

BOARD OF GOVERNORS
Thursday, March 5, 2020 at 9:00 a.m.
Gilmour Hall, Council Room (Room 111)

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.

Page

A. OPEN SESSION

- 1. REMARKS FROM THE CHAIR**
- 2. NOTICE OF MEETING - FEBRUARY 20, 2020**
- 3. APPROVAL OF THE AGENDA - OPEN SESSION**

CONSENT (9:00 a.m.)

- 4. MINUTES OF PREVIOUS MEETING – DECEMBER 12, 2019 (OPEN SESSION)**

Approval

6 - 16

- a. [Minutes - December 12, 2019 \(Open Session\)](#)

- 5. BUSINESS ARISING**

- 6. REPORTS FOR INFORMATION**

17 - 76

- a. [McMaster Museum of Art - Annual Report](#)

77 - 80

- b. [Report from Health, Safety and Risk Management](#)

MOTION: That items 4 to 6 be approved or received for information by consent.

REGULAR

- 7. BUSINESS ARISING (none)**
- 8. COMMUNICATIONS (none)**

9. PRESIDENT’S REPORT TO THE BOARD (9:10 a.m.)

Information

- 81 - 85 a. [President's Report to the Board](#)

10. REPORT FROM SENATE (9:30 a.m.)

Approval

- 86 [Report from Senate](#)
87 - 88 a. [SPS A9 - Allocation of Teaching Stream Positions Across Faculties](#)
89 - 115 b. [Proposal for Centre for Clinical Neuroscience \(CCN\)](#)
116 - 125 c. [Establishment of “Guidelines for the Governance and Review of Core Research Platforms”](#)

11. COMMITTEE REPORTS (10:00 a.m.)

a. PLANNING AND RESOURCES COMMITTEE

Approval

- 126 [Report from the Planning and Resources Committee](#)
127 - 211 i. [Hourly Pension Plan Actuarial Valuations](#)
212 - 224 ii. [Debt Management Policy](#)

12. PRESENTATION TO THE BOARD OF GOVERNORS (10:15 a.m.)

Name: Dr. David Farrar and Ms. Andrea Thyret-Kidd
Title: Powers and Responsibilities of Senate

13. OTHER BUSINESS (10:45 a.m.)

**MCMASTER MUSEUM OF ART
ANNUAL REPORT
SEPTEMBER 1, 2018 – AUGUST 31, 2019**

THE POLYPHONIC MUSEUM

EXECUTIVE SUMMARY:

Creating a 21st Century Museum that matters on campus & in the community

In 2019, internationally, the museum is a contested space: United Nations Declaration on the Rights of Indigenous Peoples, Truth & Reconciliation Commission of Canada Report and, calls to equity, inclusion and representation for communities, have changed the role a museum plays in society. At the MMA we are actively engaged in changing the space, the role, and the voices emanating from within, the institution. The 2018/2019 facts and figures of the Museum's contribution to the campus; to the Hamilton and area community; and to the arts sector in Canada more generally, are noted in the Highlights section of this report (and further detailed in the appendices). The Executive Summary, focuses on the MMA's contribution to championing a de-colonial strategy that will have broad implications for our sector.

At the McMaster Museum of Art (MMA), we are in the forefront of moves to de-colonize and de-stabilize the traditional, historical narrative of the modern western public museum: the museum that has been in existence since circa 1860. The history of advances in new museological practice are steeped in the political and socio-cultural, they are significant and extensive and have been underway in Canada since the late 1980s. It is, however, not the place of this document to expound on this recent crisis. Suffice to say, since 1988 and the historical and landmark *The Spirit Sings* controversy in Canada, which changed museum practices in relation to museums and First Peoples, globally, the notion of the museum as an ideologically neutral space has been exposed. Once the location of unquestionable authorial knowledge and the narrative of western expansionism, territorialism, and superiority; the post-modern museum has spent the past 30-years on a path to de-centre, de-colonize and disrupt their origin myths. To make space for the others in their midst.

Fast forwarding to the present, in 2019, there has been a significant rise in attention for the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP (2007)) and the *Truth & Reconciliation Report* (2015), curiously, given their much earlier release dates. Nonetheless, their recent attention has resulted in shifts in the museum community, globally. In Canada, the Canadian Art Museum Directors' Organization, Ontario Association of Art Galleries and, Canadian Museum's Association, have all responded: with a national symposium (in 2016 and again in 2019), an international summit (2021) and, a Call to the federal government to "provide funding to the CMA to undertake, in collaboration with Aboriginal peoples, a national review of museum policies and best practices to determine the level of compliance with UNDRIP and to make recommendations," (November/December, 2019).

Internationally, the recent de-centering agenda has caused the International Council of Museums (ICOM), an arm of the United Nations Educational Scientific and Cultural Organization (UNESCO), to re-consider its purpose – that is, the purpose of the museum in the contemporary world. At the 2019 ICOM conference, the organizer's noted: "Amidst the many global political, economic, and social changes taking place around the world, and with the underlying issues of climate change, poverty, conflict,

natural disasters, human rights, and the environment, it is becoming more and more urgent for museums to consider how they might contribute to building a peaceful and sustainable future.” (Muse, ICOM Kyoto, 2019, pp 4 – 7). Subsequently, ICOM’s traditional definition of the museum - “a nonprofit institution” that “acquires, conserves, researches, communicates, and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study, and enjoyment” – has been upended, amid much controversy. At the ICOM Kyoto conference, 70% of delegates voted to postpone the change in definition. Despite the controversy, the new definition challenges the past of museums and looks toward a shared, collaborative future(s), and speaks accurately to the role of the museum in the 21st century:

Museums are democratizing, inclusive and polyphonic spaces for critical dialogue about the pasts and the futures. Acknowledging and addressing the conflicts and challenges of the present, they hold artifacts and specimens in trust for society, safeguard diverse memories for future generations and guarantee equal rights and equal access to heritage for all people. Museums are not for profit. They are participatory and transparent, and work in active partnership with and for diverse communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary wellbeing. (International Council of Museums, Paris, 2019).

At the MMA, for the past decade, we have been on a de-centering strategy. When I came to the institution in 2006, I had two goals: 1) at the request of the Provost who hired me, to respond directly to the academic mission of the **entire university** (not only to art and art history – an art museum’s “traditional” disciplinary colleagues) and 2) due to personal curatorial interests (working with Indigenous art and artists since 1984), to include Indigenous artists in exhibitions and in the collection. In terms of the former commitment, I initiated a program of curatorial projects with guest faculty, presenting their original research through public exhibitions of art, artifacts and extensive didactics that brings their original innovative research at McMaster University to the public who visit the Museum. To date, we have worked with campus research interests as varied as Psychology, Neuroscience & Behaviour; Applied Radiation Sciences; Biomedical Engineering; Physics and Astronomy; Communication Studies; English & Cultural studies; Classics, Psychology/Pediatrics; Theatre & Film Studies, among others; as well as with Art and Art History. I also, early on (2010), initiated with Dr. David Price, Chief, Department of Family Medicine, the creation, and continued delivery, of the nationally awarded and recognized program, *The Art of Seeing*: a program to develop, through a command of visual literacy skills, the communication, empathy and self-care skills of Family Medicine Residents. The program is now in its 10th cohort and is one of four medical humanities electives available to DFM Residents annually. *The Art of Seeing* has moreover, been augmented and expanded and currently serves many

interests beyond those in health sciences, especially in the area of leadership training, for instance, among various Hamilton-area community groups: Hamilton Community Foundation, City of Hamilton, Hamilton Public Libraries, McMaster Centre for Continuing Education, and so on.

In terms of the second goal, in 2006 I brought to the McMaster Museum of Art my considerable experience in the Canadian Museum world wherein I had been working with Indigenous art and artists since 1984. Ground breaking work in exhibitions and museological research enabled me to begin a conscientious path toward de-centering the institution/the MMA. For the first many years, this consisted of ensuring that the work of Indigenous artists be included in exhibition projects at the Museum (among the artists exhibited: Stephen Foster, Robert Houle, Carl Beam, Roy Thomas, Ursula Johnson, Brad Isaacs, Blake Debassige, and many others) and, that important additions were made to the collection in this area (Greg Staats, Bob Boyer, Jeffrey Thomas, Mary Anne Barkhouse, Rebecca Belmore, Norval Morrisseau and others). It is all well and good to work with communities in order to bring about change in exhibition and collection practices in cultural institutions, it is, however, an all-together different order of business to facilitate the hiring of full-time BIPOC staff in senior staff positions. In 2016, the Museum made space for an Aboriginal Curatorial Resident, Rheanne Chartrand. In 2017, the position of Curator of Indigenous Art was made permanent. At the time, only three other art museums in Canada had permanent, full-time Indigenous Curators: they were two of the largest institutions in the country: the National Gallery of Canada, Ottawa; and the Art Gallery of Ontario, Toronto, and the McKenzie Art Gallery, a university-affiliated institution (like the MMA), housed at the First Nations University of Canada, University of Regina, Saskatchewan. Since the MMA's move, countless Canadian institutions are scrambling to catch up.

It is again, however, not enough to add Indigenous artists to exhibitions and collections and even then, to add Indigenous colleagues to your staff and your Board/Advisory Committee, without committing to essential work in the area of de-colonization. That is, to work towards reconciliation through a strategy of purposeful de-colonization. In the fall of 2018, the Museum began a conscientious de-colonization strategy: to re-imagine the day-to-day of the institution; to bring to the fore, Indigenous ways of knowing and being in the world. The MMA's so-called *Taking Stock* strategy is an on-going process, an examination of the institution put forward by the Curator of Indigenous Art, supported and championed by the Director, and adopted by all staff. It includes: an on-going series of relevant readings; on-going monthly full staff meetings for the dissemination of both information and the sharing of experiences; homework projects; and Indigenous and BIPOC cultural sensitivity training with third party leaders.* The goal with *Taking Stock* is to develop at the MMA a work environment that conscientiously recognizes the colonial space within which we function as a Canadian cultural institution on a university campus and, which seeks to disrupt that history/narrative with other voices, histories, narratives and futurities.

With the addition in May 2019 of a BIPOC Senior Curator - both a senior curatorial staff member as well as a management (TMG) position in the Museum - the *Taking Stock* strategy has taken on another level of intention. With Pamela Edmonds hiring, the Museum's de-centering footprint in the Canadian arts and museum milieu has expanded. The MMA is positioned to make a difference. (Indeed, the Ontario Association of Art Galleries has asked the MMA to be their partner in the production of the first ever, Canadian International Summit on De-colonizing the Canadian Cultural Institution (in 2021).

*(External Consultants: Session #1: March 26th, 2020 with Michael Etherington, Indigenous Relations Consultant, formerly Program Manager, Native Canadian Centre, Toronto; and Trainer, Ontario Federation of Indigenous Friendship Centres; his book, [Finding Your Story: In the Era of Reconciliation](#), comes out summer 2020. Session #2: date/time TBA with Charles C. Smith, Research Associate with the Canadian Centre for Policy Alternatives and Equity Advisor to the Canadian Bar Association and the Law Society of Upper Canada).

Carol Podedworny, Director and Chief Curator

ORGANIZATIONAL OVERVIEW

In view of the museological moment for cultural heritage institutions worldwide, the MMA's 2020 – 2025 Strategic Plan visioning – which took place between May and December 2019 – spent considerable time on re-imagining the institutional mission and vision statements, and subsequently, our mandate. The up-dated statements are noted here:

Our Mission (2015 – 2020)

The McMaster Museum of Art (MMA) engages, educates and enlightens through its innovative exhibitions and public programs while preserving the integrity of its collection. The MMA is a unique meeting place for both the campus and the wider community that aims to provoke people's understanding of the visual arts with its online and physical presence.

(2020 – 2025)

The McMaster Museum of Art is a meeting space for both the campus and the community situated within the traditional territories of the Mississauga and Haudenosaunee Nations. The Museum engages, educates and inspires through: growing an awareness of the interconnectivity of the past, present and future; advancing de-colonization; engaging in innovative and imaginative research; dismantling institutional and ideological boundaries; partnering and collaborating intentionally; diversifying the collection; and building capacity.

Our Vision (2015 – 2020)

The McMaster Museum of Art will inspire curiosity, expand knowledge, ignite creativity, and enrich people's lives through an experience with visual arts.

(2020 – 2025)

The McMaster Museum of Art will positively disrupt the traditional museological narrative by creating more inclusive, dynamic and experiential relationships between peoples and artistic practices.

Mandate

As a university-affiliated, public art museum, the McMaster Museum of Art is a democratizing, inclusive and polyphonic space for critical dialogue about the pasts and the futures. The Museum is participatory and transparent, and works in active partnership with and for diverse communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary wellbeing. Within this framework, the role of the MMA is twofold: to support the academic mission of McMaster University and to contribute to the discourse on art in Canada.

Facility

The MMA resides in a purpose-renovated building located at the centre of McMaster University's main campus. It comprises 5 galleries, 5 on-site storage vaults, and attendant office and public areas. Specifically, these areas break down as follows: 1,700 net square feet of (non-collection area) public space; 5,000 net square feet of exhibition space; 4,000 net square feet of storage; and 1,200 net square feet of office/administration space. The physical plant of the MMA is maintained by the University proper. The Museum maintains and pays for its own collections insurance coverage as a sub-set of the University's larger institutional policy. The Museum maintains comprehensive security coverage in collaboration with an independent provider, Campus Security and the City of Hamilton police force. The

Museum has 11 full-time staff: Director, Senior Curator, Curator of Indigenous Art, Collections Administrator, Senior Education Officer, Education Officer, Communications Officer, Preparator, and 3 Information Officers. The Curatorial staff is broadened by the addition of an Honorary Curator of Numismatics and Antiquities, a position currently held by Dr. Spencer Pope, Department of Classics, McMaster University. Various student and community volunteers round out the staff complement at the MMA, helping primarily with educational programming and events.

Collection

Of the 40 university-affiliated art galleries/museums nation-wide, the MMA houses one of the top three collections in one of the best facilities in the country. The collection at the MMA numbers 6,000+ works of art and contains important historical, modern and contemporary period works. Highlights of the collection include:

- The Herman H. Levy Collection of Impressionist, Post-Impressionist and Modern work: including paintings by Caillebotte, Courbet, Derain, Marquet, Monet, Pissaro, Sickert, Soutine and Van Gogh;
- the Denner Wallace Collection, the most comprehensive collection of German Expressionist and Weimar period prints in Canada, including works by Barlach, Beckmann, Dix, Kirchner and Kollwitz;
- a significant holding of European Old Master works including 16th to 18th Century paintings and prints from Gosseart to Turner;
- 20th Century European art including modernist and contemporary artists from Duchamp, Nicholson and Rodchenko to Beuys, Kiefer, Kapoor and Richter;
- Canadian art including historical works by Thomson, Milne and the Group of Seven and including contemporary works by Andrews, Astman, Goodwin, Keeley, Maggs and Scherman,;
- the Inuit collection with a focus on Cape Dorset prints and sculpture including works by Kenojuak, Pitseolak and Tookoome;
- and Contemporary First Nations Art, including works by artists such as Ash Poitras, Beam, Boyer, Kakegamie and Morrisseau.

Exhibitions & Public Programs

The MMA produces on average 8 - 12 exhibitions annually and augments those exhibitions with publications and ancillary programs geared to engage both the campus and broader community audience of the region. Throughout its history, the MMA has actively contributed to the dialogue on contemporary art in its contemporary galleries while maintaining an active research program on the objects in the permanent collection in its collection galleries. The Museum, from its outset, has maintained a "doors open" policy in terms of collections access as well as an active education and public programs component.

Community

The MMA is one among several cultural institutions in the Hamilton area. The City of Hamilton manages several historic buildings and homes – Dundurn Castle, Military Museum, Museum of Steam & Technology, Whitehern Historic House, and a Children's Museum; as well the City is home to the Art Gallery of Hamilton as well as the James Street North artists' district. The MMA attempts to distinguish its contribution to the arts scene in the area by providing programming that is directed toward, on the one hand, scholarly research and on the other hand, inter-disciplinary projects. In this way, the collections, exhibitions and programs of the MMA add a perspective on visual culture and society not currently being addressed on an on-going basis elsewhere in the region.

The museum has a national and international community in terms of collaborative exhibition projects and the use of its collections by sister institutions. Works of art from the collection are regularly borrowed by international institutions such as the Belvedere Palace, Vienna, Austria; Tate Modern, Tate Britain, Brooklyn Museum, and Kunsthalle Bremen, Denmark, among others. In Canada, MMA works are regularly borrowed by the Art Gallery of Hamilton, Winnipeg Art Gallery, Art Gallery of Ontario, Montreal Museum of Fine Arts and the National Gallery of Canada, among others.

2018/2019 HIGHLIGHTS

ADMINISTRATION

General

The principle museological intention of the MMA throughout 2018/2019, and with an eye to an on-going de-colonization strategy in the institution, was the implementation of the Curator of Indigenous Art's *Taking Stock* roadmap. In the fall of 2018, the Museum began a conscientious de-colonization strategy: to re-imagine the day-to-day of the institution; to bring to the fore, Indigenous ways of knowing and being in the world. The MMA's strategy consists of an on-going series of relevant readings; on-going monthly full staff meetings for the dissemination of both information and the sharing of experiences; homework projects; and Indigenous and BIPOC cultural sensitivity training with third party leaders. The goal with *Taking Stock* is ultimately to develop at the MMA a work environment that conscientiously recognizes the colonial space with which we function as a Canadian cultural institution on a university campus and, which seeks to disrupt that history/narrative with other voices, histories, narratives and futurities. That said, the standard museological responsibilities of a museum continued, of course, throughout 2018/2019: research, preservation/conservation, collection, exhibition, presentation and education. Details and highlights in those areas are presented below.

Staff Complement

The Curator of Indigenous Art position become permanent in 2018/2019 (residency in 2016/2017; three-year commitment to an Indigenous curatorial position for 2017/2018, 2018/2019 and 2019/2020) was cemented in the 2020 fiscal year with thanks to Dr. David Wilkinson and the University Budget Committee. In May 2019, the Museum hired its second BIPOC individual in a position of significance in the institution. Pamela Edmonds came on as Senior Curator with a 20-year history of curatorial work informed by critical dialogues related to cross-cultural curating and encouraging the integration of cultural diversity into the study of western art history and cultural studies. Her practice also explores the impact of African diasporic cultures on the evolving geography of global contemporary art. Along with the Curator of Indigenous Art, Rheanne Chartrand's work on re-writing a First Nations art history in Canada, Edmonds' work cements the MMA as an institution of record for de-colonization in the Canadian cultural milieu. As well, in 2019 the Museum hired John Hill, a graduate of McMaster University's Indigenous Studies Program, as a front of house Information Officer. A direct response to *Taking Stock*, the hiring responded to a key direction of the report, that of ensuring that hiring practices supported the goal of staffing the institution in such a way that BIPOC visitors would see themselves reflected, not only in the exhibitions and collections of the MMA, but also in the staff complement.

Facilities

In 2019, the MMA has been in its current facility for 25 years. As a consequence, over the past four years, the building has required significant up-grading. In 2016/2017 we replaced all lighting in the (five)

exhibition galleries. In 2017 and into 2019, the security system was up-graded. In 2017/2018, thanks to a significant grant from the Department of Canadian Heritage, the storage vaults (five in total) were up-graded, they're spaces increased by an estimated 20% and were revised in order to provide improved ease of access and safety in the handling of objects of cultural heritage. In 2019, from March 25th through August 24th, the Museum of Art was closed to the public as the environmental system: providing exact international museum standard temperature and humidity controls, was refurbished. While the Museum remained open to the public through the lighting, security and vault up-grades, we had to close the doors during the environmental refurbishment. As a consequence, we took the Museum's programs to the streets! For details, refer to the Collections, Exhibitions and Education program reports below.

Budget, Grants & Funding

In 2018/2019, the Museum continued to manage a balanced budget. Through on-going cost containment efforts including, partnering with sister cultural institutions, applying for external granting opportunities, minor income generation revenues, revising program expenditures based on budget actuals, and donations from individuals and foundations, the Museum manages to maintain a relatively equal income to expenditure spread sheet. In terms of externals, the Museum received a significant Project grant from the TERRA Foundation for American Art and a small increase to our Operating funding from the Ontario Arts Council. Moreover, on campus, the Museum received an Access Grant from the Office of Community Engagement for our MMA/Hess Street School Partnership.

Community

In 2019, the Museum continued to partner with organizations in the community beyond the University as well as with campus groups/faculty. We served 64 campus groups, 37 schools in the community and 20 community organizations in many instances as information source but also, in many cases, in a collaborative exchange where community needs were met by museum staff through specifically designed programs (more details in the Education report below). We also contributed to regional and national art community interests as the MMA director, curatorial and education staff sat on committees for Hamilton Super Crawl, Hamilton Arts Council, Hamilton's *Building Cultural Legacies* Group, Canadian Art Gallery Educators Group, Art Toronto's Black Curators Group, the Art Gallery of Ontario's *United We Stand*, Black Curators' Forum, Harbourfront Centre's Indigenous People's Day, as well as at *ImaginNative*, the Juno's and the Kenojuak Cultural Centre in Cape Dorset.

Attendance

While the Museum maintains a relatively consistent through-the-door attendance figure and ever increasing on-line figures, from year-to-year, in 2018/2019, due to the almost five-month closure period, our numbers dropped from 27,000 to 17,500. Nevertheless, additional numbers were seen as a result of off-site programming in regional schools and at on campus tours and workshops. In terms of our on-line presence, numbers remained healthy: Website 38,061; e-museum 31,440; e-invite subscribers 1,712; facebook friends 2,300; twitter users, 3,277; Instagram 1,455; youtube views 11,700; sculpture tour (app) 632 views. The MMA's Geocoins continue to circulate around the globe.

For more details regarding the Administration report, please refer to the following: Appendix A: On-going Institutional Achievements and Appendix B: Digital Media Report.

COLLECTIONS

Amongst the 42 university-affiliated art galleries in Canada, the MMA boasts one of the best permanent collections. It is not surprising therefore that a considerable amount of resources is spent annually on maintaining the collection to the highest museological standards. Over the past 10 years, we have digitized the entire collection; acquired and populated a state-of-the-art inventory database; and created an on-line e-museum for visitors. In the past five years, we have produced three major national touring exhibitions of the collection fully funded by the Department of Canadian Heritage and, also department funded, completely refurbished our five on-site collection storage vaults. We have also been a significant partner to the Canadian Art Museum Directors Organization's (CAMDO) Holocaust-Era Provenance Research project. We have, moreover, created and enacted a responsible de-accessioning plan. In short, the permanent collection of McMaster University is in excellent condition.

In 2018/2019, additional collections work proceeded as follows: in preparation for the publication of a catalogue on the numismatic collection, the entire coin collection has been digitized, inventoried and catalogued with the expert oversight of Dr. Spencer Pope, Department of Classics, McMaster University, and his students. Moreover, the entire antiquities collection has received a storage conservation up-grade.

In 2018, the Acquisitions Sub-Committee of the Museum moved for a three-year collecting hiatus due to the environmental refurbishment and up-grade to the storage vaults. Therefore, acquisitions in 2018/2019 were low with only 36 in total: 26 German Expressionist and Leonard Baskin prints (the MMA is an institution of record for German Expressionism and Baskin and hence the break in hiatus); and the purchase of 10 works: by Haudenosaunee artist Jeffrey Thomas (for an up-coming exhibition project) and works by Persimmon Blackbridge at the request of and in partnership with The Socrates Project.

Please refer to Appendix C: Acquisitions to the Permanent Collection for details.

2018/2019 was the final year in the Museum's five year run of national touring exhibitions from the permanent collection. On tour this past year, *A Cultivating Journey: The Herman H. Levy Legacy* to venues in British Columbia: Vancouver Art Gallery (March – May 2018) and Kelowna Art Gallery (June – October, 2018). As well, in the reporting period, the MMA launched another touring project: *#nofilter needed*, an exhibition of the photo-based work of the Hamilton collective the Native Indian/Inuit Photographers Association (NIIPA). It toured to the Art Centre of Indigenous & Northern Affairs Canada, Gatineau; Thunder Bay Art Gallery; and the University of Lethbridge Art Gallery.

Please refer to Appendix D: Permanent Collection Works on Exhibition Tour for details.

Also in the reporting period, the Museum loaned several collection works to sister cultural institutions in Canada: to galleries in Windsor, Peterborough, Dundas and Halifax, Regina and Toronto. Perhaps the largest project was the Art Gallery of Ontario's Impressionist blockbuster, *Impressionism in the Age of Industry*, to which we loaned the University's Claude Monet, *Waterloo Bridge*, 1903.

Please refer to Appendix E: Permanent Collection Works on Loan for details.

In the reporting period, funds were realized from the de-accessioning of three works that do not fit the collecting mandate of the institution. After recommendations from the Acquisitions Sub-Committee and three passes at the Advisory Committee level, the works were offered to sister cultural institutions in Canada. Following several months of availability, with no interest, the works were sent to Christie's Auction house for sale. The works realized \$246,500 USD = \$336,300 CDN. As per international museum standards, the funds are in service solely for the purpose of new acquisitions to the collection. As well, four works on paper by an early period Canadian artist were traded for the fifteen German Expressionist prints noted in acquisition section, above.

Please refer to Appendix F: De-accessioned & Transferred Objects for details.

Holocaust-Era Provenance Research

In the MMA's on-going research into Holocaust-Era Provenance questions, to date we have reviewed the nine paintings originally slated for review by the CAMDO Holocaust-Era project, as well as all pre-1945 German Expressionist works on paper (researched by MMA staff). Findings have resulted in the identification of six works with questionable provenance: ie. either their provenance is not fully known and they reside in the relevant inquiry period or, they exhibit stamps (on their verso) which identify them as looted or lost works per up-dated international Holocaust databases. In the case of the six: one remains a dead end; two museums responded acknowledging our notifications with thanks but not requesting the works be returned; and three institutions have never responded to our initial inquiries. Research/examination on the pre-1945 works in the general collection continue as staff time allows.

Please see Appendix G: Holocaust-Era Provenance Research for details.

EXHIBITIONS

Given the nearly five-month shut down of the Museum (March 25th – August 24th, 2019) due to the refurbishment of the environmental system, the Museum produced six (versus our standard 10 – 12) exhibitions in the reporting period. The exhibitions included a borrowed project (Johnson); a partnership with Mills Library & Archives (Bertrand Archive and Reading Room); a retrospective of the work of a senior Canadian artist (Grossmann); and three exhibitions of work by local artists (Daetwyler, Angelopoulos and Allgoewer). In terms of public programs and engagement, the exhibitions provided a variety of diverse opportunities for visitors to the Museum: performances by artists; public lectures and panel debates; a community gathering; and inter-active exhibitions/spaces. As well, the exhibitions presented work by Indigenous and non-Indigenous artists, senior and mid-career Canadian artists, as well as works from the permanent collection in the media of performance, sculpture, film, photography, printmaking and painting.

