, 2015, full-time enrolment figure (i.e. 28,413) used for McMaster University in Section 3, Student Population, is not current. The University’s true November 1st full-time enrolment was 28,410. As a result, the proportions shown for the under-represented student groups in Section 3 are not accurate.

3b. Student Population - International Students

DEFINITION: International enrolment is the headcount of full-time university (undergraduate and graduate) students who are not Canadian citizens (includes Inuit, North American Indian and Metis) or permanent residents (i.e., student visa, other visa, non-Canadian status unknown, or non-Canadian no visa status) on November 1, 2015, who are taking part in university courses or programs normally leading to a post-secondary qualification (does not include ESL, continuing education, general interest or non-credit courses).

<table>
<thead>
<tr>
<th>International Students</th>
<th># of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMaster University reported to the ministry Full-time International Enrolment* in 2015-2016:</td>
<td>2529</td>
<td>8.90%</td>
</tr>
<tr>
<td>The total indicated above as a comparative % of the McMaster University’s 2015-2016 Full-Time Enrolment Headcount:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McMaster University’s 2015-2016 Part-time International Enrolment is</td>
<td>53</td>
<td></td>
</tr>
</tbody>
</table>

Additional Information

Describe the methodology, survey tools, caveats and other information regarding the numbers reported above (up to 600 words approx.).

As defined by MEASD, the number of international students represents full-time headcount.
enrolment as of November 1, 2015, who took part in university courses or programs normally leading to a post-secondary qualification (i.e. does not include ESL, continuing education, general interest or non-credit courses). Please note that the number provided for McMaster University (i.e. 2529) over includes international students in courses and programs that do not lead to a post-secondary qualification. McMaster University’s true full-time international enrolment figure is 2409.

In a 2015 survey, 84% of international student respondents indicated that their program met or was significantly above their expectations. More than 91% of the respondents indicated that they may or definitely would recommend their program to others with similar interests.

**Highlights**

Please provide highlights of McMaster University's activity in 2015-2016 that contributed to maintaining or improving the international student experience at McMaster University. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.).

1. In an effort to improve the success of the University’s international learners, McMaster offers a number of targeted support services to international learners:

   - “Academic Boot Camp” for international students is run through the University’s Student Success Centre (SSC) and provides information sessions for the University’s international learners on topics related to academic skills, leadership development, and employment preparation. These sessions are intended to help international students improve their study skills and habits, and also balance their academic and co-curricular commitments.
   - Each year, the SSC provides a three-day Employment Boot Camp for international students. Participants learn how to write resumes, conduct job searches, network, write cover letters, explore the legalities of working in Canada, and receive feedback from employers in simulated job interviews.
   - The Get Ready! Get Hired Program is a one-day program offering held twice a year to coincide with the timing of job fairs to help prepare international students for these events and employment opportunities. The program covers resume and cover letter writing, interview preparation, networking, job searching in Canada and the legalities of working in Canada. Around 70 international students participated in this program in 2015-16.
   - Each year, McMaster’s School of Graduate Studies (SGS) holds an international graduate student fair. The fair was developed by the University’s International Graduate Student Advisory Group, to help international graduate students adapt to their new environment and includes information about housing, cell phones, grocery shopping, ethnic food options in Hamilton, banking, transportation and campus services. Also, each year, SGS provides International Excellence Awards, valued at $5,000 per recipient, and recognizes academic excellence among the University’s international graduate learners.

2. In 2015-16, the University re-designed the orientation program for MBA students based on feedback from the program’s international students. Students now engage in two days of sessions focused on adjusting to life in Canada and team building. In addition, the program hosts an excursion to Niagara Falls and concludes with two days of workshops on Professional Communication. The BizX Mentorship Program supports international undergraduate students by matching them with McMaster students to provide mentorship and support in experiencing life in Canada and at McMaster.
3. In 2015, the Master of Science in Global Health, a joint offering with Maastricht University in the Netherlands, received the Canadian Bureau for International Education (CBIE) Panorama Award for Outstanding International Education Program in the Academic category. Since this program launched in 2010, enrolment has tripled and over 600 students working virtually in transcontinental teams have been prepared for careers in a globalized world.

4. In June 2016, McMaster published a new strategy document entitled “The McMaster Model for Global Engagement”, which outlines the University’s vision for developing international research and education activities that foster cooperation, engaging in education and knowledge generation for the benefit of society, and enabling global citizenship.

3c. Student Population - Proportion of an institution’s enrolment that receives OSAP*

* DEFINITION: Receives OSAP is the number of OSAP awards, including any student at McMaster University who has applied for full-time OSAP assistance and qualified for assistance from any federal or Ontario OSAP loan or grant program, and any student who applied using the stand-alone 30% Off Ontario Tuition grant application and was issued a 30% Off Ontario Tuition grant.

<table>
<thead>
<tr>
<th>Proportion of an institution’s enrolment that receives OSAP</th>
<th># of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMaster University’s 2015-2016 proportion of an institution’s enrolment that receives OSAP is</td>
<td>13,817</td>
<td>54.92%</td>
</tr>
<tr>
<td>November 1, 2015, total full-time eligible headcount enrolment (undergraduate and graduate)</td>
<td>25158</td>
<td></td>
</tr>
</tbody>
</table>

Additional Information
Describe the methodology, survey tools, caveats and other information regarding the information reported above (up to 600 words approx.).

The information for this section was provided by the Ministry of Advanced, Education and Skills Development.

4. Research and Graduate Education
McMaster University’s 2014-15 to 2016-2017 Strategic Mandate Agreement (SMA) includes information which identifies the breadth and depth of institutional research activity. The 2015-2016 SMA Report Back does not require McMaster University to report on the system wide research and graduate education metrics included in its 2014-15 to 2016-2017 SMA.

5. Program Offerings
This component articulates the breadth of programming based on enrolment, along with program areas of institutional strength/specialization as outlined in McMaster University’s SMA.