List of Exhibitions

Fall

Ursula Johnson: Mi'kwite'tmn (Do You Remember), St. Mary's University Art Gallery, Halifax
Bertrand Russell: Undying Hope for a Dangerous World, partnership with Mills Library & Archives
Bruce Barber: The Bertrand Russell Reading Room, partnership with Mills Library & Archives
Ernest Daetwyler: The Boat Project, an Artist's Garden project

Winter

Angela Grossmann: Troublemakers

Jaime Angelopoulos: Oblique Choreography

Michael Allgoewer: 1514, responding to the collections of the MMA

Summer

Closure

EDUCATION & PUBLIC PROGRAMS

In terms of the Museum's regular public programs and school programs activities, in 2018/2019 the Museum served 64 campus groups; 37 regional public/catholic/private schools; and 20 community organizations (including YMCA Youth Job Connection Program; City of Hamilton Culture & Recreation Department Staff; Crossfire Christian Assembly Church, Adult Community Support Group; Burlington Women's Probus Club; Canadian Federation of University Women; among many others). We oversaw the work of an applied humanities students; ran our regular volunteer/docent program (for mostly a student population); ran our regular (and highly popular) *Sketching Thursdays*, as well as partnered with both the YMCA on several programs for youth and with the HWDSB as a co-op community partner. In terms of our closure education programs, we ran a massive art-in-the-schools program, offering courses in colour, light and impressionism; perspective: math & art; printmaking: mass communication on a piece of paper; science & the principles of art; the art of map making; land art: working with the environment. Seventy-five classes, in fifty-one schools in Hamilton and area participated! Thanks to a grant from the Office of Community Engagement, we were able to continue one of the programs with Hess Street School (a high priority neighbourhood school and a school highlighted for "access" in the Office of Community Engagement) throughout the academic terms. Also during the closure period, education staff at the museum offered campus art and architecture tours; outdoor sketching, and on-line art lessons, all in an effort to remain active and contributing to campus and community cultural life during the Museum's facility closure.

In terms of the Museum's nationally renowned *Art of Seeing* program in partnership with the Department of Family Medicine, 2018/2019 saw the ninth cohort of the program. In addition to the annual running of the program for the Residents in the Department of Family Medicine, the highly successful and sought after *Art of Seeing* program continues to expand its reach, program goals and offerings and influence, into the community in and beyond the campus. In 2018/2019 the following groups signed on: Emerging Health Leaders Program; DeGroot School of Business Health Leadership Academy; Senior Leadership Team, Hamilton Public Library; Hamilton Health Sciences Centre for People Development. As well, CCE Strategic Leaders, City of Hamilton Child and Youth Services, Niagara Family Medicine Conference, University Residences Student Community Advisors, Canadian Association for Health Humanities Creating Space Conference, University of Guelph Nexus for Innovation Extended Practices in University Art Gallery Education Conference, DFM Staff, and McMaster Palliative Care Program. The program continues to have significant ramifications for attendees. Museum Senior Education Officer and DFM Physician colleague, continue to work towards a scholarly review of the program to be published in the year of tenth cohort, 2019/2020.

Please refer to Appendix H: Educational Programming for details.

MEDIA COVERAGE, SOCIAL MEDIA AND DIGITAL OUTREACH

In 2018/2019, the MMA received the following industry/community awards: 2019 *Hamilton Spectator*, best art gallery, and best museum; and the 2019 best art gallery in Hamilton Community News. As well, the Museum accepted the Ontario Association of Art Galleries 2019 Award for Best Volunteer on behalf of long-time Museum colleague, Dr. Douglas Davidson (Biology, McMaster University), for his unerring commitment and devotion to the Museum's collection through Acquisitions Sub-Committee membership (for over 30 years!) and or his spectacular donations to the permanent collection.

In terms of media coverage, the Museum received rave reviews from several sources: print coverage: 46 reviews; digital reviews: blogs, 3; and, via broadcast/radio: 4 interviews.

Please see Appendix I: Media Summary for details.

APPENDIX A: ON-GOING ACHIEVEMENTS

INSTITUTIONAL ACHIEVEMENTS 2007 – 2019:

OPERATIONS

Including: FUNDING; ORGANIZATIONAL COMPETENCE & DEVELOPMENT; DIGITAL & SOCIAL MEDIA LAUNCHES, PLATFORMS & DEVELOPMENT; COLLECTIONS MANAGEMENT; FACILITIES UP-GRADES

2007 – 2015 **CITY OF HAMILTON**, COMMUNITY PARTNERSHIP GRANT

2007 FACEBOOK LAUNCHED

2008 LAUNCH OF INTER-DISCIPLINARY, COLLABORATIVE EXHIBITIONS WITH MCMASTER FACULTY (Psychology, Neuroscience & Behavior; Physics & Astronomy; Classics; Theatre & Film Studies; English & Cultural Studies; Indigenous Studies Program; Radiation Sciences; Anthropology; Studio Art; and so on)

2009 STRATEGIC PLAN 2009-2014 (First in Museum's history, funded by a grant from **Canadian Heritage**, facilitated by Lord Cultural Resources)

2009 FACILITY REPORT CREATED (UP-DATED 2019)

2009 BLOG LAUNCHED

2010 ADVISORY COMMITTEE, TERMS OF REFERENCE REVISED

2010 EMERGENCY DISASTER RESPONSE PLAN CREATED (UP-DATED 2020)

2010 BUDGET REPORT (7 YRS FORWARD)

2010 UNIVERSITY ALLOCATION TO MMA IS INCREASED BY 60%

2010 GEO-CACHE LAUNCHED

2010 DIGITIZATION OF PERMANENT COLLECTION (funded by a matching grant from **Canadian Heritage**, matching component from **private donor**)

2010 TMS/THE MUSEUM SYSTEM COLLECTION DATABASE (acquired and populated, funded by donation from **private donor**)

2010 MMA/DEPT OF FAMILY MEDICINE, VISUAL LITERACY PROGRAM, *THE ART OF SEEING* (Trade-marked in 2014; (1 of 4) Electives for Family Medicine Residents, CCE leadership course launched in 2016; among others; Memorandum of Agreement signed with Department of Family Medicine 2017; Marketing Strategy Launched in 2016; Research Project with Family Medicine Launched in 2016)

2011- ON-GOING ONTARIO ARTS COUNCIL OPERATING GRANT

2011 INSURANCE REVIEW (with resulting change in provider for a savings of \$30,000 annually)

- 2011 SECURITY UP-GRADE
- 2011 GO-GREEN, E-INVITES
- 2011 TWITTER LAUNCHED
- 2011- 2014 PAINTING ANALYSIS RESEARCH PROJECT (funded by **McMaster University, Office of Research** and through a grant from Canadian Heritage)
- 2011- 2015 ANTIQUITIES & NUMISMATIC RESEARCH PROJECT, Dr. Spencer Pope and the Department of Classics
- 2011 POLICIES & PROCEDURES MANUAL REVISED (UP-DATED IN 2020)
- 2011 SECURITY & MONITORING PROCEDURES REVISED (UP-DATED IN 2019)
- 2012 E-MUSEUM LAUNCHED
- 2013 MMA YOUTUBE CHANNEL LAUNCHED
- 2014 WEB REDESIGN
- 2014 SOCIAL MEDIA PLAN ACTIVATED
- 2014 DEMOGRAPHIC/USER SURVEY (conducted by Hill Research Strategies Inc.)
- 2014 FIRE SYSTEM UP-GRADE
- 2014 DE-ACCESSIONING PLAN CREATED
- 2014 **CANADIAN HERITAGE**, MUSEUMS ASSISTANCE PROGRAM, ACCESS TO HERITAGE GRANT, \$189,000, for *The Unvarnished Truth: exploring the material history of paintings*
- 2014 STRATEGIC PLAN, 2015-2020 (funded through a **Compass Grant** from the Ontario Arts Council, facilitated by Good Consulting)
- 2015 PARTNER. CAMDO HOLOCAUST-ERA PROVENANCE RESEARCH & BEST PRACTICES GUIDELINES. Along with Royal Ontario Museum, Montreal Museum of Fine Arts, National Gallery of Canada, Art Gallery of Ontario, Art Gallery of Windsor, University of Lethbridge Art Gallery and Winnipeg Art Gallery. To develop a Holocaust-era provenance research and restitution plan for Canada.
- 2015 *The Unvarnished Truth: exploring the material history of paintings* INTER-ACTIVE WEB SITE (New Motto, Hamilton), launched, active until end of tour, Summer 2017
- 2015 **CANADIAN HERITAGE**, MUSEUMS ASSISTANCE PROGRAM, ACCESS TO HERITAGE GRANT, \$100,000, *Living Building Thinking: art and expressionism*
- 2015 – 2018 *Living, Building, Thinking: art & expressionism* EXHIBITION TOUR, Venues: Art Gallery of Alberta, Edmonton, AB; Vancouver Art Gallery, Vancouver, BC
- 2015 Launch of MMA IN THE COMMUNITY, public programs off-site with Carnegie Gallery, Super Crawl, Downtown Health Centre, Mills Hardware, b contemporary, and Hamilton Arts Council

- 2016 – 2017 *The Unvarnished Truth: exploring the material history of paintings* EXHIBITION TOUR, Venues: Art Gallery of Alberta, Edmonton, AB; Thunder Bay Art Gallery, Thunder Bay, ON; Agnes Etherington Art Centre, Queens University, Kingston, ON
- 2016 MUSEUM PERISCOPE LAUNCHED
- 2016 EXHIBITION RELATED DIGITAL COMMUNITY COLLABORATIONS on Instagram, Twitter & Facebook
- 2016 **CANADIAN HERITAGE**, MUSEUMS ASSISTANCE PROGRAM, ACCESS TO HERITAGE GRANT, \$105,000, *Levy Legacy: A Cultivating Journey*
- 2016 LIGHTING RENOVATION, Main Floor, Contemporary Galleries, funded by **McMaster University**.
- 2016 ABORIGINAL CURATORIAL RESIDENT, Rheanne Chartrand, July 2016 – June 2017, funded by the **Office of the President and Office of the Provost, McMaster University**.
- 2016 MARKETING PLAN LAUNCHED
- 2017 LIGHTING RENOVATION, Fourth Floor Galleries & Lobby, funded by **McMaster University**.
- 2017 – 2019 *A Cultivating Journey: The Levy Legacy* EXHIBITION TOUR, Venues: Vancouver Art Gallery, Vancouver, BC; & Kelowna Art Gallery, Kelowna, BC.
- 2017 - 2020 INDIGENOUS CURATOR, July 1, 2017 – June 30, 2019. Funded by the **Office of the Provost, McMaster University**.
- 2017 COLLECTIONS STORAGE UP-GRADE (\$50,000). Funded by the **Department of Canadian Heritage, Museum Assistance Program**.
- 2017 LAUNCH OF N. GILLIAN COOPER EDUCATION PROGRAM, funded by donor **N. Gillian Cooper**.
- 2017/2018 UP-GRADE OF MUSEUM SECURITY SYSTEM/HARDWARE, funded by the **Office of the Provost**.
- 2018 EDUCATION PROGRAM expansion, from 2 to 5 education program staff.
- 2018/2019 LOBBY RENOVATION
- 2019 CURATOR OF INDIGENOUS ART, permanence.
- 2019 UP-GRADE TO MUSEUM ENVIRONMENTAL SYSTEM
- 2019 FACILITY REPORT revised
- 2019 SECURITY & MONITORING PROCEDURES revised
- 2019 Launch of *TAKING STOCK*, a de-colonization strategy for the MMA.
- 2019 STRATEGIC PLAN, 2020 – 2025, June – December 2019, working year.
- 2019 ART IN THE SCHOOLS - April – August, 2019, taking art education to schools throughout the region: 114 teachers, 24 schools, 1,544 students!

- 2019 PUBLIC ART PROJECT - commissioning of three works of public art: Hiba Abdallah, Jason Baerg, and Ed Pien
- 2019 SENIOR CURATOR – HIRE, Pamela Edmonds, with a research history in cross-cultural and inclusive curatorial practice, de-colonization, cultural equity and emancipating collections
- 2019 **TERRA Foundation for American Art** grant, \$101,000 CDN for the production of the exhibition *Peripheral Vision(s): Perspectives on the “Indian” image by 19th century Northern-Plains warrior-artists, Leonard Baskin and Fritz Scholder*

APPENDIX B: AWARDS, ON-LINE ATTENDANCE

AWARDS

Hamilton Spectator Readers Choice Awards 2019 –Best Art Gallery (Gold) and Best Museum (Top 10)
Hamilton Community News Readers Choice Awards 2019 – Best Art Gallery

DIGITAL MEDIA

WEBSITE

of Website visitors

- museum.mcmaster.ca 38,061 page views by 15,491 users
- eMuseum (online collections database) 31,440 page views by 1,853 users
- The Unvarnished Truth site was closed

EMAIL

# Number of Subscribers	1424
+ news blog subscribers	288
	= 1712

APP – Walking Tour of McMaster Campus Sculpture
632 views

YOUTUBE 9 videos published this year

Subscribers	+53 subscribers (223 total)
Views	+11,700 (54,700 total)

SOCIAL MEDIA (See attached social media doc for full breakdown)

Demographic across all platforms is approx. M 35% W 65% Hamilton 80%

Facebook	2,300
Twitter	3,277
Instagram	1455

GEOCACHE

38 logged visits to McMaster geocache in this time frame (426 Logged Visits in lifetime)

Nearly 100 Art Adventure Geocoins were launched in 2011. Each coin is named for an artist in McMaster's collection and tasked with a mission: to travel to the birthplace of the artist (or the equivalent distance) and then return home to McMaster. In May 2019, The Lemmen Geocoin became the first to complete its mission, travelling 23308 km (the goal was 6079 km) in 5 years. Although it never reached Schaerbeek, Belgium; it logged over 2000 visits to geocaches across Canada and to the Caribbean.

6 Geocoins were still circulating in 2019.

APPENDIX C: ACQUISITIONS

2018

Otto Wirsching (German, 1889-1919)

Von Totentanz / The Dance of Death, 1915

Consists of 10 woodcuts on cream coloured laid Japan paper:

1. *Titelblatt / Title page*
2. *Der Erste August 1914 / The First of August 1914*
3. *Der Franktireur / The Sniper*
4. *Der Spion / The Spy*
5. *Der Leichenfledderer / The Corpse Robber*
6. *Das Lazarett / The Hospital*
7. *Der Totengräber / The Grave Digger*
8. *Die Flüchtlinge / The Refugees*
9. *Der Urlauber / The Vacationer*
10. *Die Daheimgebliebenen / The Ones Who Stayed at Home*

Published by Roland-Verlag, Dachau, 1915

Plate size; each approx. 16 x 16 cm

Edition is unrecorded but possibly 500 to 1000

Gift of Mrs. Harold Webster to the Art Gallery of Greater Victoria, 1958

Transfer from the Art Gallery of Greater Victoria to the McMaster Museum of Art, 2018

2018.008.0001-10

Der Geizhals, vom *Die Phantastischen Blätter / The Miser*, from *The Fantastic Pages*, 1914

Woodcut on cream coloured laid Japan paper

11 x 13.9 cm

Gift of Mrs. Harold Webster to the Art Gallery of Greater Victoria, 1958

Transfer from the Art Gallery of Greater Victoria to the McMaster Museum of Art, 2018

2018.008.0011

Die Üble Rübe, vom *Die Phantastischen Blätter / The Evil Turnip*, from *The Fantastic Pages*

Woodcut on cream coloured laid Japan paper

12.8 x 9 cm

Gift of Mrs. Harold Webster to the Art Gallery of Greater Victoria, 1958

Transfer from the Art Gallery of Greater Victoria to the McMaster Museum of Art, 2018

2018.008.0012

Einhorn, vom Die Phantastischen Blätter / Unicorn, from The Fantastic Pages

Woodcut on cream coloured laid Japan paper

15.5 × 21 cm

Gift of Mrs. Harold Webster to the Art Gallery of Greater Victoria, 1958

Transfer from the Art Gallery of Greater Victoria to the McMaster Museum of Art, 2018

2018.008.0013

In Tempestate Securitas, vom Der Phantastischen Blätter / Safety in the Storm, from The Fantastic Pages

Woodcut on cream coloured laid Japan paper

16.7 × 21 cm

Gift of Mrs. Harold Webster to the Art Gallery of Greater Victoria, 1958

Transfer from the Art Gallery of Greater Victoria to the McMaster Museum of Art, 2018

2018.008.0014

Walter Gramatté (German, 1897-1929)

The Composer-Sonia Fridman [Gramatté], 1920

Woodcut on paper, edition unknown

31.9 x 27.9 cm

Gift of Harold and Charles Shnider to the Art Gallery of Greater Victoria, 1995

Transfer from the Art Gallery of Greater Victoria to the McMaster Museum of Art, 2018

2018.008.0015

Jeff Thomas (Urban Iroquois, born 1956)

Bert General, Basket of Corn, Smoothtown, 1980

Six Nations of the Grand River, GPS: 43.032067- 80.074533

Pigment print on archival paper; Edition 2/10

50.8 × 71.1 cm

Museum of Art Collection Trust

2018.009.0001

Husking and Braiding White Corn (panel), 2017

Six Nations of the Grand River, GPS: 43.032067- 80.074533

Pigment print on archival paper

76.2 × 228.6 cm

Museum of Art Collection Trust

2018.009.0002

White Corn, 2014/2018

Pigment print on archival paper; edition 2/10

101.6 × 304.8 cm

Museum of Art Collection Trust

2018.009.0003

Home/land & Security, 2012/2018

Pigment print on archival paper; edition 2/10

101.6 × 304.8 cm

Museum of Art Collection Trust

2018.009.0004

Leonard Baskin (American, 1922-2000)

Self Portrait - "LB AET. S. 51", 1973

Woodcut on paper

90.2 x 61 cm

Gift of Rabbi Bernard Baskin

2018.010.0001

Self Portrait – “LB AET. S. 56”, 1978

Woodcut on paper

81.3 x 59.7 cm

Gift of Rabbi Bernard Baskin

2018.010.0002

Self Portrait – “LB AET. S. 76”, 1999

Woodcut on paper

99.1 x 71.1 cm

Gift of Rabbi Bernard Baskin

2018.010.0003

Amos, 1949

From the *Prophets* series

Woodcut on paper

86.4 x 30.5 cm

Gift of Rabbi Bernard Baskin

2018.010.0004

Hosea, 1949

From the *Prophets* series

Woodcut on paper

86.4 x 30.6 cm

Gift of Rabbi Bernard Baskin

2018.010.0005

Jeremiah, 1949

From the *Prophets* series

Woodcut on paper

86.4 x 30.5 cm

Gift of Rabbi Bernard Baskin

2018.010.0006

Jonah, 1949

From the *Prophets* series

Woodcut on paper

86.4 x 30.5 cm

Gift of Rabbi Bernard Baskin

2018.010.0007

Ezekial, 1949

From the *Prophets* series

Woodcut on paper

86.4 x 30.5 cm

Gift of Rabbi Bernard Baskin

2018.010.0008

Cornelius Bega, c. 1970

Etching on paper

74.9 x 59.4 cm

Gift of Rabbi Bernard Baskin

2018.010.0009

Lean Wolf, 1973

From the *Native Americans* series

Lithograph on paper

83.8 x 58.4 cm

Gift of Rabbi Bernard Baskin

2018.010.0010

Cave Bird, 1978

From the *Raptors* series

Etching on paper

74.3 x 50.8 cm

Gift of Rabbi Bernard Baskin

2018.010.0011

2019

Persimmon Blackbridge (Canadian, b. USA 1951)

Panel 6:

- *lacewood doll*
lacewood, mahogany, oxygen tube, doll parts
29.2 × 10.2 × 3.3 cm
- *his bones 6 (stride)*
figured walnut, chakte kok, doll parts, bones
41.5 × 10.5 × 3.5 cm
- *strap-on*
common 2x 4, bone
41 × 14.5 × 3.3 cm

Museum of Art Collection Trust

2019.003.0001

Panel 7:

- *the invention of whiteness*
holly wood, butternut, fish bones, doll parts, oil pastel, paint
45 × 26 × 3.5 cm
- *liminal barbie 3*
common 2x4, brass clock part, paint
33 × 16 × 5.5 cm
- *baby doll*

doll, fish bones, mammal bones, zap straps
12 × 18 × 2.7 cm

Museum of Art Collection Trust

2019.003.0002

APPENDIX D: WORKS ON EXHIBITION TOUR

Exhibition Details / Borrowing Institution	Works on loan
<p><i>A Cultivating Journey: The Herman H. Levy Legacy</i></p> <p>Kelowna Art Gallery 1315 Water St. Kelowna, BC V1Y 9R3 June 16 - October 21, 2018</p> <p>(Previous venue:) Vancouver Art Gallery 750 Hornby St. Vancouver, BC V6Z 2H7 March 3 – May 21, 2018</p>	<p>75 works from the permanent collection of McMaster Museum of Art:</p> <p>Frank Auerbach (English, b. Germany, 1931) <i>Study after Rubens's Samson and Delilah</i>, 1993 oil on board 63.5 × 68.6 cm Levy Bequest Purchase, 1994</p> <p>Mary Beale (English, 1633–1699) <i>Portrait of Charles Beale</i>, c. 1660 oil on paper, later mounted to canvas 39.3 × 31.2 cm Gift of Herman H. Levy, 1984</p> <p>Émile Bernard (French, 1868–1941) <i>Still Life with Cup and Bowl of Fruit</i>, 1887 oil on canvas 24.4 × 43.2 cm Levy Bequest Purchase, 1993</p> <p>Jean Victor Bertin (French, 1767–1842) <i>Roman Figures in the Sabine Mountains</i>, 1825 oil on canvas 82 × 114.5 cm Levy Bequest Purchase, 1993</p> <p>François Boucher (French, 1703–1770) <i>A Peasant Family on the Way to Market</i>, mid-18th century oiled black chalk on sepia-coloured, laid, smooth paper with watermark 28.8 × 18.1 cm Levy Bequest Purchase, 1993</p> <p><i>Joseph Resisting Seduction by Potiphar's Wife</i>, c. 1728 black chalk, pen and brown ink, brown wash heightened with white on paper 30 × 23.5 cm Levy Bequest Purchase, 1993</p> <p>Georges Braque (French, 1882–1963) <i>Bass</i>, 1911; printed 1950 drypoint on cream Arches paper edition 23/50 46.5 × 33 cm</p>

Levy Bequest Purchase, 1992

Woman with Mandolin, 1945
lithograph printed in nine colours on paper
edition 214/225
24 × 16.8 cm
Gift of Herman H. Levy, 1984

Philips Breughel (Netherlandish, 1635– c. 1662)
Still Life with Pike, Barbel and Vegetables, 17th century
oil on linen
88.3 × 115.3 cm
Levy Bequest Purchase, 1995

Workshop of Adriaen Brouwer (Flemish, 1605/6–1638)
The Drinker; The Bitter Draught, c. 1635–1638
oil on oak panel on oak cradle
34.3 × 27.1 cm
Gift of Herman H. Levy, 1984

David Burliuk (American, b. Ukraine, 1882–1967)
Yellow Irises, c. 1948
oil on burlap
56.5 × 50.5 cm
Gift of Herman H. Levy, 1984

Gustave Caillebotte (French, 1848–1894)
Sailboats at Anchor on the Seine at Argenteuil, 1883
oil on canvas
60.2 × 73.3 cm
Gift of Herman H. Levy, 1984

Mary Cassatt (American, 1844–1926)
Young Girl, c. 1878–1890
pencil on paper
17.7 × 8.9 cm
Gift of Herman H. Levy, 1984

Gustave Courbet (French, 1819–1877)
Landscape at Ornans, 1874
oil on canvas
61 × 78.8 cm
Gift of Herman H. Levy, 1984

Edgar Degas (French, 1834–1917)
Portrait of His Father, c./v. 1856–1858
graphite on paper
40.3 × 29 cm

	<p>Gift of Herman H. Levy, 1984</p> <p><i>Copy of the "Self Portrait" by Filippino Lippi in the Uffizi, 1858–1859</i> graphite heightened with white on paper 47 × 31.7 cm Gift of Herman H. Levy, 1984</p> <p>André Derain (French, 1880-1954) <i>Bust of woman with bare breasts, 1932-1933</i> oil on canvas Gift of Herman H. Levy, 1984</p> <p>Raoul Dufy (French, 1877–1953) <i>Green Trees at l'Estaque, 1908</i> oil on canvas 81 × 65 cm Levy Bequest Purchase, 1996</p> <p>Albrecht Dürer (German, 1471–1528) <i>Das Meerwunder/The Sea Monster, 1498</i> engraving on paper 25 × 18.4 cm Gift of Herman H. Levy, 1984</p> <p><i>Der Fahnenchwinger/A Burgundian Standard Bearer, c. 1502–1503</i> engraving on paper 11.6 × 6.8 cm Gift of Herman H. Levy, 1984</p> <p><i>Christ Among the Doctors in the Temple, 1503</i> Woodcut on paper Gift of George Wallace in memory of Herman H. Levy, 1990</p> <p>John Flaxman (English, 1755–1826) <i>The Nymphs of the Ocean, 1795</i> grey wash on paper 36.7 × 41.7 cm Levy Bequest Purchase, 1993</p> <p><i>St. Augustine's Arrival in Britain, c. 1783</i> grey wash on paper 39.5 × 58.5 cm Levy Bequest Purchase, 1993</p> <p>Tsugouharu Leonard Foujita (French, b. Japan, 1886–1968) <i>Portrait of a Child, 1955</i> pencil on paper 26 × 20.6 cm</p>
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Gift of Herman H. Levy, 1984

Lucian Freud (English, 1922–2011)

Naked Man on a Bed, 1987

etching on paper

edition 10/10

57.2 × 74.3 cm

Levy Bequest Purchase, 1993

Pieter Jalhea Furnius (Flemish, c. 1545–1626)

Satan Sowing Darnel (after Gerard van Groeningen)

22 × 27.5 cm

Gift of the Herman H. Levy Estate, 1990

Thomas Gainsborough (English, 1727–1788)

Shepherds and Sheep in a Wooded Landscape, 1770–1780

black chalk, watercolour, and body colour on tan-coloured, laid paper

22.5 × 31 cm

Levy Bequest Purchase, 1992

Henri-Gaudier Brzeska (French, 1891–1915)

Composition with Three Figures, 1914

black crayon on Ingres laid paper

48 × 31.5 cm

Levy Bequest Purchase, 1993

Sketch of a Man, 1912

pencil on paper

20.3 × 15.2 cm

Gift of Herman H. Levy, 1984

Standing Male Nude, 1914

charcoal on paper

50.9 × 35.2 cm

Levy Bequest Purchase, 1993

Harold Gilman (English, 1876–1919)

Portrait of an African American, c. 1905

oil on canvas

61 × 50.9 cm

Gift of Herman H. Levy, 1984

Hans Baldung Grien (German, 1484–1545)

(block altered by an unknown hand)

Witches' Sabbath, late impression, after 1510

woodcut on paper

42.5 × 31 cm

Gift of Herman H. Levy, 1984

Josef Herman (English, b. Poland, 1911–2000)

Portrait of Mr. Levy, 1961–1962

oil on canvas

65.4 × 50.2 cm

Gift of Herman H. Levy, 1984

Miner with Glass of Beer, 1964

oil on canvas

59.6 × 44.5 cm

Gift of Herman H. Levy, 1984

Hiroshige II (Japanese, 1826–1869)

Ejiri, the 19th Station on the Tōkaidō, 1857

woodblock on paper

39 × 26 cm

Gift of Herman H. Levy, 1984

Okitsu, the 18th Station on the Tōkaidō, c. 1860

woodblock on paper

39 × 26 cm

Gift of Herman H. Levy, 1984

Utawaga (Ando) Hiroshige (Japanese, 1797–1858)

Ōhashi, Atake No Yudachi/Ōhashi Bridge, 1857

woodblock on paper

37.2 × 25.1 cm

Levy Bequest Purchase, 1995

Wenzel (Wenceslaus) Hollar (Czech, 1607–1677)

After Martin Schongauer (Schön) (German, c. 1440–1491)

Woman with Wreath of Oak Leaves, 1646

etching on paper

25.5 × 21.5 cm

Gift of the Herman H. Levy Estate, 1990

Jodocus Hondius (Flemish, 1563–1612)

America Septentrionalis, c. 1609

engraving on paper

37.5 × 50.8 cm

Gift of Herman H. Levy, 1984

Attributed to James Jefferys (English, 1751–1784)

(formerly identified as Master of the Giants)

The Crucifixion (Deposition), 1779

pen and ink on paper

37.6 × 55.4 cm

Levy Bequest Purchase, 1993

Cornelis de Jode (Flemish, 1568–1600)

Americae Pars Borealis, 1593

engraving on paper

36.5 × 50.5 cm

Gift of Herman H. Levy, 1984

Paul Klee (Swiss, 1879–1940)

Untitled [Spatial architecture, Tunisia], 1915

watercolour with white gouache on Kupferdruck paper

16.3 × 20.7 cm

Levy Bequest Purchase, 1992

Sir Thomas Lawrence (English, 1769–1830)

Portrait of/de William Esdaile, 1829–1830

oil on canvas

59.7 × 49.6 cm

Gift of Herman H. Levy, 1984

Henri Le Sidaner (French, 1862–1939)

The House in the Morning, Gerberoy, 1929

oil on canvas

69.9 × 88.9 cm

Gift of Herman H. Levy, 1984

Georges Lemmen (Belgian, 1865–1916)

Sketch for Sewing, 1891

oil on cardboard

31.7 × 43.2 cm

Gift of Herman H. Levy, 1984

The Meuse River, 19th century

oil on wood

15.6 × 22.8 cm

Gift of Herman H. Levy, 1984

Pierre Albert Marquet (French, 1875–1947)

The Factory on the Canal, Hamburg, 1909

oil on canvas

61 × 75.8 cm

Gift of Herman H. Levy, 1984

Henri Matisse (French, 1869–1954)

Isaia, 1938

linocut on paper

edition 2/6

41.8 × 32.5 cm

Levy Bequest Purchase, 1993

Georges Michel (French, 1763–1843)

Landscape, c. 1830

oil on canvas

31.7 × 55.9 cm

Gift of Herman H. Levy, 1984

Claude Monet (French, 1840–1926)

Waterloo Bridge, Sunlight Effect, 1903

oil on canvas

65.1 × 100 cm

Gift of Herman H. Levy, 1984

Sebastian Münster (Swiss, 1488–1552)

Typus Orbis Universalis, 1540

From the *Geographia Universalis, vetus et nova, complectens*

woodcut on paper

31.1 × 39.6 cm

Gift of Herman H. Levy, 1984

Roderic O’Conor (Irish, 1860–1940)

Red Rocks and Foam, c. 1898

oil on canvas

48.9 × 61 cm

Gift of Herman H. Levy, 1984

Camille Pissarro (French, 1830–1903)

Apple Trees, 1870

oil on canvas

45.7 × 55.3 cm

Gift of Herman H. Levy, 1984

Guido Reni (Italian, 1575–1642)

The Emperor’s Soldiers Taking Away the Library of the Cardinal of Bologna, late 16th-mid-17th century

pen and brown ink, brown wash, black chalk on sepia-coloured, lightly textured rag paper with Barberini arms watermark

21.4 × 18.6 cm

Levy Bequest Purchase, 1993

George Romney (English, 1734–1802)

The Anatomy Lesson c. 1775–1776

oil on canvas

76 × 63.2 cm

Levy Bequest Purchase, 1994

Georges Rouault (French, 1871–1958)

Courtesan with Downcast Eyes, 1937

coloured aquatint on paper
edition of 250
44 × 34 cm
Gift of Herman H. Levy, 1984

Workshop of Peter Paul Rubens (Flemish, 1577–1640)
Portrait of Maximilian III, Archduke of Austria, 1621–1640
oil on canvas
36.6 × 30 cm
Gift of Herman H. Levy, 1984

Walter Richard Sickert (English b. Germany 1860–1942)
Façade of Saint-Jacques, Dieppe, c. 1902
oil on canvas
54.6 × 45.7 cm
Gift of Herman H. Levy, 1984

The Stepping Stones (preparatory sketch for *Rushford Mill, Devon*), 1916
pencil, pen, and watercolour on paper
18.4 × 23.1 cm
Gift of Herman H. Levy, 1984

Blue Corset, 1906
oil on canvas
52.1 × 44.5 cm
Gift of Herman H. Levy, 1984

Londra benedetta!, 1911
ink and brush on paper
28.6 × 18.1 cm
Gift of Herman H. Levy, 1984

Vernet, c. 1920–1922
pencil and ink on paper
25.5 × 19.5 cm
Gift of Herman H. Levy, 1984

Chaim Soutine (French, b. Lithuania, 1893–1943)
Portrait of the Painter Richard X, c. 1916–1917
oil on canvas
55.9 × 46.4 cm
Gift of Herman H. Levy, 1984

Landscape at Céret, c./v. 1919
oil on canvas
66 × 54.6 cm
Levy Bequest Purchase, 1995

Giovanni Battista Tiepolo (Italian, 1696–1770)

Head of an Oriental, Turned to the Left, c. 1742-1757

black chalk, pen and brown ink, brown wash on cream coloured, smooth, laid paper

25 × 19.7 cm

Levy Bequest Purchase, 1993

Joseph Mallord William Turner (English, 1775–1851)

Boston in Lincolnshire, c. 1833

watercolour on paper

28.8 × 42.3 cm

Levy Bequest Purchase, 1992

Illustration of the Battle at Sentinum during the Third Samnite War (297 BC), 1551

From the *Römische Historien*, German translation of *Titus Livius: Ab urbe condita/History of Rome*

woodcut on paper

12.2 × 14.5 cm

Gift of the Herman H. Levy Estate, 1990

Unknown Flemish, 17th century

After Alexander Adriaenssen (Flemish, 1587–1661)

Still Life with Oysters, 1630s

oil on panel

39.3 × 44.5 cm

Gift of Herman H. Levy, 1984

Unknown Venetian, 16th century

Unknown, Portrait of a Man, 16th century

oil on canvas

45.2 × 38.7 cm

Gift of Herman H. Levy, 1984

Maurice Utrillo (French, 1883-1955)

Church in Domrémy (Vosges), c. 1923

oil on canvas

Gift of Herman H. Levy, 1984

Attributed to Joos van Cleve (Netherlandish, c. 1485–1540/41)

Head of a Woman, early 16th century

silverpoint on prepared ground on paper

23.4 × 18.3 cm

Gift of Herman H. Levy, 1984

Vincent van Gogh (Dutch, 1853–1890)

Untitled, Still Life: Ginger Pot and Onions, 1885

oil on canvas

	<p>34.5 × 49.5 cm Gift of Herman H. Levy, 1984</p> <p>Lucas van Leyden (Dutch, 1494–1533) <i>The Milkmaid</i>, 1510 engraving on paper 11.5 × 15.6 cm Levy Bequest Purchase, 1995</p> <p>Rochus van Veen (Dutch, c. 1640–1693) <i>Studies of Spiders</i>, 1670 watercolour on paper 21 × 30.7 cm Gift of Herman H. Levy, 1984</p> <p><i>Studies of Insects</i>, 1659 watercolour on paper 20.8 × 29.7 cm Gift of Herman H. Levy, 1984</p>
<p>#nofilterneeded: shining light on the Native Indian/Inuit Photographers' Association, 1985-1992</p> <p>In partnership with the Indigenous Art Centre, Indigenous & Northern Affairs Canada</p> <p>Thunder Bay Art Gallery April 12 – May 19, 2019</p> <p>(following venue:) University of Lethbridge Art Gallery November 7, 2019 – January 10, 2020</p>	<p>49 photographs by members of the Native Indian/Inuit Photographers' Association, loaned from the Collection of Crown-Indigenous Relations and Northern Affairs Canada, National Gallery of Canada and private collections</p> <p>Artist Unknown <i>Untitled (Group photograph of founding NIIPA members standing in front of the Thunder Bay Art Gallery for the 2nd annual NIIPA conference)</i>, 1986 Reproduced with permission from the CMCP Archives, National Gallery of Canada 22.9 x 28 cm Courtesy of CMCP Archives, National Gallery of Canada, Ottawa</p> <p>Simon Brascoupe <i>Untitled</i> Colour photograph 26.7 x 21.6 cm Collection of the artist</p> <p>Simon Brascoupe <i>Untitled</i> Colour photograph 26.7 x 21.6 cm Collection of the artist</p> <p>Dorothy Chocolate <i>Feast, Fort Franklin, N.W.T.</i>, 1981 51 x 41 cm</p>

Dorothy Chocolate

Joan Nazon, Arctic Red River, N.W.T., 1984

49.5 x 39.5 cm

Dorothy Chocolate

Verna Catholique and her Sons, Tutset K'e, N.W.T., 1984

41 x 50.5 cm

Dorothy Chocolate

William Nerysoo, Fort McPherson, N.W.T., 1984

40 x 50 cm

Valerie General

My Nephew, Lyle

33.5 x 38.5 cm

Pat Green

Remembering

35.5 x 30 cm

Pat Green

Tomorrow, 1984

30 x 35 cm

Richard W. Hill (Sr.)

Alma Hill - First Grandson, Tuscarora

34.5 x 42 cm

Richard W. Hill (Sr.)

Charlotte Hill - Mohawk, Ohsweken, Ontario

34 x 42.8 cm

Richard W. Hill (Sr.)

Dave Elliott - Urbanized, Buffalo, N.Y.

34.5 x 42.8 cm

Richard W. Hill (Sr.)

Jacob Thomas - Cayuga Chief, Six Nations Reserve, Ontario

34 x 42.8 cm

Richard W. Hill (Sr.)

Jake Skye, Darwin Joh, Philip Thompson - Iroquois Dancers - 11A

34 x 42.8 cm

Richard W. Hill (Sr.)

Randy Hill

34.5 x 42 cm

Joel Johnson

Rail Robot
41.5 x 36.5 cm

Robert "Tim" Johnson

Clan Mother - Marjorie Sky
53 x 45 cm

Robert "Tim" Johnson

Keeping It Out
32 x 44.5 cm

Martin Akwiranoron Loft

Blake (Debassige) – Ojibway
44 x 44 cm

Martin Akwiranoron Loft

Evan (Adams) – Salish
44 x 44 cm

Martin Akwiranoron Loft

Jessie – Micmac
44 x 44 cm

Martin Akwiranoron Loft

Susie – Cree
44 x 44 cm

Yvonne Maracle

Visions 1985, 1985
mixed technique
45.5 x 51.5 cm

Jimmy Manning

Gas Can and Carving, 1984
Colour photograph
43.5 x 51 cm

Jimmy Manning

Ice, 1984
Colour photograph
43.5 x 51 cm

Douglas Maracle

Untitled
42 x 37 cm

Douglas Maracle

Untitled (Rear of Dundurn Castle from Burlington Bay, Hamilton, ON)
42 x 37 cm

Murray McKenzie

Native Studies 1984, 1984
52.5 x 45 cm

Murray McKenzie

Native Studies 1985, 1985
52 x 44.5 cm

Brenda Mitten

Remember the Removal
34 x 41 cm

Brenda Mitten

Singing at Redhouse
34 x 41.5 cm

Brenda Mitten

Untitled (entrance to NIIPA's Gallery on James Street North, Hamilton, ON)
55.9 x 73.7 cm
Collection of the artist

Brenda Mitten

Untitled (Shelley Niro sorting through paperwork and photographs at NIIPA office)
55.9 x 71 cm
Collection of the artist

Lance Mitten

Benji - Let the Drums of our People Speak Now and Speak Forever
41.5 x 38 cm

Lance Mitten

Fancy Dancer
43 x 38 cm

Lance Mitten

Pow Wow
32.7 x 39.8 cm

Shelley Niro

Crystal, c. 1987
42.3 x 34.5 cm

Shelley Niro

Sisters, c. 1987

42 x 34.5 cm

Shelley Niro

The Rebel, 1987

35 x 41.5 cm

Jolene Rickard

Sweika + Fish, 1986

43.5 x 53.3 cm

Collection of the artist

Jolene Rickard

Tuscarora Mimbres, 1986

43.5 x 53.3 cm

Collection of the artist

Greg Staats

A Conversation, 1984

silver emulsion print

30.5 x 35.5 cm

Greg Staats

Mary, 1982

toned silver print

37 x 37 cm

Greg Staats

Mary Laughing, 1982

28.5 x 28.5 cm

Morley J. Stewart

Alexandra Visitor, 1985

Colour photograph

38 x 42.8 cm

Morley J. Stewart

Wemindji, Spring 1982, Spring 1985

Colour photograph

38 x 42.5 cm

Jeffrey M. Thomas

Plenty Chief

39 x 49 cm

Jeffrey M. Thomas

Shadow Dancer

	38.5 x 49 cm
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APPENDIX E: WORKS ON LOAN

Exhibition details - Borrowing Institutions	Works on loan
<p><i>Brenda Francis Pelkey: A Retrospective</i></p> <ol style="list-style-type: none"> 1. Art Gallery of Windsor, October 21 – January 22, 2017 2. Mount St. Vincent Univ. Art Gallery, April 22 – July 9, 2017 3. Art Gallery of Peterborough, September 30, 2017 – Jan. 7, 2018 4. MacKenzie Art Gallery, Regina, June 23 - September 29, 2018 	<p>Brenda Francis Pelkey (Canadian b. 1950)</p> <p><i>Mountie and Farm Artifacts, Mr. Friesen, 1989</i></p> <p>Photograph (triptych)</p> <p>47 x 111.8 cm</p> <p>Gift of the artist, 1994</p> <p><i>Eiffel Tower and Golden Gate Bridge, Mel Affleck, 1988</i></p> <p>Photograph (triptych)</p> <p>48.3 x 113 cm</p> <p>Gift of the artist, 1994</p>
<p><i>Dundas Inspired: A History of Visual Arts</i></p> <p>Dundas Museum and Archives</p> <p>February 15 - April 27, 2019</p>	<p>John Sloan (Canadian, b. Scotland, 1891-1970)</p> <p><i>Dundas Marsh, c. 1945</i></p> <p>Oil on mounting board</p> <p>45.2 x 35.4 cm</p> <p>Gift of Mrs. Miriam Lebow, 1990</p>
<p><i>Impressionism in the Age of Industry: Monet, Pissarro and more</i></p> <p>Art Gallery of Ontario</p> <p>February 16 – May 5, 2019</p>	<p>Claude Monet (French/Français, 1840–1926)</p> <p><i>Waterloo Bridge, Sunlight Effect / Pont de Waterloo, effet de soleil, 1903</i></p> <p>oil on canvas / huile sur toile</p> <p>65.1 × 100 cm</p> <p>Gift of / Don de Herman H. Levy, 1984</p>

APPENDIX F: DE-ACCESSIONED AND TRANSFERRED WORKS

Auction Sales Results

Auction Details	Works
Christie's Postwar to Present auction Lot 56 Date: September 27, 2018 Price Realized: \$ 162,500 USD	Andy Warhol (American 1930—1987) <i>Hamburger</i> , 1986 acrylic and silkscreen ink on canvas 25.4 x 30.5 cm Gift of Gordon Eberts, 1992
Christie's Postwar to Present auction Lot 218 Date: September 27, 2018 Price Realized: \$ 81,250 USD	Kenneth Noland (American 1924-2010) <i>Two Part Time</i> , 1986 acrylic on canvas 192.5 x 121 cm Gift of Gordon Eberts, 1990
Christie's Interiors Lot 12 Date: December 11, 2018 Price Realized: \$ 2,750 USD	André Derain (French, 1880–1954) <i>La Rousse</i> , 1928-29 oil on canvas 31.8 x 25.7 cm Gift of Gordon Eberts, 1991

Transfers to other institutions

Transfer Details	Works
Institution: Art Gallery of Greater Victoria 1040 Moss Street Victoria, BC V8V 4P1 Date of Transfer: September 19, 2018 In exchange for: 15 works by Otto Wirsching and Walter Gramatté	Lionel LeMoine FitzGerald (Canadian 1890 – 1956) <i>Study of Nude Back</i> , c.1933 Pencil on paper 26.2 x 20.5 cm <i>Abstract</i> , 1956 Ink drawing on paper 32.5 x 37.5 cm <i>Abstract – Apples</i> , 1955 Pen, ink and charcoal drawing on paper 29 x 45.8 cm Untitled, undated but post 1950 and possibly c.1956 Ink drawing on watercolour paper 16.9 x 38.5 cm All unrestricted gifts of John Hansler, 2016

APPENDIX G: HOLOCAUST-ERA PROVENANCE RESEARCH

1.) Participation in the Canadian Holocaust Era Provenance Research project: June 9-11, 2014

McMaster Museum of Art participated in the Canadian Association of Museum Directors (CAMDO) Canadian Holocaust Era Provenance Research (CHERP) project. Dr. Janet M. Brooke, lead provenance researcher for CHERP, visited McMaster on June 9, 10 and 11, 2014. She examined and cleared nine works from McMaster's permanent collection as follows:

#	Artwork	Issues identified	
1.)	<p>Adriaen Brouwer (Flemish 1605-1638) <i>The Drinker / The Bitter Draught</i>, c. 1635-1638 oil on wood panel 34.5 x 26.5 cm Gift of Herman Levy, Esq., O.B.E., 1984</p>		None
2.)	<p>Jan Cossiers (Flemish 1600-1671) <i>Man with a Jug</i>, early 17th-late 17th Century oil on panel 62.8 x 47.2 cm B.M. Greene Bequest, 1963</p>		None
3.)	<p>Attributed to Gerrit Dou (Dutch 1613-1675) <i>Portrait of Rembrandt's Father</i>, n.d. (17th century) oil on canvas 19.2 x 15.3 cm Gift of Herman Levy Esq., 1984</p>		None
4.)	<p>Egbert van Heemskerck (Dutch 1634-1704) <i>Scene at the Inn</i>, 17th century oil on canvas 59 x 81.5 cm B.M. Greene Bequest, 1963</p>		None
5.)	<p>Egon Schiele (Austrian 1890-1918) <i>Stehender Mann (Selbstbildnis) / Standing Man (Self-Portrait)</i>, 1911 Watercolour and gouache over pencil on paper 44.6 x 30.8 cm Levy Bequest Purchase, 1992</p>		None
6.)	<p>Mary Beale (English 1633-1699) At the time, attributed to Michael (Michiel) Sweerts (Flemish 1618-1664) <i>Head of a Young Man</i>, mid 17th Century oil on paper affixed to canvas; 39.3 x 31.2 cm Gift of Herman Levy, Esq., O.B.E., 1984</p>		None
7.)	<p>Unknown, active in Dordrecht, The Netherlands, c. 1650 <i>Portrait of Three Children</i>, 17th Century oil on panel 42.6 x 33.1 cm Gift of Herman Levy, Esq., O.B.E., 1984</p>		None

8.)	Unknown (Flemish, 17th century) after Alexander Adriaenssen (1587–1661) <i>Still Life with Oysters</i> , c.1630 oil on panel 39.3 x 44.5 cm Gift of Herman Levy, Esq., O.B.E., 1984		None
9.)	Aelbrecht Bouts (Netherlandish, c. 1451–1549) <i>The Man of Sorrows and The Mater Dolorosa</i> , c. 1503 oil on panel 45.7 x 30.5 cm each Levy Bequest Purchase, 1994		None

2.) McMaster Museum of Art’s Ongoing Independent Provenance Research

The MMA continued provenance research independently in accordance with the CHERP initiative, and identified potential issues concerning the following works:

#	Work	Issue Identified & Action Taken
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<p>1.)</p>	<p>Edvard Munch (Norwegian, 1863-1944) <i>Bathing Girls</i>, 1895 Drypoint and aquatint on heavy Japan paper 21 x 31.1 cm Purchased from Sotheby's New York, 12-13 November, 1981, Lot 285, for \$4675 USD. Accession #1982.001.0001</p> 	<p>Three verso stamps previously uncatalogued, noted prior to the national tour and publication of this work in 2015. Correspondence was sent to the National Gallery in Oslo in August 2015, and April 2016 with no response. Enquiry was sent to the Munch Museum in Oslo, January 2017. Reply from Munch Museum April 2017 directed the MMA to the Kunsthalle zu Kiel, who confirmed the work was removed from their collection in 1937. A link to the Friei Universitat Berlin "degenerate art" database was provided, and this Munch print is listed. The Kunsthalle zu Kiel thanked us for letting them know that McMaster now owns the print. There was no response to our offer (sent April 12, 2017) to return the print.</p>
<p>2.)</p>	<p>Pieter Coecke van Aelst (Netherlandish 1502-1550) Centre panel of a triptych: <i>The Holy Family with an Angel Offering Fruit</i>, c. 1530 - 1532 Oil on panel 118.3 x 162.2 cm Levy Bequest Purchase from Christie's London in 1993.</p> 	<p>New provenance came to light in 2016 after searching databases provided by CHERP. This work was discovered on the database of The German Historical Museum (DHM), in cooperation with the Federal Office for Central Services and Unresolved Property Issues (BADV), image database of the Sonderauftrag Linz (Special Commission: Linz). The database contains paintings that Adolf Hitler and his agents purchased or appropriated from confiscated property between the end of the 1930s and 1945, primarily for a museum planned for Linz, but also for other collections. <u>Handwritten Property Art Card, from the Special Commission: Linz/Sonderauftrag Linz database:</u> Arrival date: June 27, 1946. Munich inventory no. 33833. Identifying marks: no. 217840-22 (Dorotheum) History and Ownership: September 26, 1944, bought in France through Dr. Herbst (Johann Herbst, director of Dorotheum Vienna, principal buyer for special order Linz in Netherlands and Paris, especially after 1943) destined for Linz, stored in Aussee (Altaussee Salt Mine, inventory no. 8741). Previous owner: Theo Hermsen, Paris 1944 (Dutch art dealer, active in Paris since 1939; he was one of the most important buyers in France for the special order Linz and the German museums), Consignment: Dorotheum auction house / Vienna 26.9. 1944 (art trade Austria). Whereabouts: France Presumed owner: France ('Paris unknown' is crossed out); Theo Hermsen, Paris; id acc. to information given by Dr. Eder (official from Dorotheum Vienna) Exit date (to Paris): January 7, 1947 Extensive research has not turned up any further provenance in regard to previous owners, nor has</p>

		this painting been identified as missing or looted by any persons or institutions.
3.)	<p>Ernst Barlach (German, 1870-1938) <i>Kindertod</i>, 1919, published 1920 Wood engraving 23.9 x 36 cm Purchased from Hauswedell Auction House, Hamburg, 1966</p> 	<p>Institutional stamp and inscription found on the verso (precipitated by the Munch discovery and subsequent examination of all German works). Email inquiry was sent to the Hamburg Kunsthalle on 20 April 2017, a reply received the same day from head of Provenance Research indicated this work was removed in 1937 as “degenerate art”, and also appears on the Friei Universitat Berlin website. The MMA offered to return the print on 20 April 2017, however the Kunsthalle responded on 1 June 2017 that they own another impression of the print and graciously declined our offer.</p>
4.)	<p>Edvard Munch (Norwegian, 1863-1944) <i>Portrait of Strindberg</i>, 1896 Lithograph on tan simile paper 73.6 x 50 cm Purchased at Sotheby’s NY, 1986</p> 	<p>Verso stamp appears to be from the Czechoslovakian Manes Association of Fine Artists, where Munch held an exhibition in 1905. Correspondence has been sent by the MMA to the Munch Museum to request a checklist of that exhibition but as of April 2017 there has been no response.</p>
5.)	<p>Albrecht Durer (German 1471-1528) <i>A Burgundian Standard Bearer</i>, 1502-1503 Engraving on paper 11.6 x 6.8 cm Gift of Herman H. Levy, 1984 Acquired through Knoedler, NY art dealer</p> 	<p>A verso stamp (somewhat illegible) appears to be from the National Gallery or Museum of Fine Arts in Budapest. The two institutions now share a single administration. MMA contacted the institution by email and post, April 21, 2017, with no response to date.</p>
6.)	<p>Richard Tompson (English, active 1659 – 1693) <i>Laura dei Dianti, wife of Alfonso I d'Este</i> (after Titian), 1675-1688 Mezzotint on paper 33.7 x 25.4 cm</p>	<p>Verso stamp of the Kunsthalle Hamburg (same stamp on the Barlach print, #3) was discovered during inventory in 2019. The MMA contacted the Kunsthalle Hamburg on December 5, 2019, relaying this information and has not received a response.</p>