- Concentration of enrolment* at universities by program specialty or major (SPEMAJ)
- Institution’s share of system enrolment by program specialty or major (SPEMAJ).
DEFINITION: Headcount is the actual funding eligible enrolment for Fall 2015 as of November 1, 2015 including full-time undergraduate and graduate students as reported to the ministry for the 2015-2016 fiscal year.

<table>
<thead>
<tr>
<th>Undergraduate / Graduate Students</th>
<th>Percentage of System Enrolment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>6.75</td>
</tr>
<tr>
<td>Graduate</td>
<td>6.38</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPEMAJ</th>
<th># of undergraduate students in a program as a % of total # of undergraduate students across all programs at McMaster University (MAC)</th>
<th># of graduate students in a program as a % of total # of graduate students across all programs at McMaster University (MAC)</th>
<th>McMaster University (MAC)'s share of system-wide undergraduate enrolment in each PROGRAM</th>
<th>McMaster University (MAC)'s share of system-wide graduate enrolment in each PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Architecture &amp; Landscape Arch.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Computer Science</td>
<td>1</td>
<td>0.25</td>
<td>2.71</td>
<td>1.03</td>
</tr>
<tr>
<td>5. Dentistry</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. Education</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Engineering</td>
<td>18.21</td>
<td>12.66</td>
<td>13.51</td>
<td>7.96</td>
</tr>
<tr>
<td>8. Fine &amp; Applied Arts</td>
<td>1.13</td>
<td>0</td>
<td>1.96</td>
<td>0</td>
</tr>
<tr>
<td>9. Food Science &amp; Nutrition</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10. Forestry</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12. Humanities</td>
<td>6.46</td>
<td>9.35</td>
<td>5</td>
<td>6.54</td>
</tr>
<tr>
<td>13. Journalism</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14. Kinesiology/Recreation/Phys-Ed</td>
<td>3.62</td>
<td>1.55</td>
<td>5.7</td>
<td>4.53</td>
</tr>
<tr>
<td>15. Law</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16. Mathematics</td>
<td>1.63</td>
<td>2.7</td>
<td>7.59</td>
<td>9.84</td>
</tr>
<tr>
<td>17. Medicine</td>
<td>2.73</td>
<td>0.37</td>
<td>13.9</td>
<td>100</td>
</tr>
<tr>
<td>18. Nursing</td>
<td>8.57</td>
<td>2.04</td>
<td>15.69</td>
<td>6.15</td>
</tr>
<tr>
<td>19. Optometry</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20. Other Arts &amp; Science</td>
<td>9.29</td>
<td>0.41</td>
<td>6.78</td>
<td>3.37</td>
</tr>
<tr>
<td>21. Other Education</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22. Pharmacy</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23. Physical Sciences</td>
<td>1.63</td>
<td>3.92</td>
<td>6.42</td>
<td>6.46</td>
</tr>
<tr>
<td>24. Social Sciences</td>
<td>13.21</td>
<td>13.73</td>
<td>4.15</td>
<td>3.63</td>
</tr>
<tr>
<td>25. Theology</td>
<td>0.18</td>
<td>0</td>
<td>10.05</td>
<td>0</td>
</tr>
<tr>
<td>26. Therapy &amp; Rehabilitation</td>
<td>0</td>
<td>12.38</td>
<td>0</td>
<td>16.82</td>
</tr>
<tr>
<td>27. Veterinary Medicine</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

SMA – Strategic Mandate Agreement
University Annual Report 2015-16

McMaster University
Notes: Other Arts & Science includes students enrolled in General Arts and Science majors not specified by other categories or unspecified.

**Optional Additional Information**

Caveats and/or other information regarding the numbers reported above (up to 600 words approx.).

As published in 2016 Maclean’s University Rankings, McMaster ranks second amongst universities in Canada for size of total research dollars from sponsored research by full-time faculty. In Social Sciences and Humanities, McMaster ranks first in Ontario for the average size of grants per full-time faculty member and third in the number of grants per 100 full-time faculty members.

A report on McMaster’s Strategic Goals and Priorities, which includes further information on programming and the student experience, as well as McMaster’s research and graduate education, can be found at this url:


**Highlights**

Please provide highlights of McMaster University’s activity in 2015-2016 that contributed to maintaining or improving programming. This could include a strategy, initiative or program viewed by McMaster University to be an innovative practice, success story and/or key accomplishment (up to 600 words approx.).

1. McMaster has developed new academic programs that align with program areas of growth identified in the Strategic Mandate Agreement, 2014-2017 (SMA). Since 2014, McMaster has received Ministry approval for all its new program submissions, with 4 undergraduate and 10 graduate programs approved under the expedited review process. Examples include:

   - Honours Bachelor of Health Sciences and Master’s in Biomedical Discovery and Commercialization (BDC): With its multidisciplinary composition, the program falls under three program areas for growth (Health Sciences and the broad determinants of health, Business and Economics, Science and Engineering). The program encompasses level III and IV of undergraduate studies, as well as a twelve month course-based Master-level program. BDC graduates will have a unique combination of skills and knowledge, for employment in the biotechnology, pharmaceutical and other biomedical science sectors of the economy.

   - Honours Bachelor of Applied Science in Human Behaviour: Approved under the Fostering Robust Societies program area for growth, this program is a partnership between McMaster University and Mohawk College of Applied Arts and Technology. Graduates receive an Honours Bachelor of Applied Science degree in Human Behaviour. Students in one of two specialization streams can earn either an Ontario College Graduate Certificate (in Autism & Behavioural Science) or an Ontario College Diploma (in Early Childhood Education) from Mohawk College. Normally, it would take six years to complete both designations; however, this new program enables students to obtain both in only four years.

   - PhD in Labour Studies, the first of its kind in Canada, will support students in developing leadership and high level skills in community engaged research and critical theory, to enable graduates to engage constructively in public policy debate. It was approved by the Ministry under McMaster’s Business and Economics program area for growth.
• The Master of Science in Child Life and Pediatric Psychosocial Care, the first program of its kind in Canada, is a professional and practice-focused graduate degree. Students learn about pediatric psychosocial assessment and interventions, examine ethical issues, apply theoretical knowledge and patient and family-centred care principles to diverse pediatric clinical settings.