Purchased from from L'Art Ancien Auction,
Basel, Switzerland, 1967



APPENDIX H: EDUCATIONAL PROGRAMMING

Tours, Programs, and Workshops

Appointments to see works in storage: 62

September 2018

Creativity Circle: MSU Open Circles

Dundas Valley Montessori School

McMaster University Campus Tour Guides, McMaster Student Liaison/McMaster Future Students

McMaster University Biomedical Graphics (HTH SCI 3EE3)

Columbia International College

National Culture Days tours and painting workshop

**Total tour attendance for this month: 476*

October 2018

Creativity Circle: MSU Open Circles

McMaster Healthy Workplace Bookmaking Workshop

McMaster University Centre for Continuing Education New Employee Orientation tours

McMaster University Peace Studies

McMaster University School of Interdisciplinary Science Community Engagement

McMaster University Healthy Workplace Month Campus Architecture Tour

McMaster University Discovery Program

McMaster University Faculty of Medicine Alumni

YMCA Youth Job Connection Program

McMaster Centre for Continuing Education Strategic Leadership *The Art of Seeing™* workshop

Laura Secord Secondary School (DSBN)

MacLachlan College (Independent Private School)

McMaster University Philosophical Basis of Nursing Research (NUR 700)

McMaster University Department of Family Medicine Residents' *The Art of Seeing™* Program

Adventures in Hamilton and the Hamilton Trail Blazers

McMaster University Canadian History from 1885 Seminar (HIST 2TT3)

**Total tour attendance for this month: 805*

November 2018

Creativity Circle: MSU Open Circles

Westdale Secondary School (HWDSB)

Halton District Catholic School Board teachers

YMCA Youth Job Connection Program

McMaster University School of the Arts Fine Art

McMaster University Department of Family Medicine Residents' *The Art of Seeing™* Program

Hamilton Public Library *The Art of Seeing™* workshop

McMaster University *Take Our Kids to Work Day*

Hamilton Health Sciences Centre for People Development *The Art of Seeing™* workshop

St. Faustina Elementary School (HWCDSB)

City of Hamilton Culture and Recreation Department Staff

McMaster University Alumni

YMCA Youth Job Connection Program

Lyonsgate Montessori School

Crossfire Christian Assembly Church, Adult Community Support Program

Rockway Mennonite Collegiate Private School

St. Ignatius of Loyola HWCDSB

McMaster University Centre for Continuing Education New Employee Orientation tours

Holy Trinity Catholic Secondary School (HCDSB)

**Total tour attendance for this month: 736*

December 2018

Creativity Circle: MSU Open Circles

McMaster University School of the Arts Fine Art

McMaster University Health Sciences Librarians

YMCA Youth Job Connection Program

City of Hamilton Child and Youth Services, Public Health *The Art of Seeing™* workshop

**Total tour attendance for this month: 382*

January 2019

Creativity Circle: MSU Open Circles

McMaster University School of the Arts Fine Art

YMCA Youth Job Connection Program

Les Petites Pommes French Immersion Winter Break Camp

McMaster University Classics Graduate Seminar

McMaster University Arts and Science Socially Engaged and Activist Art (ARTSSCI 4VC3)

St. Marguerite d'Youville Catholic Elementary (HWCDSB)

Centre3 NuSteel alternative education class for high school aged students

McMaster University Integrated Business and Humanities

The Art of Seeing™ workshop for Niagara Family Medicine Conference

McMaster University English/Cultural Studies The Archive and Everyday Life

**Total tour attendance for this month: 727*

February 2019

Creativity Circle: MSU Open Circles

McMaster University School of the Arts Fine Art

McMaster University Residences Student Community Advisors *The Art of Seeing™* workshop

YMCA Youth Job Connection Program

McMaster University School of Interdisciplinary Science Community Engagement

McMaster University Centre for Continuing Education New Employee Orientation

McMaster University Residences First Year Students Thrive Week: Printmaking Workshop

McMaster University Residences First Year Students Thrive Week: Tour of Winter Exhibitions

McMaster University Classics Graduate Seminar

McMaster University Computing and Software

McMaster University Student Wellness and Education Lower Lounge (SWELL) Thrive Week tours

Hamilton Winterfest

McMaster University COPE: A Student Mental Health Initiative

McMaster University Centre for Continuing Education Strategic Leadership *The Art of Seeing™* workshop

McMaster University Classics Club Coin Workshop

**Total tour attendance for this month: 771*

March 2019

Creativity Circle: MSU Open Circles

McMaster University School of the Arts Fine Art

YMCA Youth Job Connection Program

McMaster University Student Wellness and Education Lower Lounge (SWELL) Thrive Printmaking Workshop

McMaster University Canadian History from 1885 Seminar (HIST 2TT3)

MSU Open Circle: MAP student leader meeting

McMaster University Classics Graduate Seminar

Burlington/Appleby Women's Probus Club Art Appreciation Group

Canadian Federation of University Women

McMaster University Nursing First Year Students

MSU Open Circle: Mindful movement circle

McMaster University Innovation by Design HTH SCI 4LA3 *The Future of Health: Experiential Futures and Museum Exhibition Project*

**Total tour attendance for this month: 585*

McMaster Museum of Art Closed March 25 – August 24

All programs during this time occurred off-site

April 2019

A.M. Cunningham Elementary School (HWDSB)

Fessenden Elementary School (HWDSB)

Hess Street Elementary School (HWDSB)

James Macdonald Elementary School (HWDSB)

Rousseau Elementary School (HWDSB)

Lisgar Elementary School (HWDSB)

St Joseph Elementary School (HWDSB)

Dundana Elementary School (HWDSB)

**Total attendance for In-School Programs this month: 451*

The Art of Seeing™ workshop for the Canadian Association for Health Humanities Creating Space Conference

Museums and the Web Conference April 2 – 6, 2019 delegates (Nicole Knibb, Senior Education Officer, and Teresa Gregorio, Education Officer) Boston, MA

May 2019

Sir Isaac Brock Elementary School (HWDSB)
Viscount Montgomery Elementary School (HWDSB)
Cathy Wever Elementary School (HWDSB)
RA Riddell Elementary School (HWDSB)
McMaster Museum of Art drop-in Campus Architecture Tour
Lake Avenue Elementary School (HWDSB)
Highview Elementary School (HWDSB)
St Timothy Elementary School (HDCSB)
Winona Elementary School (HWDSB)
Templemead Elementary School (HWDSB)
Bellmoore Elementary School (HWDSB)
Westdale Secondary School (HWDSB) Art Battle
Chedoke Elementary School (HWDSB)

**Total attendance for In-School Programs this month: 968*

Canadian Art Gallery Educators (CAGE) Conference: *Transformative Engagement & Relationship Building*
May 2 – 4, 2019, Art Gallery of Alberta (delegate and member of executive: Teresa Gregorio, Education Officer), Edmonton, AB

June 2019

Dundas Central School (HWDSB)
Rosedale Elementary School (HWDSB)
Tiffany Hills Elementary School (HWDSB)
Mary Hopkins Elementary School (HWDSB)
Queen's Rangers Elementary School (HWDSB)

**Total attendance for In-School Programs this month: 460*

The Art of Seeing™ workshop for the University of Guelph Nexus for Innovation: Extended Practices in University Art Gallery Education Conference

McMaster University Alumni Association Campus Architecture Tour for Alumni Day

Hamilton Arts Week

July 2019

Les Petites Pommes French Immersion Summer Camp

McMaster University Mini U Summer Camp

**Total attendance for off-site children's programs = 610*

McMaster University Department of Family Medicine Staff *The Art of Seeing™* Lunchtime Workshops

McMaster University Palliative Care Program *The Art of Seeing™* workshop

August 2019

Les Petites Pommes French Immersion Camp

McMaster University Mini U Summer Camp

City of Hamilton McQuesten Urban Garden Summer Camp

**Total attendance for off-site children's programs = 345*

McMaster University Department of Family Medicine Staff *The Art of Seeing™* Lunchtime Workshops

McMaster University Peter George Residence first year students and reps

McMaster Museum of Art Education Initiatives

The Art of Seeing™ Visual Literacy Partnership with the McMaster Department of Family Medicine

McMaster University Applied Humanities 3W03 Academic Supervisor (Nicole Knibb, Senior education Officer)

McMaster Museum of Art Volunteer Program

Received Access Grant from Office of Community Engagement (August 2019) for Hess Street School (HWDSB) Partnership Program 2019-2020

YMCA Youth Job Connection Workshop partnership with facilitators Irena Radisevic (YMCA) and Teresa Gregorio, Education Officer

#ArtwordWednesday hashtag promotion and distance-tour education live videos and posts on Instagram, Twitter, and Facebook (every Wednesday of the year)

@macmuseum Instagram account: regular (3-5 times a week) education posts from collection and artwork on loan to museum

Museum-in-a-Minute Youtube videos: ongoing series of short informative videos on art techniques, periods, and artists. Produced with education and communications staff.

Museum Selfie Day

52Museums Instagram Takeover: worldwide collaborative project between international museums and galleries with a weekly takeover from a different institution throughout the year

Community Involvement

Hamilton-Area Museum Educators (HME)

Teresa Gregorio, Coordinator

Canadian Art Gallery Educator (CAGE)

Nicole Knibb, Member-at-Large

Teresa Gregorio, Social Media & Blog

Hamilton-Wentworth District School Board Co-op Community Partner

APPENDIX I: MEDIA SUMMARY

ArtDaily International Art News Site

- *Exhibition deconstructs and manipulates the function and image of Mi'kmaw basketry*, Ursula Johnson Exhibition, September 14, 2018
- Angela Grossmann's 'Troublemakers' Exhibition Opens at McMaster Museum of Art
- article featured January 29, 2019
- Michael Allgoewer exhibition featured January 17, 2019
- McMaster Museum of Art welcomes new senior curator Pamela Edmonds, May 1, 2019

The Art Newspaper

- *Art Gallery of Ontario acquires a Caillebotte after long legal struggle*

by Hadani Ditmars, 23rd August 2019

The AGO's acquisition of a painting by Gustave Caillebotte was in the news in August. It is only the second work by the artist in a Canadian Collection. The first, as noted in all the stories, is owned by McMaster Museum of Art, a 1984 gift of Herman H. Levy.

Canadian Art Magazine

- Angela Grossmann was *Editors Pick*, Feature Exhibition/banner image – December 2018
Editors Pick for the season – Jan 2019, reposted March 9, 2019
- Spring Issue Preview Section Feature
- *Graduating art students put on final show*, March 28, 2019
- Interview with Curator Rheanne Chartrand about the NIIPA photography exhibition, organized and circulated by the Museum in partnership with CIRNAC. circulating. To open at Thunder Bay Art Gallery April 11.

Canada NewsWire

- Media advisory from Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) October 2 - *Indigenous Art Centre to open new exhibition titled #nofilterneeded: Shining light on the Native Indian and Inuit Photographers Association (NIIPA), 1985-1999*. The exhibition was curated by Rheanne Chartrand, McMaster Museum of Art Curator of Indigenous Art and was first presented at McMaster in January 2018,. Chartrand was in attendance of opening event and talk.

The Canadian Press

- *AGO buys Caillebotte masterpiece at centre of recent years-long export battle*. McMaster Museum of Art collection includes the first Caillebotte in Canada. by Melita Kuburas, August 22

Castanet

- *Priceless Art, a Big Draw*. Rob Gibson - Oct 31, 2018
McMaster Museum of Art's Levy Collection (A Cultivating Journey) at Kelowna Art Gallery
- Castanet
Priceless Art, Leaving Town, Rob Gibson. October 27, 2018

CBC Manitoba

- Ephemerals Nominated for Sobey Art Award. Rheanne Chartrand, McMaster curator is named among handful of curators of Indigenous art in Canada. April 19, 2019

CFMU

- video with Jasmine Mander, information staff about all exhibitions, October, 2018
- In studio interview with MMA Director Carol Podedworny, November 8, 2018
- Interview with Pamela Edmonds conducted May 31 2019.

The Daily Courier (Kelowna)

- *Art Gallery Show a Hit*, October 31/2018
McMaster Museum of Art's Levy Collection (A Cultivating Journey) Closes at Kelowna Art Gallery
Attendance is over 12,500 at the Kelowna Art Gallery. Attendance at the previous venue, the Vancouver Art Gallery, was 115,950.

Franklin Furnace Avant Garde Art Site, NYC –

- Bruce Barber feature in *Goings On*, September 13

Galleries West

- *Reboot 2018* Article reviewing the McMaster Museum of Art's Living Building Thinking Exhibition at the Vancouver Art Gallery

Globe & Mail

- *Art Gallery of Ontario buys Blue Irises painting for more than \$1-million, ending years of **dispute*** by [Kate Taylor](#) published august 22, 2019

Hamilton Magazine - Stephanie Vegh interview with Pamela Edmonds, summer 2019

Hamilton Spectator

Stories frequently shared by Metroland papers (25+ publications including **The Record, St Catharines Standard**)

- *At the Galleries* Photo feature Ernest Daetwyler, The Boat Project at McMaster, September 12, 2018
- *Dutch paintings show early form of hockey/golf*
Article by Regina Haggio featuring painting by Aert van der Neer from McMaster Museum of Art collection, December 2018.
- "Getting Out" Michael Allgoewer exhibition featured with image, January 9, 2019
- *Michael Allgoewer's '1514' at McMaster Museum of Art deconstructs centuries-old puzzles*
by Regina Haggio, February 9, 2019
- *Jaime Angelopoulos's sculptures seem incapable of being still* review by Regina Haggio, March 08, 2019
- *McMaster Museum of Art closing its doors temporarily*
March 14, 2019
- *Major American grant given to McMaster Museum of Art*, April 17, 2019
by Graham Rockingham

Lake Country Calendar

- *Kelowna Art Gallery exhibition draws a crowd: Recent McMaster exhibition featured European master works and helped push up attendance at KAG this year, Oct. 31, 2018*

McGill Library

- R. Tait McKenzie: Bridging the Gap Between Art and Science

McMaster Silhouette

- *Mi'kwite'tmn (Do You Remember): Ursula Johnson challenges the treatment of Indigenous material and linguistic culture.* By Drew Simpson, September 27, 2018
- *McMaster Museum of Art presents an installation by Hamilton based artist Michael Allgoewer* featured January 17, 2019
- *Angela Grossmann's Troublemakers come to McMaster Museum of Art* January 15, 2019

McMaster Daily News

- *Design thinking students showcase the future needs of health in an interactive exhibit* 15 Apr 2019
- *Software and Mechatronics students create device for farmers and the museum world* 18, Apr 2019
- *Mac HOWLs at Supercrawl this weekend*, 12 Sep 2018
- *McMaster Museum of Art to close temporarily for updates beginning March* 18 Dec 2018
- *Hamilton artist brings Dürer's 1514 print to life* January 15, 2019
- *Angela Grossmann's Troublemakers comes to McMaster Museum of Art* 15 Jan 2019
- *McMaster Museum of Art receives major grant for Indigenous American Art Project*, 17 Apr 2019
- *McMaster Museum of Art welcomes new senior curator* 30 Apr 2019
- *McMaster Museum takes art to kids*, 26 Jun 2019

InFormed U of T Alumni Magazine print and online, Spring 2019 issue

- *Decolonizing the Museum: Alumni Check-In with Carol Podedworny* by Elizabeth Cytko

Snapt Hamilton

- Shelly Cameron, Photographer shooting at Opening Reception January 17, 2019

Turtle Island News

- *Mi'kwite'tmn (Do You Remember) exhibit touches preconceptions* by Susannah Schmidt, September 26, 2018

Universities Art Association of Canada

- Featuring all Fall 2018 exhibitions

View Magazine

- Peripheral Vision(s) featured exhibition, with image, August 24, 2019

World Pro News

- *AGO buys Caillebotte masterpiece at centre of recent years-long export battle* by Melita Kuburas, August 22

MISC BLOGS

Toronto.com – Angela Grossmann Talk, January 16, 2019

Carpe Diem – Angela Grossmann, Opening Reception, January 16, 2019

Dallas Art Dealers Association (DADA) Blog – Michael Allgoewer and Jaime Angelopoulos January 17, 2019

Health, Safety and Risk Management Report to the Board of Governors

Report 2020-1 for the period of November 18, 2019 - February 2, 2020

The Health, Safety and Risk Management (HSRM) unit of Human Resources Services works to promote the health, safety, wellness and engagement of all McMaster employees.

Executive Summary

- The Ministry of Labour Training and Skills Development (MOLTSD) was notified of one critical injury as a result of a slip and fall. In addition, MOLTSD was on campus as a result of an anonymous call in Faculty of Health Sciences. No orders issued.
- McMaster provided notification to Ministry of Environment Conservation and Parks as a result of sewer discharge into a local creek as a result of a pump failure. All measurements taken by the City of Hamilton at time of visit were found to be below any sewer use bylaw levels. Facilities Services has made repairs to prevent reoccurrence.
- The WSIB lost time days for 2019 were 363 days. This is an increase from 2018 in which we had 126 lost time days. The increase was primarily attributed to one claim that accounted more than one-third of the lost time days.

1. Training and Loss Prevention Initiatives

- McMaster continues to closely monitor the Novel Coronavirus, with regular communication updates and proactive planning. HSRM has been working with the Office of Public Relations in order to provide accurate and timely information related to the Novel Coronavirus for the McMaster Community through the McMaster Daily News. In addition to these documents, reminders were sent for faculties and departments to update their Business Continuity Plans. The template is available in the McMaster RMM 1206 Business Continuity Plan Program.
- EOHSS continues to provide social media messaging on current incident trends to assist in awareness and prevention programming.
- Planning for the University's annual Health and Safety Week events have been initiated. This event is held during the first week of May and will include seminars, safety vendors, BBQ and recognition of our 27 JHSC who provide valuable resources and part of our safety culture at McMaster.
- 16 Joint Health and Safety Committee (JHSC) members completed their Part 2 of the Certification Training under the Occupational Health and Safety Act (OHSA). McMaster is one of two Ontario Universities approved to deliver this training for its employees.

2. Government Relations and External Inspections/Audits

- An employee slipped and fell resulting in a fractured elbow while walking on campus at the time of a flash freeze. MOLTSTD was notified and no site visit/orders issued.

- The MOLTSD attended a meeting in Faculty of Health Sciences as a result of an anonymous call related to a contractor and asbestos. The Inspector and Hygienist were on site, no recommendations were given and provided a field visit report. No orders were issued.
- The Ontario Environment Spills Action Line was contacted as a result of a discovery of a Facilities Service sewage pump failure that created a spill into a local creek. The City of Hamilton Sewer Use By-Law attended the scene and took a sample at the location. The Ministry of Environmental Conservation and Parks (MOECP) also attended the location and reviewed the area. The sewage line served a couple of low use buildings in the lower area of campus. The test results showed no levels above the City by-laws. Facilities Services has repaired the pump and also included new measures and alarm to prevent reoccurrence. Notification and updates were shared with the University Community as posted on the Daily News: <https://dailynews.mcmaster.ca/worthmentioning/clean-up-of-spill-on-west-campus/>
The University was issued a written warning in relation to the Habitat Protection and Pollution Prevention Provisions of the Fisheries Act from the Enforcement Branch of Environment Canada.

3. Employee Health Services Summary

3.1 Critical Injuries

There was one critical injury during this period as noted above.

3.2 Lost Time Update

The Employee Health Services Team (EHS) actively manages Workplace Safety and Insurance Board (WSIB) claims as well as salary continuance, sick leave, employee medical accommodation requests and long-term disability claims for the University. EHS continues to collaborate with departments and faculties to develop and maintain proactive strategies to help reduce lost time incurred by employees throughout the University. The team remains focused on supporting programming, education and processes with the goal of encouraging a positive health and safety culture, implementing early and safe return to work processes, prevention and a reduction of lost time days.

The chart below illustrates the number of WSIB approved lost time days and the number of lost time claims, over the past three years.

Jan. 1- Dec. 31 Year	# of Lost Time Days	Total # Approved Lost Time Claims
2017	355	17
2018	126	20

2019	363	33
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Year Over Year WSIB Lost Time

- In 2017, 1 claim accounted for 220 of the 355 lost time days, or 62% of the lost time from January to December 2017.
- In 2018, 1 claim accounted for 45 of the 138 lost time days or 33% of the lost time from January to December 2018.
- In 2019, 1 claim accounted for 139 of the 363 lost time days or 38% of the lost time from January to December 2019.
- The WSIB Performance Index results will be provided in the next report to the Board.
- In 2019, the number of WSIB lost time and health care claims increased, however 32 of 33 employees that lost time from work returned to work in 2019. This indicates that Managers working collaboratively with support from the Employee Health Services Specialist are being offered modified work and workers are accepting the modified work and/or attending work with the appropriate accommodations.
- The New Experimental Experience Rating (NEER) Status report for 2019 from the WSIB has been received and indicates a surcharge of \$104, 409. The purpose of the NEER report is to assess McMaster University's performance based on our lost time and healthcare claim costs from 2018, 2017, 2016, and 2015.

As referenced in the last report, WSIB has announced changes to its Rate Framework which will fundamentally change the way the WSIB classifies Schedule 1 employers and sets its premium rates. These changes were effective as of January 2020. The new model will eliminate the NEER program and create a new two-step approach to set and adjust premium rates for businesses.

- Factors that determine premium rates under the new model include insurable earnings, number of claims and claim costs. A rolling six-year period is used to calculate the premium rate, e.g. in 2019, the years 2013-2018 determine the 2020 premium rate.
- WSIB will be using insurable earnings, claims costs and the number of allowed claims over a six-year period to set premium rates. Our current premium rate for 2019 is 0.29 cents. Our premium rate for 2020 will be 0.24 cents.

4. Workplace Wellness Initiatives

McMaster offers a number of initiatives to promote employee wellbeing, utilizing the 13 psychosocial factors related to the National Standard of Canada for Psychological Health and Safety in the Workplace, to shape the foundation of our programming. Recent activities include:

- McMaster promoted Thrive Week in January with a number of activities and to support physical and psychological health. The initiative included: Mistakes Happen – a panel of senior leaders who shared stories of personal and professional growth, 10-minute mini massages by David Braley Rehabilitation Centre massage therapists, a nature walk led by Nature@Mac, meditation and Zumba sessions through Athletics & Recreation, and a communication workshop hosted by Homewood Health. Thrive Week planning is a collaborative partnership between HR, Student Wellness and the Healthy Workplace Committee with events offered to students, faculty and staff.
- Subsidized weekly yoga sessions for employees were also offered in collaboration with the Healthy Workplace Committee.
- In support of National Financial Literacy Month in November, webinars, in-person workshops and weekly newsletters were provided relating to budgeting, borrowing, retirement, and financial wellness.
- A Pickleball Lesson for employees was offered in partnership with Athletics and Recreation. A weekly Pickleball league is in development.
- A Weight Watchers at Work program is in development and will be launched in February.
- Three Homewood Health newsletters were distributed to employees focusing on: substitute addictions, recovery support during the holidays, anxiety, and promoting psychological health during change.
- HR supported or delivered workshops for various departments across the University as follows.:
 - Delivered a newly developed Resilience Training program
 - Delivered training with respect to our EFAP resources and services
 - Delivered Psychological Health and Safety Training
 - Developed and hosted customized teambuilding retreats and training for multiple teams and departments across the University related to organizational health and personal well-being.
- As SMEs, supported the McMaster Campus Food Council through feedback and brainstorming sessions.
- A Twitter campaign ran during Bell Let's Talk Day, highlighting mental health supports and resources for employees.
- On behalf of the University, HR received the Organization Award by Health Promotion Canada for our introduction of the Tobacco and Smoke-Free Campus Policy, and consultation provided to multiple other institutions in the development of their policies and implementation processes.

**PRESIDENT'S REPORT TO
McMASTER UNIVERSITY'S BOARD OF GOVERNORS
MARCH 5, 2020**

Update on Key Challenges and Priorities for the 2019/20 Year

Establishing the Leadership Team

I noted in my report to the Board in October 2019 that my biggest priority for the current academic year was to navigate the University successfully through the period of Presidential transition. With the Presidential search process complete, we are still in a period of transition, since we now need to undertake searches for a permanent Provost and Vice-President (Academic), and a permanent Vice-President (Research). Given that the establishment of a stable leadership team is absolutely critical to our ability to advance the University and undertake the initiatives we are currently engaged in, we have set an ambitious target and are aiming to fill these positions by July 1, 2020, if at all possible. The Selection Committees have been constituted and will begin meeting shortly, and I would like to express my appreciation to the Board Members who have agreed to serve on these committees and support the University through these important processes. We have recruitment consultants in place to support both searches, which I expect to be provincial, national, and potentially international, in scope.

Setting Course

As I signalled at our December meeting, one of my early priorities is to engage the entire McMaster community in a visioning process, focused on considering our aspirations and ambitions for the University over the next twenty to thirty years. Over the last few months I have had a wide variety of meetings with faculty, staff and student groups, departments and units across our campus, as well as with alumni, donors and supporters of McMaster to learn more about the historic goals for the institution and discuss our individual and collective aspirations for the future. I will continue this process of informal conversation over the coming months and plan to broaden and formalize this by posing a number of key questions to our community via web and social media platforms and inviting responses and feedback. The ultimate goal is to draw out the vision and aspirations for McMaster over the longer-term.

Once that process is complete, I plan to move into a more detailed strategic planning phase, which will see us establishing operational-level plans and goals for the next two to three years. I am developing and working through this process with the assistance of a consultant who is highly experienced in both the Canadian and U.S. higher education sectors, and who is providing insights and guidance on best practices around visioning and strategic planning across universities. I am currently engaged in developing the details and timelines, as well as working with the University's Communications team with regard to the outreach strategy, and expect to have more to report on this in the Spring.

Brighter World Research Initiative (BWRI)/Revenue for Research

Work on the development of the *Brighter World Research Initiative* is gathering pace. We intend this to be the most ambitious campaign in McMaster's history, and to advance the University's goal of attracting and developing partnerships and funding opportunities, and increasing research revenue into the University from a variety of sources. The Acting Vice-President (Research), the

Deans, and University Advancement are working with researchers across the campus to define the areas of focus for BWRI and establish project teams before we formally launch the initiative.

Developing and Building Partnerships

I am committed to continuing the University's work to build relationships locally, nationally and internationally. As part of this, the senior team continues to be focused on developing our international partnerships in a strategic way, as well as building on our positive relations more locally, within the city, the region and with the Six Nations community. We also enjoy excellent relationships with Mohawk College, Hamilton Health Sciences and St. Joseph's Healthcare Hamilton, and will continue to build on and strengthen those relationships as we find new ways to serve and support our local communities. We are also focused on building relationships and partnerships with industry and business partners, and with all three levels of government. Our recent McMaster Ottawa Day, held on January 27, provided an excellent opportunity to highlight McMaster's research strengths to a variety of Ministers, government officials, civil servants and supporters of McMaster. This year our focus was on promoting the cutting-edge work underway on our campus around antimicrobial resistance, and raising awareness and advocating for support for McMaster's Nuclear Reactor and related nuclear-focused projects.