2. McMaster is committed to ongoing program enhancement. The MacPherson Institute’s Quality Assurance Office coordinates McMaster’s quality assurance process to facilitate holistic academic program reviews that focus on overall program enhancement through evidence-informed decision making. The Office also supports programs in the development and assessment of in-program learning outcomes, and assists with mapping courses and learning experiences to developed learning outcomes. Further, it encourages and enables the involvement of students in the review process.

3. During 2015-16, the Faculties of Engineering and Health Sciences developed a new interdisciplinary program, “Integrated Biomedical Engineering and Health Sciences Plus” which recently received Ministry approval to begin in September 2017. Apart from careers in Engineering and Health Sciences, graduates of this program will be uniquely prepared for careers that integrate biological and medical sciences with engineering and the physical sciences.

4. McMaster’s program offerings are highly ranked globally. In 2015 the QS World University Rankings by Subject ranked McMaster as one of the top 100 globally in five subject areas: Medicine (33); Philosophy (51-100); Geography (51-100), Statistics (51-100) and Materials Science (51-100). In the same year, the McMaster MSc eHealth Program received recognition by placing 41st globally in the 2015-16 Eduniversal rankings for Master’s health management programs.

6. Student Mobility

As part of the development of metrics under the SMAs, the ministry will be developing long-term indicators for credit transfer in consultation with the sector through the Credit Transfer Accountability Framework.

As part of this work, a new Credit Transfer Student Flag was introduced into 2015-16 enrolment reporting for colleges and universities. The ministry will work with the sector throughout 2016-17 on any refinements to the metric with a view to integrate this new information into the SMA report back beginning in 2017-18.

In future years, the ministry will be expecting more complete data that will profile partnerships between institutions that ensure students have access to a continuum of learning opportunities in a coordinated system. This may include, but is not limited to, metrics related to credit transfer pathways and collaborative or joint programs between or within sectors.

Development of these metrics will be done in partnership with the sector and ONCAT.

**Transfer Applicants and Registrants**

Using Ontario Universities Application Centre’s (OUAC) reports, please provide data for 2015.
### Additional Information

Describe the methodology, survey tools, caveats and other information regarding the numbers reported above (up to 600 words approx.).

The difference between the transfer registration information in the two tables potentially reflects 105 applicants who applied to one program and then were subsequently admitted to another program instead. These 105 applicants are not included in OUAC’s data.
Highlights

Please provide highlights of McMaster University’s activity in 2015-2016 that demonstrates McMaster University’s efforts to ensure students have access to a continuum of learning opportunities in a coordinated system. This may include, but is not limited to expansion of credit transfer pathways and collaborative or joint programs between or within sectors, changes to student supports viewed by McMaster University to be an innovative practice, or improved timeliness of credit/credential recognition (up to 600 words approx.).

1. McMaster has a number pathway programs with CAAT institutions, which allow students to earn both a college diploma and a degree from McMaster:

   - Graduates of Mohawk College’s McKeil School of Business, who have a weighted GPA of at least 77%, are eligible to apply to McMaster’s Bachelor of Commerce program. Eligible students will receive 60 credits towards their degree and must complete an additional 60 credits as specified by McMaster.

   - McMaster’s Bachelor of Technology (B.Tech) program is a joint program between the University’s Faculty of Engineering and Mohawk College. Students who successfully complete the program receive a Bachelor of Technology degree from McMaster and an Advanced College Diploma from Mohawk College, in one of three specialties: Automotive and Vehicle Technology; Biotechnology; or Process Automation Technology. Students who choose to first attend Mohawk College, and obtain an Advanced Diploma, receive two years of transfer credits towards a Bachelor of Technology degree in: Civil Engineering Infrastructure Technology; Computing and Information Technology; Energy Engineering Technologies; or Manufacturing Engineering Technology.

   - McMaster’s Collaborative Nursing program allows students to complete their McMaster Bachelor of Science in Nursing at both Mohawk and Conestoga College. Each program uses the University’s nursing curriculum and applies the same problem-based, small group, self-directed educational model. Students attend the institution to which they are admitted for the entire four-year period of the program, and upon completion receive a McMaster University Bachelor of Science in Nursing degree.

   - The McMaster University and Mohawk College Medical Radiation Sciences (MRSc) program is a collaborative diploma-degree program. Medical Radiation Sciences (MRSc) today represents one of the fastest growing primary health care fields. The collaborative program provides students with the opportunity to obtain both an Ontario College Advanced Diploma and a Bachelor of Medical Radiation Sciences degree. All students enter the program at level one, which provides a common curriculum; in level two students move into one of the programs’ three specializations (Radiography, Ultrasonography or Radiation Therapy).

   - Mohawk graduates of the General Arts and Science two-year diploma program, who achieve a cumulative average of at least 75%, are eligible for advanced standing toward their Bachelor of Arts (Honours) program in the Faculties of Social Sciences or Humanities at McMaster.

2. McMaster, one of seven members of the University Credit Transfer Consortium, grants specific course credit for 20 first-year and second-year courses to students transferring from member universities of the Consortium. Students who have completed any first-year Humanities, Social Sciences and Science degree courses at member universities with a minimum grade of 60% are assured of general, first year credit upon admission to McMaster.
3. Within McMaster, students have access to a continuum of learning opportunities in a coordinated system. For example, in collaboration with the DeGroote School of Business, the Faculty of Humanities provided its students with the opportunity to complement their studies in a Humanities discipline with core Commerce courses (e.g. finance, human resources, marketing). The “Specialized Minor in Commerce” initiative provides Humanities students with enough core business courses to complete an MBA with one more year of study, instead of the normal two years.

7. Financial Sustainability

Financial Health and Sustainability Metrics

Performance Metrics

<table>
<thead>
<tr>
<th></th>
<th>2013-14</th>
<th>2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income / Loss Ratio (%)</td>
<td>8.9%</td>
<td>7.93%</td>
</tr>
<tr>
<td>Net Operating Revenues Ratio (%)</td>
<td>12.5%</td>
<td>14.75%</td>
</tr>
</tbody>
</table>

Optional
Comments on Performance Metrics Data (up to 600 words approx).

The net income ratio and net operating revenues ratio remain positive and strong despite lower investment income recognized in the year. This positive result relates to McMaster’s diversified consolidated income profile whereby 50% of McMaster’s sources of revenues come from education linked funding (Basic Income Units and Tuition) and the remainder of revenue sources are from research activities, ancillary operations, investments, donations and other grants, and substantial other income from non-degree educational activities and programs, contract revenues, patent royalties, nuclear reactor sales, athletics membership and user fees, and investments in spin-off operations in which McMaster retains an equity position. Overall, with substantially diversified revenues McMaster’s income is less volatile when any one income item underperforms. McMaster’s diversified income is noted as a key strength by its credit rating agencies.

Liquidity Metric

<table>
<thead>
<tr>
<th></th>
<th>2013-14</th>
<th>2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity</td>
<td>120</td>
<td>129</td>
</tr>
</tbody>
</table>

Optional
Comments on Liquidity Metric (up to 600 words approx).

Note: Due to financial statement restatements the 2013-14 and 2014-15 results have been adjusted from figures originally provided by the Ministry to tie to more recent audited results. Overall, McMaster continues to have a strong or healthy liquidity profile. The current year improvement relates to the increase in expendable resources affected by the debenture proceeds. The proceeds of the debenture, although linked to two key initial capital projects and associated cash flow needs,
are placed into McMaster’s Central Bank. McMaster manages a central bank approach to funding internal projects while also managing all short term cash needs. The central bank approach enables McMaster to have an integrated planning approach to the Capital Plan and Asset Management Plan linked to Multi-year Financial Projections and Debt Management analysis. McMaster monitors its primary reserve ratio in relation to overall university planning projections, typically resulting in a ratio of greater than 0.3x or greater than 110 days.

Leverage Metric

<table>
<thead>
<tr>
<th></th>
<th>2013-14</th>
<th>2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest Burden Ratio</td>
<td>1.05%</td>
<td>1.01%</td>
</tr>
<tr>
<td>Viability Ratio</td>
<td>2.0</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Optional
Comments on Leverage Metric (up to 600 words approx).

The interest burden ratio slightly increased over the prior year due to the net interest impact associated with the late 2015 debenture. Only a partial year of interest expense was incurred by McMaster, which was offset to some extent by the debenture proceeds being invested until capital expenditures proceed. The 2016-17 results will have a full year’s debenture net interest expense increasing the burden but still within an acceptable range. The viability ratio declined in relation to the increase in debt McMaster undertook with its debenture. Overall, McMaster includes this ratio in its integrated multi-year financial projection and debt management report (updated annually).

Additional Information
Additional comments on the overall Financial Health &Sustainability Metrics Result (up to 600 words approx.).

McMaster has a long-standing tracking process for the metrics selected by the Ministry, amongst others. The metrics selected are all historical looking metrics; in addition to McMaster’s existing practice of tracking and reporting these metrics to committees of the Board of Governors the credit rating agency results are also used. The Credit Rating results are considered an outcome rating of a number of metrics (historical looking), and financial outlook information (forward looking) results in one future oriented composite index financial health indicator. Overall, it seems that the metrics selected by the Ministry are reasonable indicators to explain past financial health results. The metrics for the three years covered in this report highlight McMaster’s financial health, strength and resilience given a worsened investment return in 2015-16 affecting income and employee future benefits. All of the metrics being tracked are strong for McMaster, not only in comparison to Ontario peers, but also in relation to typical financial health indicator thresholds defined by Prager, Sealy and Co. LLC. for higher education institutions across North America.

Highlights
Please provide one or more highlights that demonstrate McMaster University’s commitment to improved or continued financial sustainability. (up to 600 words approx.)
Annual monitoring of McMaster’s strategic and capital project capacity along with multi-year financial projections linked to revenue and expenses projections enables ongoing financial health and sustainability planning, whereby McMaster can elect to promote or defer certain projects to ensure it maintains and keeps certain financial health indicators in check with its own internally set targets. McMaster raised debt in 2015-16 linked to two key capital project initiatives that are planned to open in 2020-21 or sooner. Both projects include an ancillary component (residences) and have supporting business cases for internal capital loan repayment. McMaster’s central bank approach to financing internal projects allows for strong business case development examining return on investments and pay back periods. Further, the integrated planning approach used by McMaster along with the central bank process, generates internal sources of capital reinvestment used to support educational space enhancement or retrofit projects and used as matching funds for Federal and Provincial initiatives. It is important to stress that McMaster’s integrated planning approach focuses on financial health and sustainability by packaging project bundles into scenarios so senior leaders can understand the financial health implication of the strategic choices they make. Overall, McMaster’s existing approach to financial health has contributed to improved financial sustainability, as recognized by its improved credit rating.

Other Additional Financial Health Provided by McMaster

The ministry encourages McMaster University to augment the current list of financial health and sustainability metrics with other metrics. Reporting this data is optional. McMaster University may add up to four additional metrics in the space provided below.

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013-14</th>
<th>2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 S&amp;P Credit Rating</td>
<td>AA/Stable</td>
<td>AA/Stable</td>
</tr>
<tr>
<td>2 DBRS Credit Rating</td>
<td>AA (Low) Stable</td>
<td>AA (Low) Stable</td>
</tr>
<tr>
<td>3 Interest Coverage</td>
<td>14.5x</td>
<td>13.6x</td>
</tr>
</tbody>
</table>

**Additional Information**

Comments related to McMaster University’s other reported metrics (up to 600 words approx).