As Board Members know, the University's international profile and success in the various rankings form an important component of building our global reputation. Building our overall profile is also crucial as we seek to connect McMaster around the world, and develop the relationships and partnerships that will make our institution, and the work we do, relevant on a global scale. It is increasingly clear that it is only by building partnerships and collaborating across borders that we can hope to solve the big challenges facing our world. Over the last year McMaster has been engaged in a dedicated strategic focus on building relationships and partnerships with European universities. As a result we now have a range of joint Ph.D. programs in place in areas as diverse as Anthropology, Chemistry, Kinesiology, Global Health, Geography and Automotive Engineering, and are engaged in building on these connections to develop research partnerships and collaborations across Europe. As these connections extend, so too will our sphere of influence and our ability to contribute effectively to addressing major societal issues, attract faculty and students from an increasingly wide range of different countries, and deepen and advance our research partnerships and collaborations.

Finalizing our Funding Agreement

I reported on the Strategic Mandate Agreement (SMA3) process in some detail in my last report to the Board in December. This document, which is essentially the funding contract that the provincial government will enter into with each University and College, outlines agreed areas of program focus and includes a range of metrics by which institutions will be measured. We recently submitted our updated draft following further discussions with the Ministry and expect this to be finalized prior to the Ministry's target date of March 31, 2020.

As noted previously, the most difficult aspect for McMaster has been the requirement to define a limited number of areas of program strength, which the Ministry has been insisting should include no more than approximately 50 per cent of our enrolment. The Provost's Office developed and worked through a range of scenarios with the Deans before determining how best to respond to this in a way that appropriately reflects our campus and aspirations, while minimizing any potential financial risk to the institution. Even though we have been required to

define specific areas for the purposes of the performance metrics, we have made use of the SMA3 narrative to highlight the role played by every Faculty in contributing to McMaster's success and strength.

Streamlining Administrative Processes

Following the recent review of HR services across the campus, work is well underway on the process of addressing the range of issues identified. A highly-experienced consultant has been hired to support the planning and implementation processes, an action plan has been developed and priorities identified, a key team of accountable leaders has been put in place, a communications plan is being finalized, and training for those who will be involved in process mapping and documenting work flows and standard operating procedures is underway. The goal is to demonstrate a number of high-level improvements to the campus community as quickly as possible, and encourage ongoing engagement with and support of the project.

Mitigating Emerging Risks

Planning is underway for the Board to receive a detailed update from the Audit and Risk Committee on the University's enterprise risk management processes, but in view of the potential magnitude of the risk I thought it important to highlight the work and planning that is underway and ongoing with regard to the coronavirus outbreak. The University has a dedicated web-page, accessible from the *Daily News*, which is regularly updated as further information and advice is obtained. We follow the advice issued by the Government of Canada with regard to travel, which is monitored closely by our Environmental & Occupational Health Support Services team, and follow the guidance from public health agencies at the local, provincial and federal level, as they continue to monitor the outbreak, conduct surveillance and appropriate laboratory testing, and provide public health and infection control advice. We have provided responses to Frequently Asked Questions for those with concerns, and members of our Student Wellness Centre are available to provide advice and assistance. The University has also been engaged in business continuity planning and consideration of the potential impacts of a pandemic on our operations and will continue to monitor this over the coming months.

CAMPUS UPDATE

McMaster mourned the loss of two PhD Students and a former Postdoctoral Fellow

The University tragically lost two PhD Students from the Faculty of Engineering, and one former Postdoctoral Fellow, in the crash of Ukraine International Airlines Flight 752 in Tehran on January 8, 2020.

The McMaster Iranian Student Association held a vigil for Iman Aghabali and Mehdi Eshaghian, who were both researchers at the McMaster Automotive Research Centre, and Siavash Maghsoudlou Estarabadi, who had worked in the Faculty of Health Sciences until 2018. Community members came together from across the University to pay tribute, share memories and reflect on this tragic event. The University has been working to support and assist the many friends, peers and colleagues who were affected, and has also been providing assistance to the families.

McMaster wins Health Promotion Canada Award for Tobacco and Smoke-Free Campus Policy

McMaster has won a 2019 Organization Achievement Award from Health Promotion Canada for its smoke-free campus policy, which has been in effect since January 1, 2018. The University was nominated for the award by Hamilton Public Health, a collaborative partner in the policy.

Three McMaster Graduates receive inaugural Order of Hamilton Award

Kenneth Hall, Robin McKee and Anne Pearson were recognized with inaugural Order of Hamilton awards, announced during Mayor Fred Eisenberger's annual New Year's levee on January 5. The award recognizes Hamiltonians who have made an exceptional impact on the city through volunteerism.

New York Times Columnist to be inaugural Faculty of Science Journalist in Residence

Gretchen Reynolds, New York Times health columnist and bestselling author, will help the Faculty of Science strengthen media literacy and science communication skills among students and faculty. She will spend the first two weeks of her residency learning about the Faculty, and the second two weeks sharing her expertise by hosting workshops and moderating community events with Faculty of Science researchers.

McMaster joins International Digital Credentials Consortium

McMaster has become a founding member of an international digital academic credentials group whose members include top institutions from around the world, including MIT, Harvard and the University of Toronto. The group aims to create a trusted, distributed and shared infrastructure that becomes the standard for issuing, storing, displaying and verifying digital academic credentials.

Psychotherapy Program to begin at McMaster

McMaster's Department of Psychiatry and Behavioural Neuroscience will be offering a new Master of Science in Psychotherapy program starting in September 2020. The full-time program will be 20 consecutive months. The goal of the program is to prepare professionals for registration with the College of Registered Psychotherapists of Ontario and for a career as an independent practitioner.

Midwifery Program first to be accredited in Canada

McMaster's Midwifery Education Program has another first to add to its accomplishments. It has recently become the inaugural program to receive accreditation from the Canadian Association for Midwifery Education.

Bachelor of Technology Engineering Programs receive Business School Accreditation

Three BTech programs at the W. Booth School of Engineering Practice and Technology are the first engineering programs in Ontario to be accredited by the Accreditation Council for Business Schools and Programs. This makes the School the only one in North America with ACBSP-accredited baccalaureate programs.

Research

A new Virtual Reality app explores McMaster's Nuclear Reactor

McMasterVR: Nuclear Facilities is available on the Apple App Store and Google Play, and allows users with a Google Cardboard headset to explore the nuclear reactor in 3D. Users can also watch interviews with reactor staff and learn about the reactor and how it's used.

Antibiotics discovered that kill bacteria in a new way

Researchers in the David Braley Centre for Antibiotic Discovery have discovered a new group of antibiotics with a unique approach to attacking bacteria, making it a promising clinical candidate against antimicrobial resistance.

McMaster Chemists find a new way to break down old tires

A team of Chemists at McMaster has discovered an innovative way to break down and dissolve the rubber used in automobile tires, a process which could lead to new recycling methods and improve a process that has so far proven to be expensive, difficult and inefficient.

Student Success

Engineering Student wins prestigious Global Innovation Award

Third-year Biomedical and Mechanical Engineering student, Lianna Genovese, has won the U21 RISE Award for Innovation for her invention Guided Hands, a device that enables people with limited hand function to write, paint, draw and use a tablet. The device uses a 3D-printed ergonomic handpiece to help people with motor disorders – including dystonia, ALS, Huntington's disease, arthritis, stroke and spinal cord injuries – to complete everyday tasks.

DeGroot Students win top Business School Competitions

Competing against more than 1,000 other students from schools across the country, McMaster undergraduate and graduate business students won a record number of trophies – 17 – at national business school competitions in January, including the MBA Games, the John Molson MBA International Case Competition, the JDC Central Business Competition and the Battle on Bay.

McMaster Student first Canadian to be awarded prestigious Aerospace Fellowship

Now in the final year of her electrical engineering degree, Hira Nadeem is Canada's first Brooke Owens Fellow. The award recognizes 40 exceptional women and members of gender minority groups in aerospace each year for their talent, competency, commitment to service and creativity.

REPORT TO THE BOARD OF GOVERNORS
from the
SENATE

a. SPS A9 - Allocation of Teaching-Stream Positions Across Faculties

At its meeting on December 11, 2019, Senate approved the proposed revisions to the SPS A9 Policy.

Senate now recommends,

That the Board of Governors approve the revisions to the SPS A9 Policy, as circulated.

b. Proposal for Centre for Clinical Neuroscience (CCN)

At its meeting on February 12, 2020, Senate approved the establishment of the Centre for Clinical Neuroscience (CCN).

Senate now recommends,

That the Board of Governors approve the establishment of the new joint centre, the McMaster/St. Joseph's Centre for Clinical Neuroscience (CCN), as an official research centre at McMaster.

c. Establishment of "Guidelines for the Governance and Review of Core Research Platforms"

At its meeting on February 12, 2020, Senate approved the establishment of "Guidelines for the Governance and Review of Core Research Platforms".

Senate now recommends,

That the Board of Governors approve the establishment of the policy on Guidelines for the Governance and Review of Core Research Platforms.

Board of Governors: FOR APPROVAL
March 5, 2020

Complete Policy Title

**Allocation of Teaching-Stream Positions
Across Faculties**

Policy Number (if applicable)

SPS A9

Approved by

**Senate /
Board of Governors**

Date of Most Recent Approval

Date of Original Approval(s)

Supersedes/Amends Policy dated

**December 14, 2011 / December 15, 2011
December 13, 2006 (SPS 29)**

Responsible Executive

Provost and Vice-President (Academic)

Policy Specific Enquiries

[Provost and Vice-President \(Academic\)](#)

General Policy Enquiries

[Policy \(University Secretariat\)](#)

DISCLAIMER:

*If there is a Discrepancy between this electronic policy and the written copy held
by the policy owner, the written copy prevails.*

1. There are seven classes of appointment at McMaster University: tenure-track, tenured, special, continuing appointment without annual review (CAWAR), teaching-track, permanent teaching, and contractually limited (CLA).
2. Different appointments have a different balance of teaching, research and service as described in each individual letter of offer. For the purposes of this policy, teaching-intensive positions include all teaching-track and permanent teaching positions as well as CLA positions, where at least 60% of the job responsibilities are teaching.
3. No upper limit is set for the Faculty of Health Sciences due to the number of contractual arrangements that occur with agencies such as the Ministry of Health and Long-Term Care, etc. Teaching-intensive positions may be created in Health Sciences as needed and without limit, because the need for them will depend on the number and duration of such commitments.
4. In compliance with clause 3 above the Faculty of Health Sciences is excluded from clauses 5 to 8 below, and is not included as part of the full-time McMaster faculty complement.
5. The proportion of teaching-intensive positions shall not exceed 20% of the full-time McMaster faculty complement. Within an individual Faculty the proportion of teaching-intensive positions shall not exceed 23% of the full-time McMaster faculty complement:
 - a) the percentages above may be rounded to the nearest individual.
 - b) should the proportion of teaching-intensive positions exceed 23% in any individual Faculty no further teaching-intensive positions may be appointed until the proportion of teaching-intensive positions is 23% or less.
 - c) should an exceptional circumstance arise, exceptions to the above proportions must be approved at the Joint Administration/Faculty Association Committee ("Joint Committee").
6. The proportion of teaching-intensive CLA positions shall not exceed 7% of the full-time McMaster faculty complement. Within an individual Faculty the proportion of teaching-intensive CLA positions shall not exceed 8% of the full-time McMaster faculty complement:
 - a) the percentages above may be rounded to the nearest individual.
 - b) should the proportion of teaching-intensive CLA positions exceed 8% in any individual Faculty no further teaching-intensive CLA positions may be appointed until the proportion of teaching-intensive positions is 8% or less.
 - c) should an exceptional circumstance arise, exceptions to the above proportions must be approved at the Joint Committee.
7. The Provost's Office will track the number of teaching-intensive faculty and the number of teaching-intensive CLAs in each Faculty and provide an annual report to the Senate and the McMaster University Faculty Association ("MUFA").
8. The Joint Committee will review the numbers above in three years. If required, the Policy will be updated to reflect any changes to the numbers and the language will be revised by a joint drafting committee. Any revisions must be endorsed by the MUFA Executive and the Senate Committee on Appointments before being approved by the Senate.

January 13, 2020

TO: University Planning Committee

FROM: Karen Mossman, Vice-President, Research (Acting)



RE: **Proposal for Centre for Clinical Neuroscience (CCN)**

The Committee on Research Institutes and Centres has reviewed the attached Proposal for Centre for Clinical Neuroscience (CCN), as per the policies and guidelines, and has been unanimously approved.

Please include this as an agenda item for the next University Planning Committee Meeting on January 22, 2020.

KM:jt

Attach.

cc: Susan Searls Giroux
Doug Welch
Andrea Thyret-Kidd
Paul O'Byrne

October 2019

Dr. Karen Mossman
Acting Vice-President, Research
Chair, Committee on Research Institutes
c/o Gilmour Hall, Room 208

Re: Proposed Centre – McMaster / St. Joseph's Centre for Clinical Neuroscience (CCN)

Dear Dr. Mossman,

On behalf of the Faculty of Health Sciences at McMaster and St. Joseph's Healthcare Hamilton, we would like to recommend the approval of a proposed new joint centre, the McMaster / St. Joseph's Centre for Clinical Neuroscience, as an official research centre at McMaster.

Please find a proposal for the Centre attached.

If you require further information, please do not hesitate to contact us.

Yours sincerely,



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



Ms. Melissa Farrell
President
St. Joseph's Healthcare Hamilton

cc: J. Bramson
J. Gaudie
N. Kates

Encl.

PO/MF:sm



Psychiatry &
Behavioural
Neurosciences

PROPOSAL FOR A CENTRE FOR CLINICAL NEUROSCIENCES

Prepared by:

Flávio Kapczinski, MSc MD PhD FRCPC
Director, Neuroscience Graduate Program

Nick Kates, MB BS FRCPC MCFP(hon)
Chair, Department of Psychiatry & Behavioural Neurosciences

November 2019

1. Official Name: McMaster / St. Joseph's Centre for Clinical Neuroscience (CCN)

2. Goal:

Short term goal: To establish a Centre for Clinical Neuroscience research in the existing wet lab facilities at St. Joseph's Healthcare Hamilton's W. 5th. Campus that will provide the physical, computational and staff infrastructure to harness multimodal datasets for clinical neuroscience research with a core of Computation and Big Data Analytics.

Long term goal: Establish a Canadian Pasteur Institute with a focus on Clinical Neuroscience in partnership with McMaster University and St. Joseph's Healthcare within the next five years.

3. Background: Data from the Public Health Agency of Canada shows that approximately 2.68 million Canadians suffered from a psychiatric disorder in 2016. Psychiatric disorders have a profound negative impact on quality of life, functioning, overall health and life expectancy. In Ontario alone, mental illness and addictions lead to the loss of more than 600,000 health-adjusted life years. Importantly, most major severe mental illnesses are highly heritable, have strong genetic underpinnings, emerge in childhood and adolescence and run a lifelong chronic course. A better understanding and treatment of psychiatric disorders is a major unmet need and the Canadian government has identified mental health as a top strategic priority, highlighting mood disorders and addiction.

The most accepted contemporary model of psychiatric disorders that emerged from large longitudinal studies indicate that they reflect an interaction between genetic risk and the environment, including early life adversity/trauma, drug addiction, and negative life events. When psychopathology is persistent and particularly when chronic depression takes place, the interplay between genes and environment triggers a state of chronic immune activation that is a risk factor for early mortality, accelerated aging and cognitive decline that later on in life translates into higher rates of dementia. In brief, the biological model for that is described in Figure 1. The proposed centre for clinical neuroscience will **focus on the underlying biology of trajectories of chronicity and disability in psychiatric disorders (neuroprogression).**

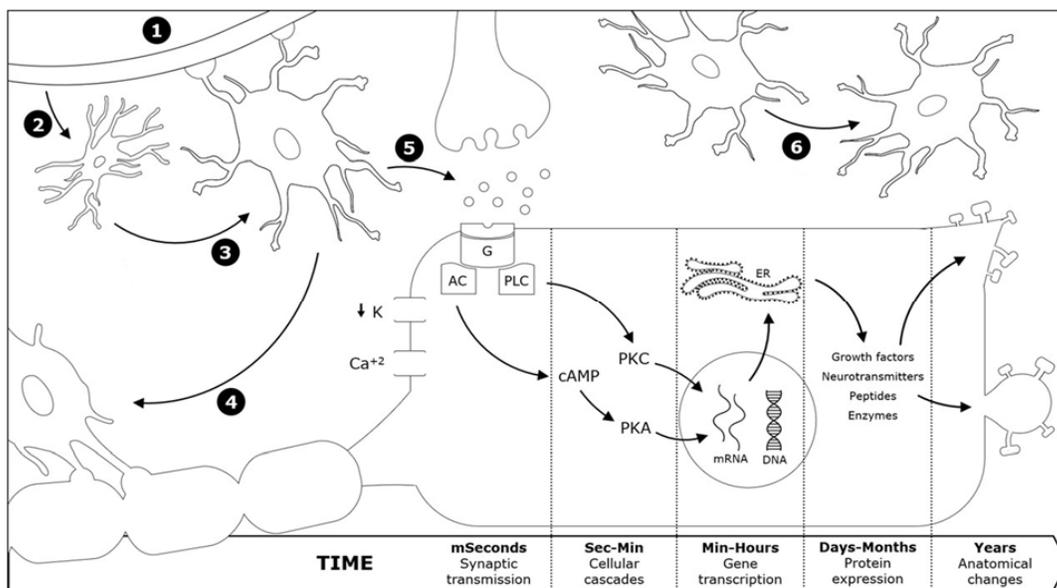


Figure 1. Cellular Components of Neuroprogression. 1) Chronic inflammation promotes change in blood-brain barrier that allows inflammatory cytokines as well as T cells to cross the blood-brain barrier. 2) Blood borne immune signals activate microglial cells. 3) Microglial cells activate astrocytes. 4) Activated astrocytes inhibit turnover of oligodendrocytes. 5) Activated astrocytes promote glutamatergic excitotoxicity. 6) Astrocyte calcium waves provide a specific form of excitability that involves the direct communication between the cytosol of two adjoining cells or the release of molecules that activates membrane receptors on neighboring cells. These alterations at molecular level, involving rapid changes in synaptic transmission, cellular cascades and gene transcription may promote more lasting changes in protein expression and ultimately would lead to long-term anatomical changes (neuroprogression).

4. Our Vision: A key feature of the CCN will be its ability to truly integrate the large amount of data from molecular genetics, neuroimaging, biological and clinical features using big data analytic approaches. Through this we will gain a better understanding of trajectories of disability and chronicity. We aim to predict clinical outcomes at the early stages and develop better personalized treatment plans for psychiatric patients. The close collaboration of the CCN with the Ontario Brain Institute (OBI) will allow for the development and testing of risk calculators for complex outcomes such as disability and risk of relapse into mood disorders and addictions.

The CCN will bring together key faculty from the Department of Psychiatry & Behavioral Neurosciences and St. Joseph's HealthCare Hamilton and other partners from McMaster University. It will take a societal as well as a clinical perspective and will emphasize the translation and application of new knowledge and discoveries to individual patient's organizations (improving treatment efficacy across a system) and communities (population focus).

The CCN will use in-house resources and expertise (rather than outsourcing) to curate, analyze and integrate existing datasets and will play an active role in gathering new datasets. Importantly, with the use of existing campus compute servers and resources the CCN will not require a major investment in infrastructure for the initial stages.

5. Specific Aims: At present, the neuroscientists in the Department of Psychiatry and Behavioural Neurosciences at SJHH/McMaster are working in relative isolation on individual programs of research, with limited opportunity to engage in shared projects or in more ambitious data analytic projects. The establishment of the Centre will bring faculty together within a shared research framework of pathways of chronicity and disability associated with severe psychiatric disorders. The research aims of the CCN will be achieved by:

- 1) Providing a focal point that will revitalize neuroscience research and advance the strategic directions of SJHH and McMaster.
- 2) Creating a physical space that will bring together faculty (and learners), who currently are scattered across multiple locations, sites and Faculties, to discuss and explore new possibilities for their research, address new questions that are beyond the scope of individuals working alone by pooling and optimizing their collective resources .
- 3) Developing a common agenda that will integrate the various groups interested in translational neuroscience research with a particular focus in the longitudinal course of mental illness and disability in the adult (neuroprogression).
- 4) Providing access to shared central resources, including research assistance and wet lab facilities.

6. Main research question: Assess the mechanisms associated with the progression of psychiatric disorders into trajectories of early disability and the propensity for developing dementia.

In recent years the literature on mood disorders, has shifted from control of symptoms to the management of long term trajectories (Duffy et al., 2016). Overall, the early and effective treatment of psychopathology is associated with optimal functioning and more favorable health outcomes. In contrast, the risk of recurrence increases with the number of acute episodes of disorders and untreated psychopathology. An increasing number of episodes is associated with: 1. Increasing risk of recurrence of episodes, 2. Increasing duration of episodes, 3. Increasing symptomatic severity of episodes, 4. Decreasing threshold for developing episodes, 5. Increasing risk of developing dementia. This increased severity over time is called clinical progression (Kessing and Andersen, 2017). Clinical progression happens in several psychiatric conditions such as addictions, PTSD, OCD, depression and bipolar disorder. The biological basis for clinical progression is called neuroprogression (Yatham et al., 2018). Our group helped developing the concept of neuroprogression and is a leading player in the field. We were among the first to describe how neuroinflammation plays a role in recurrent mood disorders (Kapczinski et al., 2015; Kapczinski et al., 2019). Microglial and astroglial activation (Rao et al., 2010) with consequent reduction in the turnover of oligodendrocytes (Vostrikov et al., 2007; Uranova et al., 2004) have been reported in post mortem studies in depression and bipolar disorder. Microglial cell activation has been shown in vivo in bipolar disorder (Haarman et al., 2014) and in major depression (Setiawan, et al. 2018). More recently our group discovered that such neuroinflammation is translating into in vivo reduced density of oligodendrocytes (Sehmbi et al., 2018, CIHR Catalyst Grant - active, Figure 3) and increased permeability at the blood-brain barrier level (Patel and Frey, 2015; PSI Foundation Operating Grant - active). In our journey describing neuroprogression in

chronic mood disorders we provided a framework for different groups interested in studying the pathways of chronicity and disability in psychiatry, involving 1. Early programming of psychiatric disorders in childhood and adolescence, 2. Synaptic modelling and psychiatric disorders in the youth and in the adult, 3. Pathophysiology of PTSD, 4. Pathophysiology of brain damage associated with addictions, 5. Pathophysiology of chronic anxiety disorders, 6. Differential illness trajectories in Autism, 7. Trajectories of healthy brain aging and 8. Chronic psychiatric disorders and accelerated brain aging as a risk factor for the development of dementia. This is aligned with the areas of expertise in clinical and basic neuroscience on campus and with the research interests and research network within the Department of Psychiatry and Behavioral Neurosciences (DPBN). The recurring theme that connects all these areas is the **field of adult neuroplasticity and neuroprogression in psychiatric disorders** (Sailor, Schinder and Lledo, 2017).

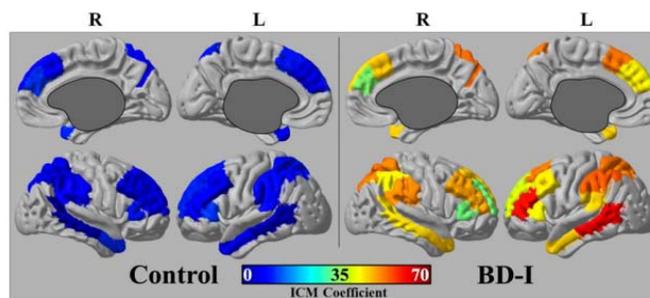


Figure 2. The slope of the linear relationship between intracortical myelin (ICM) and verbal memory performance in controls and bipolar disorder subjects. Each population was fitted individually to find the coefficient for the ICM term. On the left of the figure, the control population shows a globally blunted slope of verbal memory performance over ICM-related T1-weighted signal, with values ranging between 3.8 and 13.9. On the right, the bipolar disorder population displays values between 35.2 and 64.4, suggesting a much greater influence of ICM signal on verbal memory performance in bipolar disorder, in comparison with controls. L, left hemisphere; R, right hemisphere; BD, bipolar disorder.

7. Our unique strengths: Currently we are the second most cited group in psychology/psychiatry in Canada and among the 16 most cited among all areas at McMaster University (Clarivate Analytics 2018). Most of the research in the field of neuroprogression has been carried out by our own group in cooperation with partners included in the proposal and more recently with the partnership developed with the Pasteur Institute in France (Dargel et al., 2018 - see Appendix). We have a well-funded portfolio in the areas of addictions, mood disorders and adult neuroplasticity (Table 1). Our team has extensively documented expertise in all areas that we plan to develop at CCN. We were pioneers in the field of psychiatric genetics identifying a novel genetic variant in depression (Samaan et al. *Molecular Psychiatry*, 2013), micro-RNA markers of antidepressant response (Lopez et al, *Nature Communications*, 2017) and novel genetic variants responsible for impulsive behavior (Sanchez-Roige et al., 2017, *Nature Neuroscience*). Our CIHR-funded study on opioid use disorder is the largest cohort study investigating genetic, biological and social determinants of opioid addiction and treatment outcomes. The creation of the CCN will provide platform for expanding this area of research with **focus on trajectories of chronicity and disability in psychiatric disorders (neuroprogression)**.

Table 1. Current Funding from Main Investigators relevant to the work of the CCN.