Further supporting McMaster’s financial health position are its financial (forward looking) credit ratings. Most notable is the improved S&P credit rating received in June 2016 which increased McMaster’s rating to AA/Stable. The rating is an indication of strong financial health connected with reasonable financial plans to deal with employee related cost containment and funding, revenue diversification and management, capital asset and deferred maintenance planning, and investment and pension asset diversification and planning. Other metrics in addition to the Ministry selected metrics and the credit ratings include interest coverage tracked by McMaster’s Debt Management Policy, with an objective of maintaining this coverage as greater than 2.75x.
8. Attestation

By submitting this report to the ministry: McMaster University confirms that all information being submitted to the ministry as part of the 2015-2016 SMA Report Back is accurate and has received approval from McMaster University’s Executive Head.

<table>
<thead>
<tr>
<th>Checkbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
</tr>
</tbody>
</table>

For additional information regarding McMaster University’s 2015-2016 SMA Report Back please contact Information:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Jacy Lee, Associate Vice-President Institutional Research and Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone:</td>
<td>905-525-9140 Ext: 23530</td>
</tr>
<tr>
<td>Email:</td>
<td><a href="mailto:avpira@mcmaster.ca">avpira@mcmaster.ca</a></td>
</tr>
</tbody>
</table>

Please indicate the address on McMaster University’s website where a PDF copy of this 2015-2016 SMA Report Back will be posted once it has been approved by the ministry

| Website          | https://ira.mcmaster.ca/category/accountability/                      |
The Health, Safety and Risk Management (HSRM) unit of Human Resources Services incorporates Environmental and Occupational Health Support Services (EOHSS), Employee Health Services (EHS) and works in cooperation with the Organizational Development unit. Together, we strive to promote the health, safety, wellness and engagement of all McMaster employees.

**Executive Summary**

- Annual incident/injury summary presented at the March 2017 meeting of the Central Joint Health and Safety Committee (CJHSC)
- Ministry of Labour (MOL) visited campus on three occasions during this reporting period and issued six orders.
- Mental Health First Aid training continues to be delivered monthly receiving positive feedback from employees

1. **Training and Loss Prevention Initiatives**

   - The Annual incident/injury summary was presented to the CJHSC in March. This summary document is used by HSRM to ensure health and safety programming is aligned to areas of risk or injury, and to assist departments who may need to change processes and protocols to minimize loss or injury. Additional information is provided in the Employee Health Services section of this report.

   - EOHSS continues to promote safety through various forms of communication including email, McMaster daily news, the weekly McMaster update, and on twitter. Prevention messaging is based on the time of year such as winter weather conditions (e.g. slips, trips and falls) or topics to highlight injury prevention (e.g. repetitive strain injury awareness day):

   - North American Occupational Safety and Health (NAOSH) week will be observed at McMaster from May 7-12, 2017. This year’s theme will focus on “Making Safety a Habit” and will focus on psychological safety as well as physical safety. Presentation topics include a key note speaker on pedestrian/cycling safety, as well as sessions on mindfulness, international travel health, and a special feature to promote Martin Gibala’s High Intensity Training exercise research. This year’s events will include a barbeque and a health and safety vendor fair. Nominations are now open for the McMaster University Health and Safety Award of Excellence whose winner will be named during our outdoor event on May 10th.
2. **Government Relations and External Inspections/Audits**

The Ministry of Labour (MOL) visited McMaster on three occasions during this reporting period and issued six orders. These three occasions are described below.

- The Ministry of Labour (MOL) attended campus to investigate a complaint from an employee who is involved in a harassment claim. The Inspector requested to meet with an Employee Labour Relations Advisor to review the timeline of the claim along with the relevant harassment requirements of Section 32 of the Occupational Health and Safety Act. Upon review of the timeline and Section 32 requirements, the Inspector was satisfied and found no compliance issues. A field visit report was completed with no orders issued.

- A critical injury from an employee slip and fall was reported to the MOL. Subsequent to this initial report, it was clarified that the injury was not deemed critical, and an update was immediately provided to MOL to clarify that there was no critical injury.

Despite this clarification, the Inspector attended the campus to review the location and found no issue in that location. While on campus, the Inspector then issued five (5) orders for other areas as described below:

- While walking back to the EOHSS office, the Inspector noted an area that he deemed a tripping hazard and issued two orders, specifically:
  - *The employer shall take every precaution reasonable in the circumstances for the protection of the worker.* At the time of this inspection, there are deteriorated walkways, sidewalks and stones that present slip, trips and fall hazards to the workers.
  - An order made to submit a compliance plan to include location of tripping hazards and corrective actions.

  McMaster is currently preparing its response to these orders. McMaster has a long-standing hazard identification program for potential slip, trip and fall locations as maintained by Facility Services, with additional prevention programs maintained by EOHSS. In addition, an annual grounds work program is in place which regularly addresses areas in need of repair, and prioritizes based on urgency. In response to these orders, the University also engaged our insurer, CURIE to arrange a third party audit of campus to identify potential hazards. An update will be provided in the June 2017 report to the Board of Governors.

- While on site the Inspector next requested to see the new Wilson Building. Three orders were issued:
  - Two orders related to two door openers that were manufactured without a sufficient guard on the pulley system. The door openers were immediately reported and addressed by the Facilities Services Project Manager.
  - One order related to suspected electrical wires without caps that were not energized. No action was required as an Electrician was able to confirm that these wires had no power flowing to them.

- The MOL was called as a result of a report of a critical injury. The employee slipped
and fell on melting ice resulting in a broken ankle. (Broken ankle and wrist have been added to the definition of a critical injury by the MOL, effective January 2017). The Inspector attended campus and reviewed area and no orders were issued.

While on site the Inspector requested to review a mechanical room in Burke Science Building. An order was issued as a result of a low flow eye wash station. The eye wash station was reported to Facilities Services for repair.

3. **Employee Health Services Summary**

3.1 **Critical Injuries**

There was one critical injury during this period as described above.

The following chart is provided to provide a summary of the total number of critical injuries due to slips, trips and falls since 2015.

<table>
<thead>
<tr>
<th>Year</th>
<th>Critical Injury Reported to MOL as a result of a Slip and Fall on ice</th>
<th>Critical Injury Reported to MOL as a result of a Slip and Fall due to sidewalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2016</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2015</td>
<td>1*</td>
<td>1</td>
</tr>
</tbody>
</table>

* Broken ankle and not a critical injury under the definition but was proactively reported.

3.2 **Annual Incident/Injury Summary 2016**

Employee Health Services (EHS) presented the Annual Injury/Incident Summary to the Central Joint Health and Safety Committee (CJHSC) on March 15, 2017. This report is also distributed to each of the Joint Health and Safety Committees (JHSC) as part of their monthly package from the CJHSC. The JHSC are encouraged to review this report and make recommendations to enhance the existing preventative measures that are in place.

The information below provides a summary of the information from the 2016 Annual Injury/Incident Summary.

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incidents</strong></td>
<td>749</td>
<td>689</td>
<td>705</td>
<td>470</td>
</tr>
<tr>
<td><strong>Health Care</strong></td>
<td>79</td>
<td>66</td>
<td>74</td>
<td>71</td>
</tr>
<tr>
<td><strong>Lost Time Claims</strong></td>
<td>39</td>
<td>37</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td><strong>Lost Time Days</strong></td>
<td>211</td>
<td>517</td>
<td>125</td>
<td>230</td>
</tr>
</tbody>
</table>
• The total number of lost time WSIB claims decreased from 2016 to 2015. Of the 16 lost time claims in 2016, 10 claims or 62.5% incurred 5 days or less of lost time, while 6 claims or 37.5% of claims account for greater than 5 days of lost time. There were 2 claims in 2016 that accounted for 72% of the total lost time.

• The total number of incidents has decreased compared to the previous years. This decrease is primarily attributed to a change in reporting criteria for sports injuries and some summer camps. While Athletics and Recreation continues to track all incidents, and the local JHSC reviews all incidents, CJHSC now only receives those that involve a facility issue, or where the injury is deemed unusual and inherent to the sport.

The following illustrates approved lost time days from 2013 to 2016

![Graph illustrating approved lost time days from 2013 to 2016]

### 3.3 Injury Types

As illustrated in the graph below, Sprains/Strains continue to be the University’s most reported type of injury, followed by Contusions/Abrasions, lacerations/cuts in 2016. While the chart below depicts 2015 and 2016, these findings have been generally typical over the last 4 years.
There was a significant decrease in slips, trips and falls both inside and on campus grounds, which has resulted in decreased in strains and sprains from 109 incidents in 2015 to 42 in 2016, a 62% reduction. There has been an increased focused on slips, trips and falls awareness through a new poster campaign as well as social media, which allowed us to bring awareness to the entire McMaster community.

4. Workplace Wellness Initiatives

The Organizational Development (OD) team fosters a supportive work environment that promotes employee development, engagement, recognition and wellness. Organizational wellness is supported by addressing the thirteen psychosocial factors related to the National Standard of Canada for Psychological Health & Safety in the Workplace.

Since the last report, the OD team has focused on providing and promoting a variety of employee wellness strategies aimed at helping faculty and staff to thrive in their personal and professional lives, to include:

- Supporting financial literacy by organizing full-day workshops focusing on understanding and improving personal finances as well as retirement planning and weekly one-hour workshops on a variety of topics related to financial wellness in November.
- Created and distributed monthly communications focusing on topics and supports related to McMaster Employee & Family Assistance Plan and health promotion topics such as staying active in the winter.
- Implemented a social media campaign in support of Bell Let’s Talk Day.
- Hosted monthly wellness workshops related to topics such as managing your time and energy, the science of happiness, and resiliency.
- Began investigating Canadian Universities with smoke-free campuses or policies including designated smoking areas.
- Supported the development of a new Healthy Workplace Committee at the David Braley Health Science Centre and began conversations for the development of a committee at St. Joe’s Hospital.
- Continued to support and develop a wellness spotlight initiative which will highlight best practices at McMaster University.
- Investigated new discounts opportunities as a potential employee benefit add-on
- Implemented a social media campaign in support of Random Act of Kindness week.
- Partnered with Athletics & Recreation to offer a walking group at the DBAC indoor track twice per week.
- Organized a new 36 week Weight Watcher’s at Work program.

Further details about workplace wellness initiatives can be found at:  
http://www.workingatmcmaster.ca/healthy-workplace/index.php

Equity and Inclusion Office Annual Report
September 1, 2015 – August 31, 2016
Mandate

This is the annual report of the Equity and Inclusion Office at McMaster University. It includes updates from the two program areas within the Equity and Inclusion Office. These programs are: the Human Rights Program and the Equity Services Program which encompasses education, McMaster’s Accessibility Program – AccessMac and the Sexual Violence Response Protocol.

Under section 58 (e) of the Policy, the Human Rights Program within McMaster’s Equity and Inclusion Office is responsible for gathering pan-University statistical data and using that data to inform ongoing learning and preventive measures. Section 59 charges the Human Rights Program with preparing and presenting annual statistical reports to the University’s governing bodies and campus community.

Report Parameters

Unless otherwise stated, this report covers data collected for the period September 1, 2015 to August 31, 2016.

This report also presents historical human rights complaints data for the period 2010 to 2015 collected under the former Anti-Discrimination and Sexual Harassment Policies.

Future Publications

Starting in 2017, the Equity and Inclusion Office will publish its annual report every fall. The timing of the current report is a reflection of the Office’s transitional year, which includes restructuring and recruitment of the new Vice Provost, Equity and Inclusion.

Relevant Links

Accessibility Policy: www.mcmaster.ca/policy/General/HR/Accessibility.pdf
DHSH Policy: www.mcmaster.ca/respectfulcommunity/policy-procedures.html
DHSH website: www.mcmaster.ca/respectfulcommunity
Equity and Inclusion Office: equity.mcmaster.ca
President’s Advisory Committee on Building an Inclusive Community: pacbic.mcmaster.ca
Sexual Violence Response Protocol: svrp.mcmaster.ca

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On July 1, 2015, McMaster University’s new Discrimination, Harassment, Sexual Harassment: Prevention and Response Policy (the Policy or DHSH Policy) took effect. This new Policy replaced the former Anti-Discrimination and Sexual Harassment Policies.