Period	Grant	Title	Funding	Investigators
2018/4 2020/4	- CFI Canada Foundation for Innovation	The Biological Signatures of Clinical Progression in Bipolar Disorder.	\$140,000	Kapczinski, PI
2018/7 2020/6	- CIHR Catalyst Grant	Intracortical Myelin as a Mechanism for Sex Differences in Major Depressive Disorder	\$137,900	Frey, PI
2016/7 2020/6	- CIHR Project Grant	The Longitudinal Course of Intracortical Myelination and Cognitive Function in Bipolar	\$925,044	Frey, PI
2018/2 2020/2	- PSI Foundation Operating Grant	A Translational Study of Blood-Brain Barrier Disruption in Bipolar Disorder: Implications for a new pathway for drug development	\$187,000	Frey, PI
2014/4 2019/3	- Ontario Ministry of Research and Innovation	Predictors of Treatment Response in Individuals with Depression	\$150,000	Frey, PI
2013/7 2018/6	- CIHR Operating Grant	Predicting Antidepressant Treatment Response in Major Depressive Disorder: An Integrated Clinical and Neuroimaging Approach	\$893,950	Frey, Co-Inv
2013/4 2018/3	- Ontario Brain Institute Discovery Grant	Canadian Biomarker Integration Network for Depression (CAN-BIND)	\$18,000,000	Frey, Co-Inv
2018/4 2023/3	- CIHR Project Grant	Pharmacogenetics of Methadone Maintenance Treatment Response	\$1,116,900	Samaan, PI; MacKillop, Co-PI

2018/3- 2019/2	CIHR Catalyst Grant	Impact of cannabis legalization on cannabis use and outcomes in patients with opioid use disorder: a Canadian prospective cohort study	\$100,000	Samaan, PI; MacKillop, Co-Inv
2017/7 - 2018/6	CIHR Bridge Funding	Pharmacogenetics of Methadone Maintenance Treatment Response	\$100,000	MacKillop, PI; Samaan, Co-PI
2016/4 - 2018/11	HAHSO Grant	Health Innovation in Managing Opioid Addiction	\$191,758	Samaan, PI; MacKillop, Co-Inv
2016/10- 2017/12	St. Joseph's Healthcare Foundation	Genetics of Opioid Addiction	\$40,000	Samaan, PI

8. A unique opportunity: Our translational research in the field of mood disorders and addictions generated a stable flow of funding, innovation, publications and citations. Apart from the support received from the FHS and the St Joseph's Hospital, we have recently formalized an agreement for developing a joint research unit (Unite Mixte de Recherche) between clinical neuroscience at SJHH/McMaster and the Neuroscience Unit at the Pasteur Institute (please refer to the Director of International Affairs and Director of Neuroscience at Pasteur for further details). Our five years strategic plan (contingent on achieving milestones of excellence and funding) is to develop an Affiliated Pasteur Institute with a focus on Clinical Neuroscience at the West Fifth Campus. Our contribution to Pasteur's agenda is to add the clinical component and research on how chronic psychiatric disorders develop into vulnerability for dementia (neuroprogression). The study of **vulnerable populations with a clear focus on neuroprogression creates the unique opportunity of early interventions in populations at risk for developing dementia**, aligned with the new business plan of Pasteur Institute that included neurodegenerative diseases among their priorities.

9. Research Approach: We will establish a transformational pipeline of research on adult neuroplasticity and chronic psychiatric disorder - from the bench to the clinic. Our focus will be on the mechanisms whereby stress, addictions and mood episodes interact generating a malignant transformation of psychiatric disorders into chronic and debilitating conditions (Post, 2018). In this sense our research approach is a radical departure from a status quo where the specific mechanisms underlying discrete psychiatric entities are investigated. **Our focus is on the pathways of chronicity and disability in psychiatry (neuroprogression)**. The main components of our research will be (Figure 3). Please see Appendix 1.

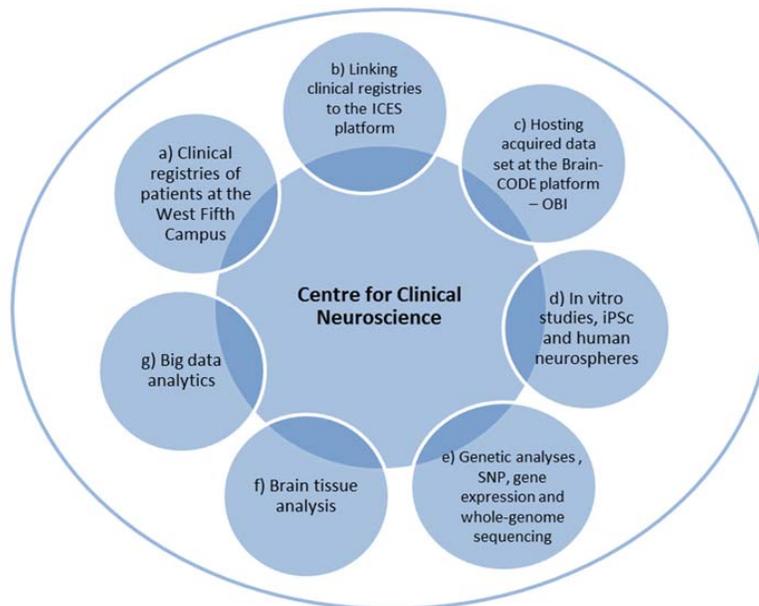


Figure 3. Centre for Clinical Neuroscience main components of research.

10. Membership: The CCN will be led by a core group of principal investigators (PIs) with extensive expertise in the neurobiology of mood disorders and addictions. A number of researchers from SJHH / Department of Psychiatry & Behavioral Neurosciences (DPBN) who work in related areas will join the CCN as associate members. Members of CCN will share the goal of advancing clinical neuroscience research, as aligned with the strategic directions of SJHH and DPBN.

10.1. Criteria for Membership

Members of CCN share the goal of advancing research on clinical neuroscience applied to the field of mental health. Core members will be SJHH/McMaster faculty members who identify CCN as their primary source for neuroscience research and big data analytics. Given the broad, translational scope of CCN, we will also welcome associate members who are engaged in other research institutes or centers at SJHH/McMaster.

10.2. Core Members

Initially, CCN will be based around researchers working in the Department of Psychiatry & Behavioral Neurosciences (PBN) and their current partners. Together, the core- and associate members of the CCN have published over 850 peer-reviewed articles in the last 5 years, with a total number of citations of 77,510 in the same period. It will gradually expand the scope of its activities as more collaborators and partners join the Centre. Core members will include:

Flavio Kapczinski, MSc, MD, PhD, FRCP(C)

Expert in molecular biomarkers in bipolar disorders and the second most cited Canadian researcher in the field of psychiatry/psychology in the last five years. His molecular studies were pioneer in

the understanding of the role of inflammation, oxidative stress and neurotrophic factors in the neurobiology of bipolar disorder.

Benicio Frey, MSc, MD, PhD

Expert in the neurobiology of bipolar and major depressive disorders. He is the site-PI of the largest study of biomarkers of antidepressant response in Canada (www.canbind.ca), which includes clinical, molecular genetics, neuroimaging and data science cores.

Zena Samaan, MBChB, DMMD, MSc, MRCPsych, PhD

Expert in psychiatric genetics research in depression and addictions. Dr. Samaan leads large CIHR projects in genetics in opioid addiction and international collaborations on genetics of depression. Her research on the genetics of depression is highly cited and has attracted significant media attention. She currently leads a large cohort study on opioid and cannabis investigating genetic variants as predictors of risk and markers of response to treatment as well as depression RCT where neurotransmitters' gene expression is being investigated as a marker of response to treatment.

James MacKillop, PhD

Expert in translational research on addictions. Dr. MacKillop is the Director of the Peter Boris Centre of Addiction Research and Director of the Michael G. DeGroot Centre for Medicinal Cannabis Research. He is currently leading CIHR- and NIH-funded projects investigating the genetic, environmental, and psychological determinants of addiction.

10.3. Associate Members

Faculty members that work in close association (IB, IP, JR, MA, NS, PM, LM, NB) with the core members (FK, BF, JM, ZS) or bring key expertise (PM, JR, NB) to achieve excellence in the different foci mentioned in Figure 4. Associate members will add granularity and different approaches to the questions addressed by the core members. In addition, associate members will broaden the basis of graduate students and clinical and research fellows to the CCN. All core members and associate member already work at the West Fifth Site in areas covered by the CCN with the exception of Jim Reilly and Paul McNicholas and Nick Bock, who will provide supervision to the work conducted at CCN in an intermittent basis.

Iris M. Balodis, PhD - Joint research with James MacKillop (core member)

Assistant Professor at DPBN, Dr. Balodis' research focuses on motivational processes influencing maladaptive decision-making; specifically, this entails examining arousal, emotion and anticipation that direct behaviour.

Ives Passos, MD, PhD - Joint research with Dr. Flavio Kapczinski (core member)

Collaborator of the DPBN, Dr. Passos' research focuses on mood disorders, suicide, and neuroinflammation, with the use of machine learning and big data analytic tools.

Jim Reilly, PhD - Joint research with Dr. Flavio Kapczinski and Ives Passos (core members)

Professor Emeritus at the Department of Electrical Engineering and Computing, Dr. Reilly's research focuses on the interface of machine learning and signal processing applied to health-related problems, particularly in neuroscience and psychiatry.

Luciano Minuzzi, MD, PhD

Assistant Professor at DPBN, Dr. Minuzzi's research focuses on brain imaging techniques and its clinical implications in mental health disorders, with special interest in neuroimaging core data analytics.

Michael Amlung, PhD - Join research with Dr MacKillop (core member)

Assistant Professor at the DPBN, Dr. Amlung's research seeks to understand the neurobiological and behavioural correlates of pathological decision-making and motivation, especially in the context of substance abuse and other unhealthy behaviors.

Nicholas Bock, PhD

Associate Professor at the Department of Psychology Neuroscience and Behavior, Dr. Bock's research investigates how the structure of the brain gives rise to function, with an emphasis on the cerebral cortex. His lab develops *in vivo* techniques for mapping the properties of the cortex using magnetic resonance imaging (MRI) and computational neuroimaging in humans and animals.

Noam Soreni, MD, FRCPC -

Associate Professor at the DPBN, Dr. Soreni's clinical and research work focuses on the biological and cognitive correlates of pediatric Hoarding, Obsessive Compulsive Disorder, and brain imaging.

Paul McNicholas, MA, MSc, PhD, P.Stat.

Professor and Canada Research Chair, Department of Mathematics and Statistics, Dr. McNicholas' research focus on computational statistics, especially identification of heterogeneity. Current research includes work on advanced analytics, non-Gaussian mixtures, pattern recognition, growth mixtures, matrix variate distributions, and real problems in big data analytics.

11. Graduate students and research fellows: Generally, members will bring along, on average, three graduate students or fellows to work in close association with the CCN. The CCN will not provide space for all faculty and students at all times, but will accommodate 20 graduate students and fellows as well as 2 supervising PIs that will alternate their presence in the space. An extended community of about 40 students and faculty will be housed at the research areas of the West Fifth Site and will interact closely with the personnel housed at CCN. Overall, we expect that the inner area of the CCN (Figure 1) will house about 22 staff in a permanent basis.

12. Location: The CCN will be physically housed within the state-of-the-art wet lab located at the SJHH West 5th Site (figure 4).

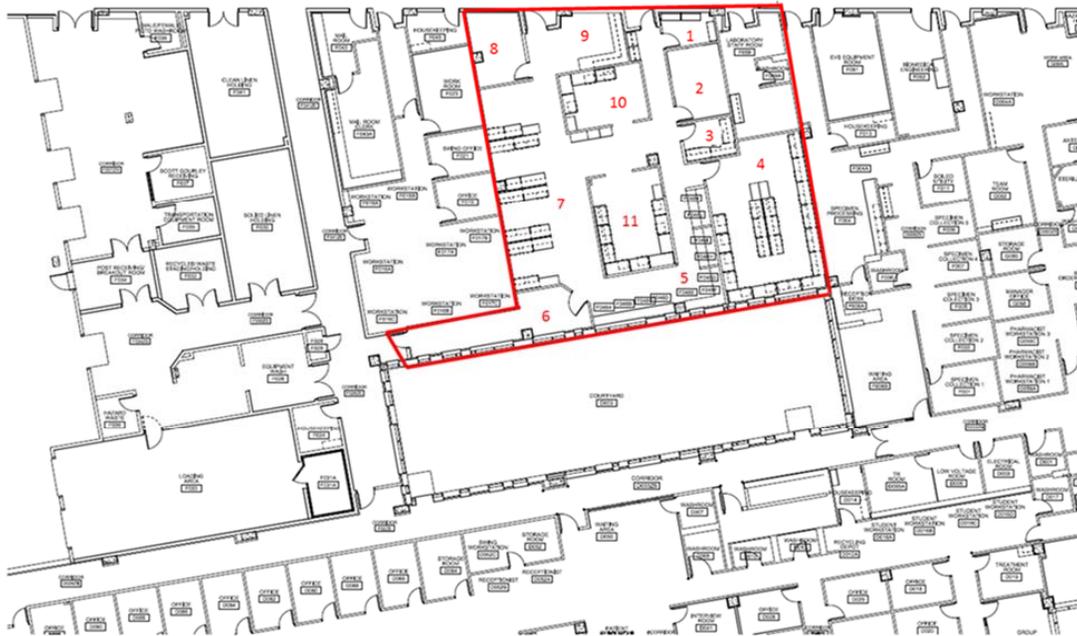


Figure 4. Floor plan of the basement in the West Fifth Site at SJHH. 1. Storage room; 2. Conference room; 3. Microscopy Analysis; 4. Lab work area; 5. 12 workstations for data processing; 6. Waste collection; 7. Bench work area; 8. Brain Tissue Storage; 9. Sample preparation; 10. Cell culture room; 11. Molecular and Protein analysis. All required equipment to run a state-of-the-art translational neuroscience laboratory are already in place. The remaining pieces of equipment will be purchased with SJHH Foundation and CFI grants - active.

St. Joe's will cover the ongoing costs attributed to this space.

13. Staff Resources

Initially, the Centre for Clinical Neuroscience (CCN) will require 5 personnel. These will be:

- A part-time Administrative Assistant
- A part-time Laboratory Technician
- A full-time Research Laboratory Manager
- A part-time Research Scientist Manager
- A part-time Research Analyst Manager

Administrative Assistant (part-time)

The administrative assistant will be responsible for the smooth day to day running of the CCN, the integration of the activities of its members, maintaining linkages between partners, preparing relevant documentation and reports and providing administrative support to Centre members.

Laboratory Technician (part-time)

The laboratory technician will process biological samples and prepare reagents as required for the analysis in accordance with documented procedures; retrieves and archives biological samples for storage and disposal. In addition, the laboratory technician will conduct general lab duties including material handling, cleaning of dishes and equipment, and other lab tasks and research as required. The laboratory technician will identify and communicate procedural non-conformances to supervisors. This person must have the ability to think analytically and to comply with Personal Protective Equipment (PPE) requirements and standard operating procedure (SOP) instructions; and must be self-motivated to work independently and thrive in a collaborative team environment.

Research Laboratory Manager (full time)

The research laboratory manager will be the contact person for the logistics of the laboratory, will be the site manager on an ongoing basis and will be the person through whom all issues related to the lab and its logistics will flow. In addition, the laboratory manager will be responsible for conducting biomarkers analysis and for performing molecular and protein techniques. This person will supervise students and follow up on work results. The laboratory manager will have a high level of knowledge of lab management, decision-making, and analytical skills; strong verbal, written, and interpersonal communication skills; and ability to work collaboratively with a research group or team. Also, will maintain professional and technical knowledge by attending educational workshops; reviewing professional publications; establishing personal networks; participating in professional societies.

Research Scientist Manager (part-time)

The research scientist manager will be responsible for coordinating, implementing and conducting scientific research involving complex cell culture approaches and analysis following established protocols in the assigned wet lab research area. The research scientist manager will implement cell culture experiments and perform cellular analysis in the CCN, besides training of new laboratory personnel in these methods. For this role, it is essential expertise on in vitro models and ability to run complex techniques requiring advanced specialized training, and ability to troubleshoot issues. In addition, this member will write technical protocols, reports and publications; organize and conceptualize ideas leading to new projects; participate in weekly laboratory meetings, and supervise students.

Research Analyst Manager (part-time)

A research analyst manager will oversee the conduction of clinical research, performing data management and statistical analysis, interpretation of the results, and writing reports presenting data related to clinical neuroscience. The research analyst manager needs to have expertise in the conduction of large epidemiological studies and managing large datasets. Activities will include the management, analysis, and interpretation of clinical and biological data.

14. Budget: At the present moment, all core-members, associate members, graduate students and administrative support personnel are covered by existing grants (Table 1). As previously described, the CCN will use in-house resources to curate and analyze existing datasets, and campus servers that are already in place, which will not require an initial major investment in infrastructure. The Faculty of Health Sciences, St. Joseph's Healthcare Hamilton Foundation and McMaster's Department of Psychiatry and Behavioural Neurosciences have all agreed to contribute \$70,000 a

year for three years, to support the Centre Manager, Data Curator and Data Analyst as well as a small amount for operating expenses during this period, by which time it is anticipated that the Centre will be self-supporting, based on grants obtained. All other costs will be borne through the individual research programs of the members. (see Appendix 2)

The Faculty of Health Sciences has introduced a new policy regarding research overhead for institutes and centres that automatically directs a portion of overhead from all core members to a dedicated operating account for the institute/centre and no longer requires separate Dean/Chair approval. The Vice-Dean (Research) in FHS has reviewed the proposal as it related to funding and had no issues.

All core members of this Centre are based in FHS. Any central University policies with regard to overhead distribution will remain in force.

15. Organizational Structure

15.1. Leadership of the Centre

The Director will set the research and academic direction of the CCN in consultation with the Governing Board and Scientific Advisory Committee. The Director will articulate the leadership of the Centre, set milestones and provide the business plan. The Director will report annually to the Governing Board.

The Director will be appointed for a 5-year renewable term.

Pending approval by the University's governing bodies, Dr. Flavio Kapczinski is to be put forward for appointment as the inaugural holder of this position. Dr. Kapczinski is a leader in the field of research in mental disorders and currently serves as Director of the Neuroscience graduate program at McMaster.

An Associate Director with complementary skills will also be appointed in the future, also serving for a 5-year renewable term.

15.2. Proposed Governing Board

The Governing Board (GB) will evaluate the performance of the CCN considering its progress, the status of its members and its financial viability in accordance with McMaster's Guidelines for the Governance and Review of Research Institutes, Centres and Groups. According to our standard practice for joint institutes and centres, the GB will be co-chaired by the Dean and Vice-President of the Faculty of Health Sciences and the President of St. Joseph's Healthcare Hamilton. The remaining membership will be comprised, at minimum, of:

- Vice-Dean Research, Faculty of Health Sciences
- Vice-President (Research), St. Joseph's Healthcare Hamilton
- Chair, Department of Psychiatry and Behavioural Neurosciences
- Chair, Department of Psychology, Neuroscience and Behaviour
- Chief of Psychiatry, St. Joseph's Healthcare Hamilton
- Executive Director, Research Administration, St. Joseph's Healthcare Hamilton

The CCN Directors will report to the GB on an annual basis.

15.3. Proposed International Scientific Advisory Board

The Scientific Advisory Board (SAB) will provide advice to the Director(s) with regard to scientific or scholarly priorities and the direction for the Centre. The SAB is chosen by the Director(s) and is consulted at least every two years, or more frequently at the discretion of the Director. Potential members could include (none have yet been contacted)

- Professor Hugh MacKinnon (Board Chair of the Ontario Brain Institute)
- Professor Eduard Vieta (Professor of Psychiatry at the University of Barcelona and Chair of the Department of Psychiatry and Psychology at the Hospital Clinic. Director of the Bipolar Research Program at the Spanish Research Network on Mental Diseases - CIBERSAM)
- Dr. Pierre-Marie Lledo (Director of the Neuroscience Program at Pasteur Institute).

16. Operational Review

16.1. Annual Review

The Director of the CCN will send reports annually to the Governing Board chaired by the Faculty Dean or designate that will monitor the status, progress and plans of the centre. The reports will include updates on administration, objectives for the next year, financial status, research productivity, grants, educational initiatives, external collaborations and any other research activities involving the centre.

16.2. Periodic Review

According to the University's Guidelines for the Governance and Review of Research Institutes, Centres and Groups, the CCN will undergo an external review every five years in keeping with University guidelines and at the discretion of the Governing Board (GB). The composition of the External Review Board (ERB) will be determined by the GB, as co-chaired by the Dean and Vice-President of the Faculty of Health Sciences and the President of St. Joseph's Healthcare Hamilton.

The composition of the ERB will be determined by the GB and should take into account the aspirations of the Centre and the availability of funds to support the review. The ERB would normally comprise three high-calibre scholars with an international perspective, who must be arms-length from the Centre. The ERB will assess the performance of the Centre's Director and its scientific program. The ERB will be furnished with documents describing the University's policy on Research Institutes and will be asked whether performance is compatible with expectations described in the policy.

The ERB is expected to use accepted measures of performance such as publication number and impact to assess the Centre's contributions in comparison with those of (a) the Centre during the preceding 5 years and/or (b) with the performance of Centre's of similar size in the same field of research.

The recommendations of the ERB will include the renewal of the Director, and whether the Centre's performance is consistent with that of a joint Centre. Their report will be submitted in confidence to the GB via the Dean and Vice-President of the Faculty of Health Sciences and the

President of St. Joseph's Healthcare Hamilton. Normally, the Governing Board chair would share the ERB's report or major recommendations from the ERB's report with either the current Director, or the successor to the current Director, so that the leadership of the Centre benefits from the perspective of the ERB.

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Appendix 1. Research Approach.

The main components of our research will be:

- a. Clinical registries of patients followed at the West Fifth Campus: we have ongoing and long-term funded projects in the area of mood disorders, opiate addictions, early programming of mental disorders, autism, cannabis and alcohol use disorders, anxiety disorders, youth mental health and the Cleghorn centre for early intervention in Psychosis.
- b. Data from the clinical registries will be linked to the ICES platform using the resources and collaboration of Dr Benicio Frey and Dr. Flavio Kapczinski and the McMaster ICES team - Dr. Richard Perez and Lindsay Favotto (Figure 1).

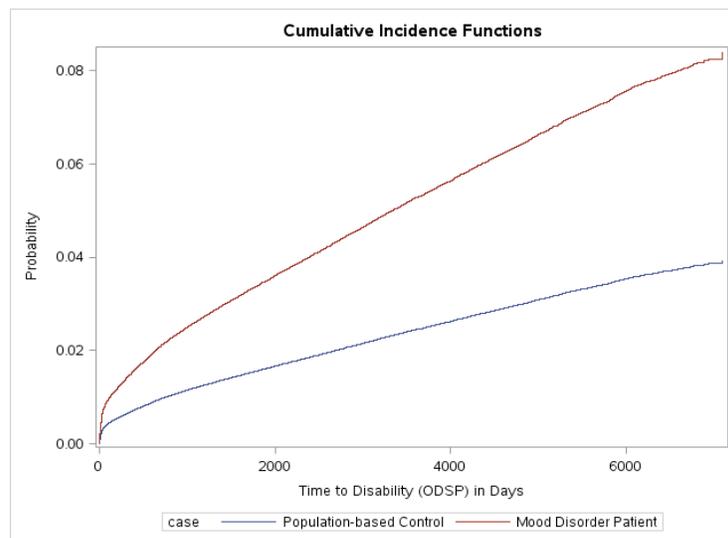


Figure 1. Cumulative incidence function of Ontario Disability Support Program (ODSP) among the specific mood disorder patients compared to birth and sex matched population-based controls, in Ontario between October 1, 1997 and March 31st, 2007 (N=139,148). Probability= probability of developing disability (ODSP). Preliminary data on file.

- c. Host and support the merger and multimodal analyses across different registries in the neuroinformatics platform Brain-CODE (www.braincode.ca), developed by Ontario Brain Institute (OBI) and the Indoc Consortium. Brain-CODE will provide data management systems and support to capture, monitor and curate multi-modal clinical, imaging and molecular data, and systems for harmonization, integration, query, and analysis across modalities. Raw and curated datasets, including metadata, from clinical and neuropsychiatric assessments, MRI sessions and biomarker assays will be periodically uploaded by trained personnel to REDCap (Harris et al, 2009), XNAT (Marcus et al, 2007), and LabKey (Nelson et al., 2011) systems, respectively, through a secure data portal hosted

on Brain-CODE. A standard fMRI QA process supported by Brain-CODE will be used based on the fBIRN phantom and pipeline software. Each imaging center will scan the phantom on a monthly basis and upload the raw data to XNAT. The fBIRN QA pipeline will process these data within 24 hours of upload, and generate a full QA report stored within the session. The phantom and QA procedures are more formally described in Friedman & Glover (2006), and Glover et al., (2012). Permission-controlled access to all data will allow investigators to work collaboratively to aggregate and prepare datasets for machine learning analyses and to share results. Brain-CODE will also enable future release of de-identified datasets to the broader scientific community.

- d. Implement in vitro studies with neuronal cellular models, such as induced pluripotent stem cells (iPSc), and human neurospheres (mini-brains) obtained from patients' cells to study, in a longitudinal way, biological pathways related to mental illnesses and screening for compounds that have potential therapeutic applications - in collaboration with Dr. Karun Singh, FHS. In addition, implement brain donation of patients followed at the West Fifth Campus in order to create a brain bank in CCN, as a long-term goal.
- e. Genetic analyses such as single nucleotide polymorphisms (SNPs), gene expression and whole-genome sequencing in samples from patients enrolled in funded longitudinal studies will be analyzed in order to identify molecular mechanisms potentially associated with psychiatric disorders. In this sense, we have investigated the transcriptional regulation in the brain using big data from gene expression datasets and applying gene network-based approaches by innovative bioinformatics analysis. We have shown that the regulatory unit of early growth response gene 3 (EGR3) is repressed in post-mortem prefrontal cortex of BD patients (Pfaffenseller et al., 2016; Figure 2). Considering that EGR3 is an immediate early gene that responds very rapidly to stress with the potential to translate environmental stimuli into long-term changes in brain, *a disruption in this biological pathway may impair neuronal plasticity, and ultimately the brain's ability to adapt to stress and new experiences, influencing the risk for mental disorders*. After identifying this network as a potential key target in psychiatry, our group has performed a follow-up experimental evaluation to understand the potential molecular players involved in the reduced neurobiological resilience seen in psychiatric patients.