The Policy reinforces McMaster’s commitment to foster a respectful and inclusive organizational culture. In particular, the Policy:

• sets out a robust complainant driven process for addressing concerns;
• establishes clear pathways for complainants to access;
• articulates responsibilities of leaders and persons in authority; and
• commits to gathering and using data on the incidence and character of reported discrimination and harassment to inform ongoing institutional learning and prevention initiatives.

In addition to implementing the new Policy, the 2015-2016 reporting year was significant in at least three other key ways:

• The University restructured its Human Rights and Equity Services Office, adopting a new name—Equity and Inclusion—and creating two new senior roles.

• In the fall of 2015, the University launched its Sexual Violence Response Protocol and introduced a dedicated Sexual Violence Response Coordinator.

• Along with the City of Hamilton and the Hamilton Centre for Civic Inclusion, the University was instrumental in laying the foundation for the Anti-Racism Resource Centre, approved by the City in 2016.

The results of this past year’s activity are a stronger, University-wide commitment to understanding, preventing and responding to discrimination, harassment and sexual harassment; a clearer complaints process with well-defined steps and roles; and greater overall transparency around these important issues.

Of course, the University still has work to do. For example, we need to improve our data collection so that we have the most accurate and up to date picture possible.

With the commitment that is clearly in place, we are confident we will continue to develop the policies, tools and training initiatives we need to ensure a campus-wide coordinated approach to responding to and preventing discrimination, harassment and sexual harassment.
Office Restructured

In July 2016, the University announced a restructuring of the Office of Human Rights and Equity Services:

- The office’s name, Human Rights and Equity Services, changed to the Equity and Inclusion Office.
- The program areas AccessMac and Equity Services combined to form one program area, the Equity Services Program, reporting to a Senior Program Manager.
- Two new positions were created: a Director of Human Rights and Dispute Resolution with responsibility for investigative and dispute resolution activities and a Vice Provost (Equity and Inclusion) to lead the office and champion equity and diversity initiatives at a senior level. A search is currently underway for the new Vice Provost (Equity and Inclusion) position: it is anticipated the position will be filled by July 2017.

Mandate: Foster A Fair and Equitable Campus Environment

The Equity and Inclusion Office has a broad and proactive mandate to work with campus and community partners to promote, develop and support equity, diversity and inclusion initiatives, which contribute to the development of a culture of collegiality, respect, safety and openness.

The primary role of the Office is to:

- provide expert advice and assistance on matters of equity, diversity and inclusion;
- advance the University’s commitment to building an inclusive community;
- receive concerns and complaints and facilitate their resolution; and
- promote respect, equity and fairness, and celebrate the rich diversity of the campus community.

The Office also provides support to the President’s Advisory Committee on Building an Inclusive Community (PACBIC) which extends to each of PACBIC’s working groups, including sexual violence, racism, accessibility, mental health, interfaith issues, First Nations, Métis and Inuit priorities, LGBTQ+, and employment equity.

Equity and Inclusion: Recent Evolution

**July 1, 2015**
Introduction of McMaster’s new Discrimination, Harassment, Sexual Harassment: Prevention and Response Policy.

**September 1, 2015**

**July 2016**
Human Rights and Equity Services restructured and renamed to Equity and Inclusion Office.

**August 31, 2016**
Annual Report End of reporting year.
Equity and Inclusion Office Sister Programs:
Human Rights and Equity Services

Human Rights Program

Led by the Director, Human Rights and Dispute Resolution, the Human Rights Program offers confidential advice, guidance and consultation to students, staff, and faculty at McMaster University on issues related to human rights.

As one of the three Intake Offices* listed in McMaster’s DHSH Policy, the Human Rights Program is accountable for facilitating the resolution of concerns and complaints and the investigation of formal complaints, related to issues of discrimination, harassment, and sexual violence.

The Human Rights Program is also responsible for gathering and publishing pan-University statistical data and using that data to inform ongoing learning and prevention measures. It is also a key partner in the Anti-Racism Resource Centre mentioned in the Executive Summary.

* The other intake offices are Human Resources Services and the Faculty of Health Sciences Professionalism Office. The Human Rights Program is available to all students, staff and faculty. Human Resources Services is available to McMaster employees, and the Faculty of Health Sciences Professionalism Office is available to students, staff and faculty in the Faculty of Health Sciences.
Equity Services Program

The Equity Services Program partners with members of the University community to advance a culture of accessibility, equity and human rights.

Through consultations, customized educational workshops, remedial training, robust social media sites, and the offering of equity events on campus, the Equity Services Program develops, promotes and supports educational and community development initiatives that engage students, staff and faculty members.

Educational programming is an important component of the Equity Services Program’s mandate. Under its H.E.A.R.T. series—Human rights, Equity, Accessibility, Respect Toolkit Workshops—Equity Services offers a Certificate of Attendance to participants who complete three workshops on topics such as Anti-Racism, Positive Space, and Anti-Oppression. This is just one example of the broad-ranging educational initiatives spearheaded by the Program. The Challenging Islamophobia Initiative on Campus, highlighted on page 10, is another.

The Equity Services Program also houses AccessMac and the newly established Sexual Violence Response Protocol.

AccessMac partners with faculty, staff and students to create and maintain a culture of accessibility and inclusion on campus. The Accessibility Specialist works closely with the McMaster Accessibility Council and its members, who are responsible for ensuring the University adheres to Accessibility for Ontarians with Disabilities Act (AODA) Accessibility Standards. AccessMac provides workshops and training opportunities on accessibility, and it oversees the University’s Accessibility Policy and the AODA.

The Sexual Violence Response Protocol was launched in the fall of 2015. The Protocol sets out guidelines for how staff, faculty and students can provide a consistent and supportive response to those who disclose sexual and gender-based violence. An accompanying website outlines the steps found in the Protocol and lists resources available both on and off campus.

As part of the launch, the University introduced a dedicated Sexual Violence Response Coordinator. The Coordinator manages a comprehensive survivor-centred response protocol to disclosures of sexual and gender-based violence.

A significant part of the Coordinator’s work in 2015/16 involved collaborating with a working group comprised of students, staff, and faculty to develop a stand-alone Sexual Violence Policy as mandated by Ontario’s Sexual Violence and Harassment Action Plan Act (Supporting Survivors and Challenging Sexual Violence and Harassment), 2016. McMaster’s new Sexual Violence Policy was launched on target on January 1, 2017 and will be elaborated on in our 2016/17 report.

Notices for Islamophobia and H.E.A.R.T. workshops
Discrimination, Harassment, Sexual Harassment and Sexual Violence Response Protocol Data

1. DHSH: Overview

<table>
<thead>
<tr>
<th>Total cases</th>
<th>452</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolved</td>
<td>410</td>
</tr>
<tr>
<td>Unresolved</td>
<td>25</td>
</tr>
<tr>
<td>Abandoned</td>
<td>17</td>
</tr>
</tbody>
</table>

“Resolved” refers to complaints that have been resolved (i.e. informal resolution efforts were successful) or consultations that have been responded to.

“Unresolved” refers to matters that are pending or ongoing, or where informal resolution efforts have not been successful. When the latter occurs, complainants are advised of such and made aware of the alternate recourses available to them.

“Abandoned” refers to cases that were withdrawn, or situations where participants elected to pursue an alternative recourse outside of Equity and Inclusion.

2. DHSH: Breakdown by Type of Complaint

Note: Of the 18 formal complaints, six concluded, two were abandoned, and 10 are still ongoing. Of the six that concluded, four resulted in a finding of “no violation”; one was resolved between the parties; and only one resulted in a finding of a violation.
3. DHSH: Breakdown by Issue

- Sexual Harassment: 12
- Poisoned Environment: 5
- Harassment – Personal: 132
- Accommodation: 103
- Discrimination: 92
- Harassment – Human Rights: 108

4. DHSH: Cases by Ground

- Place of origin: 1
- Employee group status: 2
- Membership or non-membership in a trade union, employee/employer organization: 2
- Membership or non-membership in a political organization: 3
- Ethnic origin: 3
- Sexual orientation: 4
- Citizenship: 6
- Gender identity/gender expression: 7
- Age: 8
- Family status: 10
- Political belief: 16
- Creed/religion: 17
- Ancestry, colour, race: 34
- Sex: 69
- Personal harassment (bullying): 116
- Disability: 161
5. DHSH: Participant Type

Reflects the area of campus experience that gave rise to the complaint.

6. DHSH: Origin of Concern

- Undergraduate Student: Complainant 104, Respondent 20
- Graduate Student: Complainant 54, Respondent 20
- Staff: Complainant 139, Respondent 59
- Faculty: Complainant 195, Respondent 177
- Other (external, anonymous): Complainant 12, Respondent 10

- Campus community: 112
- Employment: 154
- Residence: 16
- Off campus (with nexus to campus): 2
- Academic: 168
- Total: 215
7. Sexual Violence Protocol Overview

96 Disclosures and Consultations

18 Academic Accommodations

5 Informal Resolutions

*Data collected August 17, 2015 - October 17, 2016

Challenging Islamophobia Initiative

The Challenging Islamophobia on Campus Initiative (the Initiative) was developed by Equity and Inclusion Office Staff Khadijeh Rakie and Raihanna Hirji-Khalfan in response to the global, violent backlash targeting Muslims, and those perceived to be Muslims, after the deadly attacks in Paris, France in November, 2015.

As part of the Office’s education and training portfolio, the Initiative’s objectives were to:

1. Contribute to the development of a shared understanding of how Islamophobia manifests on campus.
2. Offer a supportive space for those who have experienced, or fear experiencing, Islamophobia.
3. Identify practical means of challenging Islamophobia on campus.

Through drop-in sessions, a roundtable discussion, workshops, presentations and self-defence classes, the Initiative engaged students, staff and faculty. While the Initiative facilitated an important dialogue on campus, it also revealed a need for ongoing work to appropriately address the reality and the impact of Islamophobia on our University campus. The Office is writing a report to be provided to the University in the 2016-2017 reporting year.

Taking It Local: A Collaborative Equity Education Day

On June 22, 2016, McMaster’s Equity Services Program, in collaboration with the City of Hamilton and the Ontario Human Rights Commission, hosted a free one-day learning event for the Hamilton community. Called Taking It Local: An update on human rights, the day featured speakers from the OHRC, the City of Hamilton and McMaster University and provided the community with up-to-date information on what’s happening in human rights in Ontario.
Human Rights Complaints: A 5-Year Historical View

Total Complaints and Consultations

*Of these 376 consultations, 64 were non-policy related. As such, they are not captured in the grounds.

Outcomes
### Cases by Ground

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<td>12</td>
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<td>Personal harassment (bullying)</td>
<td>23</td>
<td>37</td>
<td>38</td>
<td>57</td>
<td>82</td>
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</table>

Note: There were no complaints based on the grounds of citizenship, receipt of public assistance or membership or non-membership in a political organization.

*Gender expression and gender identity were added to the Ontario Human Rights Code as prohibited grounds of discrimination and harassment on June 19, 2012. Prior to this, complaints pertaining to these issues fell under the prohibited ground of sex.

### Top 5 Grounds

- Disability
- Personal harassment (bullying)
- Sex
- Creed/religion
- Ancestry, colour, race

![Graph showing top 5 grounds]

- Disability
- Personal harassment (bullying)
- Sex
- Creed/religion
- Ancestry, colour, race
Participant Type

Origin of concern
What's on the Horizon for 2016/17?

- Introduction of the new Vice Provost, Equity and Inclusion
- New Sexual Violence Policy—January 2017
- DHSH Policy Review—July 1, 2017
- Accessibility Policy Review
- Introduction of an Anti-Racism Officer
- Heightened collaboration with community advocates and stakeholders through the new Anti-Racism Resource Centre
- More equity-related initiatives, including trans inclusion projects and sexual violence initiatives
- Strengthened partnerships between the Equity and Inclusion Office and campus and community members
- Improved processes and tools for more complete data collection