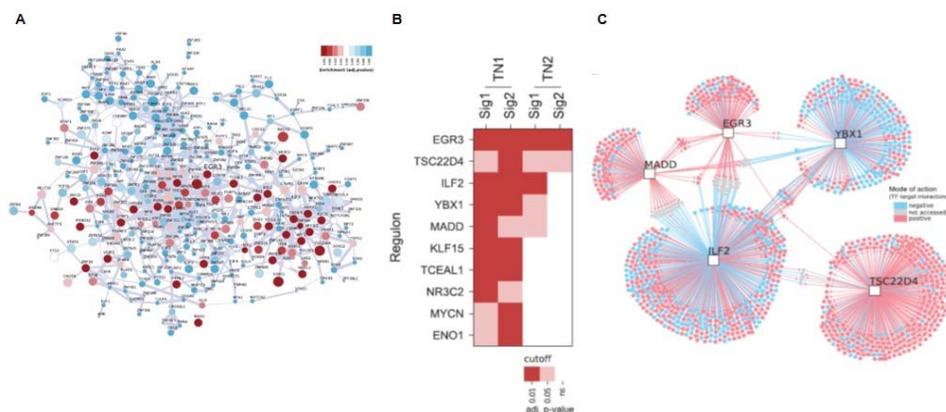


Figure 2. (A) A systems model of the human prefrontal transcriptional network, and the enrichment analysis using gene expression signature showing the distribution of the bipolar phenotype. (B) Consensus regulatory units (regulons) consistently enriched for two bipolar disorder signatures (Sig 1 and Sig 2). (C) Regulons associated with bipolar disorder. The regulatory network shows the transcription factor (square nodes) and its inferred targets (round nodes).

- f. The CCN will also enable protein analysis and analysis of samples of cellular/animal models for the assessment of molecular mechanisms underlying mental disorders and addictions. In this sense, the CCN will investigate neuropathological changes in brain tissue from human post-mortem samples collected in collaboration with the Department of Pathology and Molecular Medicine at General Hamilton Hospital; and in brain tissue from animal models assessed at the Central of Animal Facility at McMaster University. Moreover, in order to further understand the brain structure and function in patients with psychiatric disorders and addictions, the CCN will integrate biological data with neuroimaging and electroencephalogram (EEG) by means of big data analytics.
- g. Big datasets gathered at CCN (genetics, biomarkers, neuroimaging, and data from animal and cellular models) will be integrated and analysed using machine learning approaches, and risk calculators for unfavorable outcomes will be developed to help in clinical decision-making. In the past decade, there has been an explosion of computational and statistical techniques for analyzing multimodal data related to mental health disorders. That includes clinical, neuropsychological, neuroimaging, ‘omics’ and EEG. Consequently, a focus on the computational integration and analysis of complex sets of data is a key component in modern clinical neuroscience research. In this sense, recent cross-sectional studies from our group have shown that machine learning algorithms coupled with clinical data can predict key clinical outcomes in mental illness, at an individual level. We recently showed that the risk of suicide attempts can be predicted using clinical variables (Passos et al., 2016 - Figure 3), while data from our research network suggests that clinical variables can estimate functional impairment in psychiatric disorders with high accuracy (Pinto et al., in prep - Figure 4). We also showed that a model using brain imaging, support vector machine

and feature selection routines can potentially estimate functioning among psychiatric patients (Kapczinski et al, in prep). Using machine learning algorithms coupled with whole-brain scans, our group has also shown that psychiatric patients and controls can be differentiated (Mwangi et al., 2016 - Figure 5).

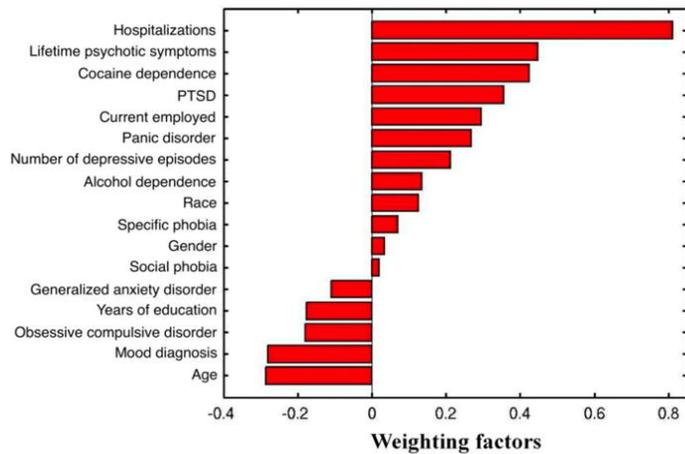


Figure 3. Bar graph showing weighting factors assigned to each clinical variable by relevance vector machine based on their relevance in distinguishing suicide attempters from non-attempters. Clinical variables which increase the probability of an individual patient being a suicide attempter were assigned positive weighting factors whilst those that decrease the probability of a patient being a suicide attempter were assigned negative weighting factors. PTSD= posttraumatic stress disorder.

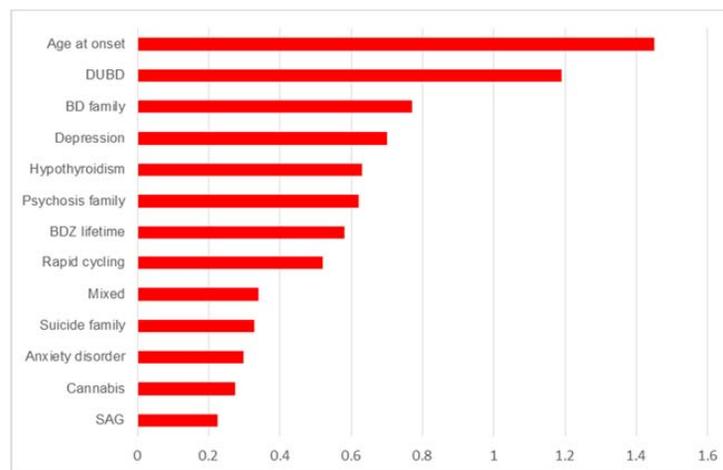


Figure 4. Bar graph showing factors based on their importance in differentiating patients with functional impairment from those without functional impairment. Anxiety: lifetime comorbid anxiety disorder; BD family: first-degree family history bipolar disorder; BZD lifetime: lifetime use of benzodiazepines; Cannabis: lifetime abuse or dependence of cannabis; Depression: type of first mood episode (depression); DUBD: duration of untreated bipolar disorder; hypothyroidism: lifetime hypothyroidism; mixed: type of first mood episode (mixed); Psychosis family: first-

degree family history psychotic disorder; Rapid cycling: presence of rapid cycling; SAH: systemic arterial hypertension; Suicide family: first-degree family history suicide attempts.

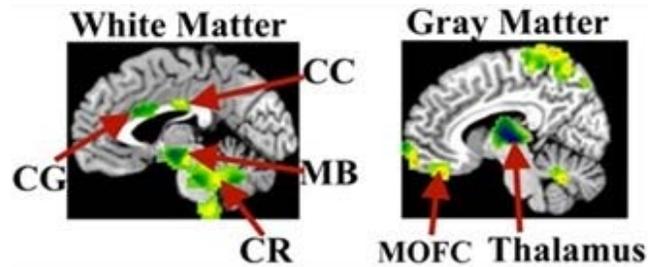


Figure 5. White matter brain regions identified during feature selection as most relevant in distinguishing patients with bipolar disorder from healthy control subjects. Gray matter regions most relevant in identifying patients with bipolar disorder from healthy control subjects. Green indicates anatomic regions with reduced gray/white matter density in patients with bipolar disorder compared with healthy control subjects. The cerebellum was used for post hoc tests because it reported the largest cluster size (391 voxels). White matter brain regions include cingulate gyrus (CG), corpus callosum (CC), midbrain (MB), and cerebellum (CR). Gray matter brain regions include medial orbitofrontal cortex (MOFC) and thalamus.

Appendix 2 - Budget

FHS, the Department of Psychiatry and to St. Joseph's Foundation / Research Institute have agreed to share these costs for the first three years, following which the Centre will-be self-sustaining.

	Year 1	Year 2	Year 3	Year 4	Year 5	Total	\$ Secured	\$ Anticipated	
OPENING BALANCE/CARRY FORWARD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
REVENUE - indicate secured or anticipated	Year 1	Year 2	Year 3	Year 4	Year 5	Total	\$ Secured	\$ Anticipated	
<i>Please ensure that any anticipated revenue from grant funding will only support costs eligible for that grant and note funding available for indirect or general operations.</i>									
St. Joseph's Healthcare Hamilton Foundation (SJHF)	\$ 35,000	\$ 70,000	\$ 70,000	\$ 35,000	\$ -	\$ 210,000	\$ 210,000		
Faculty of Health Sciences	\$ 35,000	\$ 70,000	\$ 70,000	\$ 35,000	\$ -	\$ 210,000	\$ 210,000		
Dept of Psychiatry	\$ 35,000	\$ 70,000	\$ 70,000	\$ 35,000	\$ -	\$ 210,000	\$ 210,000		
Research Grants				\$ 105,000	\$ 210,000	\$ 315,000		\$ 315,000	
TOTAL REVENUE	\$ 105,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 945,000	\$ 630,000	\$ 315,000	
EXPENSES	Year 1	Year 2	Year 3	Year 4	Year 5	Total			
Administrative Expenses: (add rows as required)									
Personnel (costs include benefits);	% FTE (yr 2)						\$ -		
Admin Assistant/Coordinator	0.5	\$ 16,750	\$ 33,500	\$ 33,500	\$ 33,500	\$ 33,500	\$ 150,750		
Lab Technician	0.5	\$ 10,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 90,000		
Research Laboratory Manager	1	\$ 35,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 315,000		
Research Scientist Manager	0.5	\$ 20,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 180,000		
Resarch Analyst Manager	0.5	\$ 20,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 180,000		
Equipment: Licensing/Software		\$ 2,500	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 22,500		
Data Archiving: Brain-CODE provided by the Ontario Brain Inst (OBI)		\$ 750	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 6,750		
Ongoing costs for space to be provided by St. Joseph's Health Care Hamilton							\$ -		
Total Administrative Expenses		\$ 105,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 945,000		
All other costs will be borne through the individual research programs of the members									
TOTAL EXPENSES		\$ 105,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 945,000		
IN-YEAR (Surplus/ Deficit)		\$ -							

APPENDIX 2

McMaster/St. Joseph's Centre for Clinical Neuroscience

	Year 1	Year 2	Year 3	Year 4	Year 5	Total	\$ Secured	\$ Anticipated
OPENING BALANCE/CARRY FORWARD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		

REVENUE - indicate secured or anticipated	Year 1	Year 2	Year 3	Year 4	Year 5	Total	\$ Secured	\$ Anticipated
<i>Please ensure that any anticipated revenue from grant funding will only support costs eligible for that grant and note funding available for indirect or general operations.</i>								
St. Joseph's Healthcare Hamilton Foundation (SJHF)	\$ 35,000	\$ 70,000	\$ 70,000	\$ 35,000	\$ -	\$ 210,000	\$ 210,000	
Faculty of Health Sciences	\$ 35,000	\$ 70,000	\$ 70,000	\$ 35,000	\$ -	\$ 210,000	\$ 210,000	
Dept of Psychiatry	\$ 35,000	\$ 70,000	\$ 70,000	\$ 35,000	\$ -	\$ 210,000	\$ 210,000	
Research Grants				\$ 105,000	\$ 210,000	\$ 315,000		\$ 315,000
TOTAL REVENUE	\$ 105,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 945,000	\$ 630,000	\$ 315,000

EXPENSES	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Administrative Expenses: (add rows as required)						
Personnel (costs include benefits); % FTE (yr 2)						\$ -
Admin Assistant/Coordinator	0.5	\$ 16,750	\$ 33,500	\$ 33,500	\$ 33,500	\$ 150,750
Lab Technician	0.5	\$ 10,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 90,000
Research Laboratory Manager	1	\$ 35,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 315,000
Research Scientist Manager	0.5	\$ 20,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 180,000
Resarch Analyst Manager	0.5	\$ 20,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 180,000
Equipment: Licensing/Software		\$ 2,500	\$ 5,000	\$ 5,000	\$ 5,000	\$ 22,500
Data Archiving: Brain-CODE provided by the Ontario Brain Inst (OBI)		\$ 750	\$ 1,500	\$ 1,500	\$ 1,500	\$ 6,750
Ongoing costs for space to be provided by St. Joseph's Health Care Hamilton						\$ -
Total Administrative Expenses		\$ 105,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 945,000

All other costs will be borne through the individual research programs of the members

TOTAL EXPENSES	\$ 105,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 210,000	\$ 945,000
IN-YEAR (Surplus/ Deficit)	\$ -					

DATE: January 8, 2020
TO: University Planning Committee
FROM: Karen Mossman, Acting Vice-President Research
RE: Establishment of "Guidelines for the Governance and Review of Core Research Platforms"



Research facilities and platforms are a pivotal part of the University's research infrastructure, providing resources that support and enhance ground-breaking research. Some of these are complex, highly technical and often expensive sets of specialized equipment and/or services that are shared by many researchers.

Pan-University consultation took place with the research community throughout 2019. Through this consultation phase input was sought broadly from McMaster's Associate Deans Research and from Directors, Managers and key personnel from many of McMaster's most complex research facilities. These discussions identified the need for guidelines for the governance and review of core research platforms critical to the University's mission and for a transparent mechanism for supporting research infrastructure. The guidelines which were developed will allow the University to be informed of the status, progress, and financial viability of these research organizations, leading to better decision making, including decisions regarding support and sustainability. In particular, the guidelines will help the university and research community to:

- Define and identify McMaster's "Core Research Platforms";
- Ensure appropriate governance for Platforms;
- Request University support for Platforms through a transparent process.

A University Research Infrastructure Oversight Board (the "Board") will be established to oversee effective acquisition, implementation, operation and maintenance of McMaster's research infrastructure. Terms of reference for the Board are attached for your information. Also attached for context is the draft companion document "*Applying and Reporting to the University Research Infrastructure Oversight Board*" which will be further refined following discussion by the Board.

The policy has been reviewed by the Provost and Vice-President Academic, Associate Vice-President Research, Deans and Associate Deans Research of McMaster's six Faculties and personnel from the University Secretariat.



Complete Policy Title:
**Guidelines for the Governance
and Review of Core Research
Platforms**

Policy Number (if applicable):

Approved by:
**University Planning Committee
Senate
Board of Governors**

Date of Most Recent Approval:

Date of Original Approval(s):

Supersedes/Amends Policy dated:

Responsible Executive:
Vice-President Research

Enquiries:
Office of the Vice President Research

DISCLAIMER: *If there is a Discrepancy between this electronic policy and the written copy held by the policy owner, the written copy prevails*

1. Preamble

Research facilities and platforms are a pivotal part of the University's research infrastructure, providing resources that support and enhance ground-breaking research. Some of these are complex, highly technical and often expensive sets of specialized equipment and/or services that are shared by many researchers. These Core Research Platforms provide all McMaster researchers access to the instrumentation and technical support to push forward discoveries that will shape the future of our nation and our world.

The University leadership, through the University Research Infrastructure Oversight Board, will encourage the development and use of Core Research Platforms by researchers throughout the University. The importance of the platforms will be evidenced by the identification and proposed use of Core Research Platforms in research grant requests submitted to granting agencies and foundations. The expectation is that, wherever possible, newly acquired research infrastructure will be placed within a Core Research Platform; justification for why such infrastructure should be located outside a platform must be made to the University Research Infrastructure Oversight Board. Core research platforms should, wherever appropriate, operate on a fee for service basis and be accessible by external entities.



Guidelines for the Governance and Review of Core Research Platforms

Normally, Core Research Platforms will be housed within established Institutes, Centers or Groups, or within Departments or Faculties. Accordingly, the governance (described below) of such platforms will be similar to that of Institutes, Centers or Groups, where a Dean or coalition of Deans will provide appropriate oversight. Regardless of the unit in which a platform is housed, it will be available to any McMaster researcher. There is an expectation that platforms will cooperate with each other and, wherever possible, collaborate.

2. Definition of Core Research Platforms

Core Research Platforms are designed to:

- provide all McMaster researchers access to infrastructure, services and expertise needed to advance the University's research mission;
- provide researchers with opportunities to extend the breadth of their research programs and integrate this research across disciplines;
- ensure the development and sustainability of equipment, facilities and entities for the future.

Core research platforms are intended to provide state-of-the-art infrastructure, services and technical expertise and to encourage new avenues of revenue generation through use by external academic, government and private sector users. Access by any user must be compliant with the operational rules of the platform (e.g. access restricted to those with appropriate training, commitment to pay the user fees, and, for infrastructure funded by a granting agency, priority access for the research described in the funding proposal).

Described within this document are criteria for Core Research Platforms. Core Research Platforms may be eligible to receive support from the University as overseen by the University Research Infrastructure Oversight Board. It is recognized that not all infrastructure at McMaster will sit within a defined Core Research Platform.

Criteria for Recognition as a Core Research Platform:

It is recognized that many research facilities and platforms exist at McMaster University. Key criteria for recognition as a Core Research Platform are listed below.

- Must have multiple users;
- Must be accessible to all potential McMaster users, including on a fee-for-service basis, as appropriate for that facility;
- Must not have more than 80% usage arising from a single faculty member;
- Should be able to demonstrate how the platform supports the Research Strategic Plan;
- Should support both research and training of research personnel including students.

Proposals for recognition as a Core Research Platform will be submitted to the University Research Infrastructure Oversight Board by the appropriate Dean or coalition of Deans. For proposal detail please see companion document "*Applying and Reporting to the University Research Infrastructure Oversight Board*"



The University Research Infrastructure Oversight Board may from time to time determine that a facility no longer meets the criteria required to be a “core research platform”.

3. Governance and Review of Core Research Platforms:

The University must be informed of the status, progress, and financial viability of the research organizations which carry out its strategic interests. As such the University’s Core Research Platforms must adhere to general practices of good governance with reporting structures which ultimately inform the VPR, relevant Deans and Associate Deans Research and the University Planning Committee as to their activities and financial standing.

Each platform will require a Director to oversee the purpose and direction of the platform. The Director will be a McMaster faculty member who will establish an Advisory Committee to provide advice to the Director with regard to priorities and directions for the platform. The Director may decide to strike other committees such as a Users Group who could provide input on user’s needs.

Each platform will require an appropriately qualified Manager to oversee its day-to-day activity and management. The Manager will be a permanent or contract full time or regular part time employee of the University. In cases where the platform is small, the Director and Manager may be the same person.

Reporting requirements

Annual reporting will provide the University with information needed for strategic planning and decision making. The Director will provide a report to the appropriate Dean or coalition of Deans who, in turn, will provide the Director’s report, and the Dean’s response to the report, to the University Research Infrastructure Oversight Board. The Board will submit a summary of the reports, along with their comments, suggestions and decisions to the VPR who will report to the University Planning Committee for information. Reports will be provided, at minimum, annually. For reporting requirements please see companion document “*Applying and Reporting to the University Research Infrastructure Oversight Board*”

External funding sources such as research grants will continue to be the first option for funding research infrastructure and operations. Requests for new or additional central university funding in support of renewal of research equipment or certain operational needs such as technical support, where required, may be made as part of the annual reporting process to the University Research Infrastructure Oversight Board. The Board will make decisions on funding for renewal of research equipment or certain operational needs, where required.

4. Financial Matters

All Institutes, Centres and Groups are expected to adhere to the University’s financial policies and procedures as established or amended from time to time.

McMaster Research Infrastructure Oversight Board

DRAFT Terms of Reference

1. Purpose

The mandate of the McMaster Research Infrastructure Oversight Board (“the Board”) is to oversee effective acquisition, implementation, operation and maintenance of McMaster’s research infrastructure.

McMaster recognizes that access to specialized research equipment and technical expertise is essential to advancing basic research and competing on the world’s research stage. Across our campus—from department-based laboratories to suites of equipment housed within centres and institutes to state-of-the-art national research facilities—research infrastructure provides our researchers the cutting-edge methods and tools required to impact their fields of research and enhance Canada’s national research landscape. Suites of research infrastructure are often complex and highly technical sets of specialized equipment and/or services that are shared by many researchers. Increasingly these form “Core Research Platforms” which provide all McMaster researchers access to the instrumentation and technical support to push forward discoveries that will shape the future of our nation and our world.

The University leadership, through the University Research Infrastructure Oversight Board, will encourage the development and use of Core Research Platforms by researchers throughout the University. Core Research Platforms will be managed in accordance with the following principles:

- Funding of Core Research Platforms will be managed and adjudicated with clear and transparent processes to access funding;
- Requests for investments from the University should be tied to the University’s Research Strategic Plan;
- Management and reporting of the funds should be strategic and transparent;
- Support for Research Platforms should benefit all Faculties in a clear and equitable fashion and should be in accordance with need.

2. Membership

Official members of the Board will be;

- Vice-President, Research
- Associate Vice-President, Research
- Vice-Dean, Research

- Associate Dean Research or Associate Deans Graduate Studies and Research from each of McMaster’s six Faculties.

The Chair of the Board shall be the Vice-President Research.

The Vice-Chair of the Board shall be the Associate Vice-President Research.

The Board will be supported by the Assistant Vice-President Research Administration and the Director, Research Platforms Support.

3. Meetings:

Meetings will be organized by the Office of the Vice-President, Research. It is anticipated that there will be two meetings/per year at minimum.

The Chair may invite guests to attend meetings as required. Members may recommend the invitation of guests to the Chair.

Any Member may propose an in-camera session of the Board.

Delegates are not permitted.

4. Responsibilities:

The primary responsibilities of the University Research Infrastructure Oversight Board are:

- (a) Receive applications for recognition of a research facility as a Core Research Platform; approve recognition for facilities meeting the criteria outlined in McMaster’s **Guidelines for the Governance and Review of Core Research Platforms**;
- (b) Determine when, as appropriate, a facility no longer meets the criteria required to be a Core research Platform;
- (c) Participate in the process for requesting support from funding agencies for major research infrastructure acquisition, operations and maintenance;
- (d) Oversee, adjudicate and approve requests for university support for renewal of research equipment;
- (e) Oversee the process for allocating university resources, including CFI IOF funding, in support of operation and maintenance of research infrastructure;

- (f) Develop and regularly review guidelines on the nature of research structure expected to be housed in Core Research Platforms
- (g) Review and approve or deny requests to locate research infrastructure outside of a core research platform;
- (h) Review annual reports submitted by core research platforms. Submit a summary of reports, along with the Board's comments, suggestions and decisions to the Vice-President Research.

Members of the University Research Infrastructure Oversight Board shall:

- (a) attend and actively participate in the meetings;
- (b) transact such business as is placed on its agenda;
- (c) provide the agenda and the minutes of its meetings to key stakeholders, including Faculty Deans;
- (d) reinforce that external funding sources such as research grants will continue to be the first option for funding acquisition, operation and maintenance of research infrastructure.

Members of the Board shall expect:

- (a) that each member will be provided with complete, accurate and meaningful information in a timely manner;
- (b) to participate in open, honest and respectful discussions;
- (c) to be given reasonable time to discuss key items

5. Quorum

Five members of the Board shall constitute a quorum.

6. Decision Making

Members shall have voting rights. Each member shall be entitled to one (1) vote. The result of a vote shall be decided by a majority of votes of the members present at the meeting. Any motion resulting in a tie vote shall be deemed to have been defeated. Voting by proxy is not permissible.

7. Minutes

Minutes will be taken at each meeting and shall be approved at subsequent meetings.

Terms of reference for the University Research Infrastructure Oversight Board may be amended, varied or modified in writing after consultation and agreement by the members of the Board.

DRAFT - This document will be a companion to “Guidelines for the Governance and Review of Core Research Platforms” and will assist the research community in applying and reporting to the University Research Infrastructure Oversight Board, a new Board to be established in the new year. The Board will determine the needs for facilities applying to be recognized as a core research platform and for annual reporting. This document is DRAFT and is provided for context only. Templates to support applying and reporting will also be developed, in discussion by the Board.

Core Research Platforms

Applying and Reporting to the University Research Infrastructure Oversight Board

Purpose: The purpose of this document is to assist with the preparation of documentation for submission to the University Research Infrastructure Oversight Board. It acts as a companion to the “**Guidelines for the Governance and Review of Core Research Platforms**”

Seeking Recognition as a Core Research Platform:

Key criteria for recognition as a Core Research Platform are listed below.

- Must have multiple users;
- Must be accessible to all potential McMaster users, including on a fee-for-service basis, as appropriate for that facility;
- Must not have more than 80% usage arising from a single faculty member;
- Should be able to demonstrate how the platform supports the Research Strategic Plan;
- Should support both research and training of research personnel including students

Core Research Platforms may be eligible to receive support from the central University as overseen by the University Research Infrastructure Oversight Board.

A proposal for recognition as a Core Research Platform will be submitted to the University Research Infrastructure Oversight Board by the Dean or coalition of Deans who oversee the facility. The Proposal should be submitted using the *University’s Application for Recognition as a Core Research Platforms Template*. It is anticipated that requirements will include the following:

- The name and objectives of the facility;
- A list of users and their affiliations;
- Description of organizational structure;
- List of research equipment,
- Costs and resources for operating and maintaining the facility, including:
 - Warranties or service contracts



- Renewal of research equipment;
- Consumables and space;
- Software used for booking, billing and measurement of usage;
- Dedicated technical and administrative personnel
- Fee schedule (both internal and external) with explanation and rationale of how fees have been determined. Fees schedule should be comparable to other entities or facilities, the intention is not to undercut or damage operations of existing entities or facilities.
- Members of advisory committee;
- Metrics to measure usage and effectiveness of facility and a description of how they are collected, determined and analyzed.

Reporting Requirements:

The Director will provide a report to the appropriate Dean or coalition of Deans on an annual basis at minimum. Reports will be reviewed by the University Research Infrastructure Oversight Board.

External funding sources such as research grants will continue to be the first option for funding research infrastructure and certain operations. Requests for new or additional central university funding in support of renewal of research equipment or certain operational needs, where needed, may be made as part of the annual reporting process to the University Research Infrastructure Oversight Board. The Board will make decisions on funding for renewal of research equipment or certain operational needs, where required.

The Report should be submitted using the *University’s Core Research Platforms Report Template*. It is anticipated that the report is likely to include:

- Demonstration that the entity met the needs of the research community at large as outlined in its annual plan.
- Summary report of meetings of the Advisory Committee and any resulting directions or plans.
- Annual report of metrics and achievements including any annual user surveys
- Up to date data base of users, income and expenditures
- Financial information for the current year with any explanation of significant variance, budget for upcoming year and quantification and plans for any reserves. Include both expenses and sources of funds.
- A three-year rolling plan that describes proposed changes to important operations, regulations and acquisition and disposal of equipment. Disposal of equipment will follow [McMaster’s policy on Capital Assets \(Tracking and Disposition\)](#)
- Up to date fee schedule (internal and external) with explanation and rationale for both changes and maintenance of existing fees
- Objectives for the upcoming year
- Requests for university support for renewal of research equipment or certain operational needs, where required.



REPORT TO THE BOARD OF GOVERNORS
from the
PLANNING AND RESOURCES COMMITTEE

a. Hourly Pension Plan Actuarial Valuations

At its meeting on February 13, 2020, the Planning and Resources Committee approved, on the recommendation of the Pension Trust Committee, the actuarial funding valuation for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including Divinity College (“Hourly Plan”).

It is now recommended,

That the Board of Governors approve the results of the Actuarial Valuation for Funding Purposes as at July 1, 2019 for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including McMaster Divinity College be filed with the Financial Services Regulatory Authority and the Canada Revenue Agency.

b. Debt Management Policy

At the same meeting, the Planning and Resources Committee approved a revised Debt Management Policy.

It is now recommended,

that the Board of Governors approve the revised Debt Management Policy as shown in the attachment.

Board of Governors: FOR APPROVAL
March 5, 2020



Deidre ("Dee") L. Henne
AVP (Administration) & CFO

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January 28, 2020

To: Planning and Resources Committee
From: AVP (Administration) & CFO,
Treasurer
Subject: **2019 Hourly Pension Plan Valuation**

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, 2019 for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including McMaster Divinity College be filed with the Financial Services Regulatory Authority and the Canada Revenue Agency.

Background: The Ontario Pension Benefits Act and its Regulations requires McMaster University to submit an actuarial funding valuation for the Contributory Pension Plan for Hourly-Rated Employees of McMaster University Including Divinity College ("Hourly Plan"). To meet the legislative filing requirements, the actuarial valuation as at July 1, 2019 must be filed with Financial Services Regulatory Authority (FSRA) and Canada Revenue Agency (CRA) by **March 31, 2020**. On April 18, 2018, the Ontario Ministry of Finance announced the finalization of Regulation 250/18 of the Pension Benefit Act ("Pension Regulations"), which included the new funding rules for single-employer pension plans registered in Ontario and ceased broader public sector solvency funding relief measures ("BPS Funding Relief"). The new rules require plans with solvency ratios below 85% to file annual actuarial valuations and any solvency deficiency under 85% must be funded over five years.

The valuation for the Hourly Plan has been prepared by our actuary, Mercer, and reviewed by Management to ensure that the assumptions approved at the Hourly Pension Committee have been incorporated into the valuation. In addition, management reviewed that the underlying data provided by Human Resources regarding plan members is accurate and appropriate, and the summary of plan provisions is accurate. The draft valuation report for the Hourly Plan was reviewed and approved by the Hourly Pension Committee at the January 28, 2020 meeting. The valuation assumptions were reviewed and approved by the Hourly Pension Committee at the November 13, 2019 meeting. The summary and detailed valuation results for the Hourly Plan are attached to this memo as Appendix A. Mercer Presentation – Summary of Valuation Report for Hourly Plan and, Appendix B. Actuarial Valuation – Hourly Plan.

Alignment with University Strategy: The preparation and filing of Hourly Plan Valuation is aligned with meeting regulatory requirements.

Financial Implications: The Hourly Plan valuation as at July 1, 2019 improved on both a going concern funded ratio and solvency ratio basis. Despite these improvements, the July 1, 2019 solvency ratio is below 85% requiring McMaster to make special payments over five years to eliminate the portion of the solvency deficiency under 85%.

McMaster has elected to make a one-time special payment of \$4.7 million to fund the solvency deficiency to achieve an 85% solvency funded ratio, based on the July 1, 2019 valuation. McMaster will issue this payment by March 31, 2020 to further reduce payments to the Pension Benefits Guarantee Fund (PBGF), reducing the levy by approximately 37% (or approximately \$100 thousand). This upfront payment will likely position, subject to market conditions, the Hourly Plan at the 85% or greater solvency ratio threshold for the next valuation as at July 1, 2020.

Planning and Resources Committee – FOR APPROVAL
February 13, 2020

Thereafter, McMaster may resume a triennial valuation schedule, saving valuation costs of approximately \$35,000 annually and administrative burden. The upfront payment will be made from the McMaster Benefits Reserve, which was established to manage both the benefit cash flows and to take advantage of opportunities to manage and/or reduce future costs of benefits to the University wherever possible.

Important Considerations: Management concludes that the funding requirements associated with the updated Hourly Plan valuation are manageable. Relative to the July 1, 2016 valuation, the updated valuation results in lower required special payments, but higher total annual funding requirements over the next three-years due to the application of the new funding rules requiring McMaster to fund a Provision for Adverse Deviations (PfAD). The following summarizes the University's Hourly Plan valuation funding status at July 1, 2019:

- The Hourly Plan's going concern surplus improved to \$3.3 million (before PfAD) from \$1.6 million at July 1, 2016. After the new PfAD, the going concern shortfall is \$3.0 million.
- The going concern surplus (before PfAD) improved due to stronger investment returns relative to the growth in liabilities and the University's special payment funding since the last valuation.
- Based on the updated assumptions, the Hourly Plan solvency deficit decreased to \$16.6 million versus \$20.4 million at July 1, 2016. The improvement is primarily attributable to the stronger investment performance and the University's special payment funding since the last valuation.
- The University's current service cost (inclusive of PfAD) as a percentage of employee contributions increased from 138% to 156%. The increased employer ratio is due primarily to the PfAD and aging active membership (since plan is closed to new entrants), which is only partially offset by increased member contributions for certain groups.
- The minimum required special payment in 2019/20 is \$0.7 million (compared to \$1.2 million for 2018/2019).
- The estimated minimum total annual funding requirement (University's current service cost and special payments) is \$1.5 million in 2019/20, increasing to \$1.9 million in 2020/21.
- The annual PBGF fee for 2020 declines to \$0.2 million (before consideration of any advance special payment funding), from approximately \$0.3 million paid in 2019. The PBGF fee for 2020 will be reduced further to \$0.1 million if the advanced special payment funding of \$4.7 million is made by March 31, 2020.

Major risks: Hourly Pension Plan valuation contain material misstatements.

Mitigating factors identified: Mercer and Management have reviewed the Hourly Plan Valuation.

Prepared By: Steven Moore, Treasurer, Financial Affairs

Reviewed by: Deidre (Dee) Henne, AVP (Administration) & CFO, Financial Affairs

Planning and Resources Committee – FOR APPROVAL
February 13, 2020

**Appendix A. Mercer Presentation – Summary of Valuation Report
For Hourly Plan**

Planning and Resources Committee – FOR APPROVAL
February 13, 2020

HEALTH WEALTH CAREER

PRELIMINARY JULY 1, 2019 FUNDING VALUATION RESULTS

MCMASTER HOURLY PENSION COMMITTEE MEETING

JANUARY 28, 2020

Chad Spence, FSA, FCIA
Bill Watson, FSA, FCIA

MAKE TOMORROW, TODAY  **MERCER**

AGENDA

Preliminary July 1, 2019 Funding Valuation Results

- Overview
- Valuation results
- Next steps
- Appendix
 - Assumptions
 - Membership reconciliation

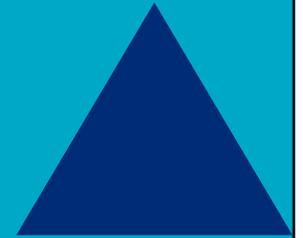
OVERVIEW

- The last filed valuation for the Hourly Plan was as at July 1, 2016 and incorporated the temporary funding relief measures for broader public sector (“BPS”) pension plans.
 - Under the relief, the next required valuation date was three years later
- A funding valuation of the Hourly Plan is required as at July 1, 2019
 - New pension funding legislation introduced in 2018 applies
 - Temporary BPS funding relief measures have been discontinued
- Filing deadline for the July 1, 2019 funding report is March 31, 2020
- This document outlines the July 1, 2019 preliminary valuation results, based on the funding assumptions approved by the Hourly Pension Committee on November 13th

VALUATION HIGHLIGHTS

- The funded status of the Hourly Plan improved as at July 1, 2019
 - The going concern funded ratio has increased from 103% to 106%
 - The solvency ratio increased from 72% to 79%
- The July 1, 2019 valuation revealed:
 - Annual special payment contributions starting July 1, 2020 has reduced slightly to \$1.1 million vs \$1.2 million required under prior valuation
 - University current service cost increases to 156% of member contributions from 138% under prior valuation
- Since the Hourly Plan's solvency ratio remains below 85%, McMaster must resume annual valuations (exemption from annual valuations allowed under BPS funding relief has now expired)
 - Next valuation is required as at July 1, 2020
 - An additional amount of \$4.7 million would have been required in order for the plan to reach 85% solvency ratio at July 1, 2019

PRELIMINARY VALUATION RESULTS AS AT JULY 1, 2019



THE FUNDING VALUATION MEASURES

HOW THE PLAN IS MEETING ITS OBJECTIVES



GOING CONCERN

“Long-term view”
of the plan

- Concerned with sustainability and inter-generational equity
- Determines level of current service cost contributions
- Actuary’s best estimate assumptions



HYPOTHETICAL WIND-UP/ SOLVENCY

“Short-term view”
of the plan

- Complements long-term view with focus on *security* of accrued benefits
- Prescribed assumptions

ONTARIO PENSION FUNDING REFORM RECAP



Going-Concern Funding

Strengthened going-concern funding:

- Best estimate discount rate¹
- New funded Provision for Adverse Deviation (PfAD)² applied to going-concern liabilities and current service cost
- 10 year amortization of deficits



Solvency Funding

Reduced solvency funding:

- Funding only required to improve solvency status to 85%
- 5 year amortization of any deficit below 85%
- Greater Pension Benefit Guarantee Fund (PBGF) coverage with significantly higher PBGF premiums (almost 2 times under the new rules)

¹ The discount rate is used to determine the actuarial value of the pension benefits

² PfAD is an extra reserve to protect the plan

**PRELIMINARY VALUATION RESULTS –
GOING CONCERN
AS AT JULY 1, 2019 (\$000'S)**

Funded Position	July 1, 2019	July 1, 2016
Going concern (smoothed) assets	\$60,925	\$53,452
Going concern liability	<u>\$57,586</u>	<u>\$51,871</u>
Going concern excess (before PfAD)	\$3,339	\$1,581
PfAD in respect of going concern liability	<u>\$6,324</u>	<u>N/A</u>
Going concern unfunded liability (after PfAD)	(\$2,985)	\$1,581
Going concern funded ratio ¹	106%	103%

¹ Going concern funded ratio excludes the PfAD. It is defined as the ratio of the going concern assets to the going concern liability.

RECONCILIATION OF GOING CONCERN POSITION (\$000'S)

Reconciliation	
Going concern excess at previous valuation	\$1,581
Interest on funding excess	\$250
Employer's special payments	\$2,985
Expected funding excess	\$4,816
Net investment return	\$2,088
Indexation	(\$1,076)
Assumption changes ¹	(\$1,543)
Impact of higher member contribution balances on excess cost sharing	(\$588)
Plan amendments to increase member contribution rates	(\$181)
Inclusion of PfAD in respect of going concern liability	(\$6,324)
Net impact of other elements of gains and losses	(\$177)
Going concern excess (shortfall) at current valuation	(\$2,985)

¹ The most significant impact is the change in net discount rate from 5.00% to 4.75%. Complete list of assumptions shown on slide 14.

PRELIMINARY RESULTS – SOLVENCY/WIND-UP AS AT JULY 1, 2019 (\$ 000'S)

Funded Position	July 1, 2019	July 1, 2016
Wind-up assets	\$61,361	\$52,761
Total wind-up liability	<u>\$77,925</u>	<u>\$73,210</u>
Wind-up excess (shortfall)	(\$16,564)	(\$20,449)
Solvency Ratio	79%	72%

FUNDING REQUIREMENTS AS AT JULY 1, 2019 (\$ 000'S)

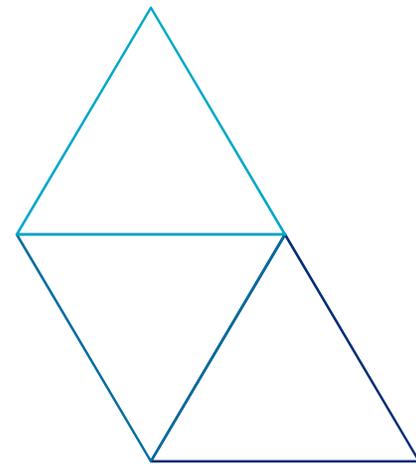
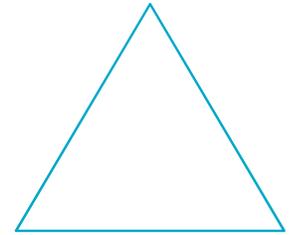
Contributions in year following valuation	2019/2020
Estimated Member contributions	\$490
McMaster contribution	
- University current service cost (before PfAD)	\$639
- PfAD in respect of current service cost ¹	\$124
- McMaster current service cost plus PfAD	\$763
- Minimum annual special payments ²	\$730 ²
Total Minimum McMaster contribution	\$1,493

In addition to the contributions shown above, McMaster will need to pay the Pension Benefits Guarantee Fund Assessment for Plan Year 2019/2020 of approximately \$200,000 before March 31, 2020.

¹ PfAD of 11% load on total (University plus member) current service cost

² Minimum special payments increase to \$1.1 million annually starting on July 1, 2020 .

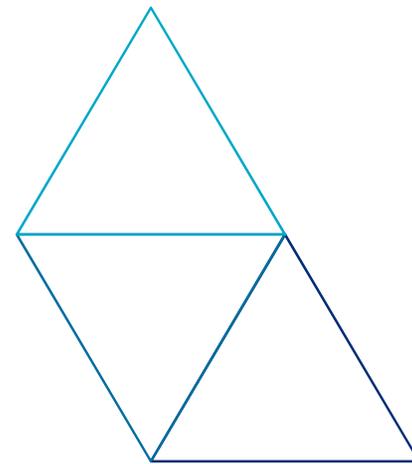
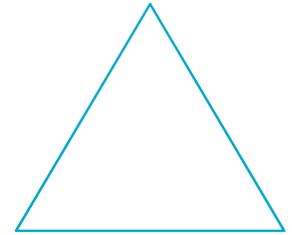
NEXT STEPS



JULY 1, 2019 FUNDING VALUATION NEXT STEPS

- Approval of draft valuation report by Hourly Pension Committee on January 28th
- Approval of valuation report by Planning Resources Committee on February 13th
- Approval of valuation report by Board of Governors on March 5th
- FSRA filing of valuation report by no later than March 31st
- Contribution adjustments to reflect new filed valuation reports
 - Must be completed within 60 days of filing report, May 31st

APPENDIX



GOING-CONCERN KEY ASSUMPTIONS

	July 1, 2019	July 1, 2016
Best estimate discount rate	4.75% per year	5.25% per year
Margin for Adverse Deviation (MAD)	N/A	0.25%
Discount rate (net of MAD)	4.75% per year	5.00% per year
Post-retirement indexation	0.33% on 1.1.2020, 0% thereafter ¹	0.0%
YMPE/ maximum pension limit	3.0% per year	2.5% per year
Return on member contributions	4.75% per year	5.00% per year
Salary escalation	3.25% per year	3.25% per year
Asset valuation	Smoothed value	Smoothed value
Retirement age	20% when first eligible for an unreduced pension, 100% at age 64	20% when first eligible for an unreduced pension, 100% at age 64
Mortality	Base Table: 115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)	Base Table: 115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)
Mortality improvement scale	CPM Improvement Scale B (CPM-B)	CPM Improvement Scale B (CPM-B)

Items in bold have changed since the July 1, 2016 Valuation

¹ 0.33% increase on January 1, 2020 represents the actual indexation that was granted

HYPOTHETICAL WIND-UP/SOLVENCY ASSUMPTIONS

SUMMARY OF KEY ASSUMPTIONS

	JULY 1, 2019	JULY 1, 2016
BENEFITS SETTLED THROUGH LUMP SUM		
Interest rate	2.3% per year for 10 years, 2.8% per year thereafter	1.7% p.a. for 10 years, 3.1% p.a. thereafter
Mortality	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B
Settlement option	70% of non-retired members under age 55, and 50% of non-retired members age 55 and over	70% of non-retired members under age 55, and 50% of non-retired members age 55 and over
BENEFITS SETTLED THROUGH ANNUITY PURCHASE		
Interest rate	2.66% per year for both plans	2.76% per year
Mortality	100% of the rates of the 2014 Canadian Pensioners Public Sector Mortality Table (CPM2014Publ) with fully generational improvements using CPM Scale B	100% of the rates of the 2014 Canadian Pensioners Public Sector Mortality Table (CPM2014Publ) with fully generational improvements using CPM Scale B
Settlement option	All remaining members are assumed to elect to receive their benefit entitlement in the form of a deferred or immediate pension.	All remaining members are assumed to elect to receive their benefit entitlement in the form of a deferred or immediate pension.
OTHER ASSUMPTIONS		
Wind-up expenses	\$180,000	\$150,000

Items in bold have changed since the July 1, 2016 Valuation

MEMBERSHIP RECONCILIATION

	Active Members	Suspended	Pending	Deferred Pensioners	Pensioners and Survivors	Total
Total at 01.07.2016	178	0	1	58	290	527
Rehire	1			(1)		-
Terminations						
• Transfers/refunds	(5)		(1)	(1)		(7)
• Deferred pensions	(4)			4		-
Suspended	(1)	4		(3)		-
Deaths	(2)				(33)	(35)
Retirements	(22)			(2)	24	-
New beneficiary				(1)	11	10
Data corrections				(3)		(3)
Total at 01.07.2019	145	4	0	51	292	492

IMPORTANT NOTICES

Mercer has prepared this report exclusively for McMaster to present results of July 1, 2019 funding valuations of The Contributory Pension Plan for Hourly-Rate Employees of McMaster University Including McMaster Divinity College. This report may not be used or relied upon by any other party or for any other purpose; Mercer is not responsible for the consequences of any such other use. Its content 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.

The results presented herein are preliminary and subject to change. This report is not a substitute for a formal valuation report.

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 preliminary valuation, but only after careful consideration of alternative economic, financial, demographic and societal factors, including financial scenarios that assume future sustained investment losses.

McMaster is responsible for selecting the plan's funding policy (including margins, if any, for adverse deviations in the going concern valuation), the actuarial and asset valuation methods in the going concern valuation, and other methodologies permitted by legislation for the solvency valuation.

The actuarial assumptions used in the going concern valuation reflect the actuary's best estimate. McMaster is responsible for reviewing the going concern valuation assumptions referenced and advising Mercer as to any information it deems worthy of consideration in the determination of such assumptions.

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.

IMPORTANT NOTICES (CONT'D)

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 assumptions used for the valuation are described in the Appendix of this report.

Mercer has used and relied on the membership data as supplied by McMaster. 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. Statistics on, reconciliation of and distribution of the membership data are provided in the year-end reconciliation files.

Mercer has used and relied on the plan documents, including amendments, and interpretations of plan provisions, supplied by McMaster. 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. There were no changes made to the plan provisions since the previous valuation

We used draft financial data as of the valuation date without further audit. Customarily, this information would not be verified by a plan's actuary. We have reviewed the information for internal consistency and general reasonableness.

Funding calculations reflect our understanding of the requirements of Ontario's legislation, the Income Tax Act and related regulations that are effective as of the valuation date. Mercer is not a law firm, and this analysis 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 document and any attachments.

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



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Appendix B. Actuarial Valuation Report – Hourly Plan

Planning and Resources Committee – FOR APPROVAL
February 13, 2020

HEALTH WEALTH CAREER

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, 2019

DRAFT – JANUARY 2020

Financial Services Regulatory Authority 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, and the sensitivity to three adverse scenarios. 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 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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1

SUMMARY OF RESULTS (\$000'S)

	01.07.2019	01.07.2016
Going Concern Financial Status		
Smoothed value of assets	\$60,925	\$53,452
Going concern funding liabilities	\$57,586	\$51,871
Provision for adverse deviations in respect of the going concern liabilities	\$6,324	N/A
Funding excess (shortfall)	(\$2,985)	\$1,581
Hypothetical Wind-up Financial Position		
Wind-up assets	\$61,361	\$52,761
Wind-up liability	\$77,925	\$73,210
Wind-up excess (shortfall)	(\$16,564)	(\$20,449)
Wind-up ratio	79%	72%
Funding Requirements in the Year Following the Valuation ¹		
Total current service cost	\$1,129	\$1,262
Estimated members' required contributions	(\$490)	(\$531)
Estimated employer's current service cost	\$639	\$731
Provision for adverse deviations in respect of current service cost	\$124	N/A
Total	\$763	\$731

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.

	01.07.2019	01.07.2016
Employer's current service cost and provision for adverse deviations in respect of the current service cost expressed as a percentage of members' required contributions	156%	138%
Minimum special payments ²		
Year 1	\$730	\$371
Year 2	\$1,121	\$1,184
Year 3	\$1,121	\$1,184
Estimated minimum employer contribution		
Year 1	\$1,493	\$1,102
Year 2	\$1,884	\$1,843
Year 3	\$1,884	\$1,777
Estimated maximum eligible employer contribution	\$17,327	\$21,180
Next required valuation date	July 1, 2020	July 1, 2019

² Each Plan Year following the respective valuation date.

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INTRODUCTION

TO MCMASTER UNIVERSITY

At the request of McMaster 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 McMaster University (the “University”), as at the valuation date, July 1, 2019. We are pleased to present the results of the valuation.

PURPOSE

The purpose of this valuation is to determine:

- The funded status of the Plan as at July 1, 2019 on going concern, hypothetical wind-up, and solvency bases;
- The minimum required funding contributions from July 1, 2019, in accordance with the *Pension Benefits Act of Ontario* (the “Act”); and
- The maximum permissible funding contributions from July 1, 2019, in accordance with the *Income Tax Act*.

The information contained in this report was prepared for the internal use of the University, and for filing with the Financial Services Regulatory Authority 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 Regulatory Authority 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, 2020, or as at the date of an earlier amendment to the Plan.

TERMS OF ENGAGEMENT

In accordance with our terms of engagement with the McMaster 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 in Canada.

- We have reflected the McMaster University's decisions for determining the solvency funding requirements, summarized as follows:
 - The same plan wind-up scenario was hypothesized for 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.

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

EVENTS SINCE THE LAST VALUATION AT JULY 1, 2016

Pension Plan

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

This valuation reflects the provisions of the Plan as at July 1, 2019. The Plan has been amended since the date of the previous valuation to increase required contributions for various employee classes as a result of recent negotiations. The Plan text was restated effective January 1, 2019 to incorporate these and other amendments since the last statement of the Plan and to incorporate legislative changes and to make other housekeeping changes. All amendments have been reflected in this valuation. We are aware of one amendment coming into effect during the period covered by this report; however, it has no impact on this valuation. 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:

	CURRENT VALUATION	PREVIOUS VALUATION
Discount rate:	4.75%	5.00%
ITA limit / YMPE increases:	3.00%	2.50%
Post-retirement pension increases:	0.33% starting January 1, 2020, 0.00% per year thereafter	0.00%
Interest on employee contributions:	4.75%	5.00%

A summary of the going concern methods and assumptions is provided in Appendix C.

The hypothetical wind-up and solvency assumptions have been updated to reflect market conditions at the valuation date. A summary of the hypothetical wind-up and solvency methods and assumptions is provided in Appendix D.

Regulatory Environment and Actuarial Standards

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

On December 14, 2017, Bill 177, Stronger, Fairer Ontario Act, 2017 received Royal Assent. Bill 177 contained amendments to the Act to enable the new funding framework as previously announced by the Government of Ontario in May 2017. The new funding framework changed minimum funding requirements from both a going concern and solvency perspective. The regulations to the Act supporting the new funding rules were published on April 20, 2018 with effect from May 1, 2018. Valuation reports with effect on or after December 31, 2017 that are filed on or after May 1, 2018 reflect the new rules. The amended regulations also allow for a transition from the funding rules that applied immediately before May 1, 2018 to the new funding rules over a three-year phase-in period starting in the first year following the valuation date of this report.

The funding relief measures that were introduced for pension plans in the broader public sector have also been amended. In general, the new funding framework applies for valuation dates on and after December 31, 2017 to broader public sector pension plans that received solvency funding relief. However, for these plans, the additional restrictions on funding of benefit improvements and contribution holidays contained in the solvency funding relief rules that apply for a prescribed period have been retained. McMaster had elected to apply the broader public sector solvency funding relief measures in previous valuations of the Plan.

Effective March 1, 2019, the CIA made changes to its Standards that required additional disclosure items to be included in the valuation reports prepared on or after that date. In particular, the financial impact on the going concern results under plausible adverse scenarios is to be included in the report. These additional disclosure items are shown in Appendix G of the report.

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 that, 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.

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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:

(\$000'S)	01.07.2019	01.07.2016
Assets		
Market value of assets, adjusted for in-transits	\$61,541	\$52,911
Asset smoothing adjustment	(\$616)	\$541
Smoothed value of assets	\$60,925	\$53,452
Going concern funding target		
Going concern liabilities:		
• Active and suspended members	\$23,725	\$23,260
• Pensioners and survivors	\$32,702	\$27,155
• Deferred pensioners	\$1,159	\$1,426
• Pending members	\$0	\$30
• Subtotal	\$57,586	\$51,871
Provision for adverse deviations in respect of going concern liabilities as prescribed by the Act	\$6,324	N/A
Total	\$63,910	\$51,871
Funding excess (shortfall) ³	(\$2,985)	\$1,581

³ Funding excess (shortfall) may or may not be equal to the going concern excess (unfunded liability) as described in the Act. Details of the going concern excess (unfunded liability) are provided in Appendix A.

The going concern liabilities at July 1, 2019 do not include an additional margin for adverse deviations beyond the provision for adverse deviations prescribed by the Act.

RECONCILIATION OF FINANCIAL STATUS (\$000'S)

Funding excess (shortfall) as at previous valuation		\$1,581
Interest on funding excess (shortfall) at 5.00% per year		\$250
Employer's special payments, with interest		\$2,985
Expected funding excess (shortfall)		\$4,816
Net experience gains (losses)		
• Net investment return ⁴	\$2,088	
• Increases in pensionable earnings	\$384	
• Indexation	(\$1,076)	
• Mortality	(\$194)	
• Retirement	(\$241)	
• Termination	\$59	
Total experience gains (losses)		\$1,020
Impact of changes in assumptions		
• Discount rate	(\$1,496)	
• YMPE increase	\$51	
• Post-retirement pension increases	(\$98)	
Total assumption changes impact		(\$1,543)
Impact of higher member contributions on excess cost sharing		(\$588)
Impact of plan amendments		(\$181)
Inclusion of provision for adverse deviations in respect of the going concern liabilities		(\$6,324)
Net impact of other elements of gains and losses		(\$185)
Funding excess (shortfall) as at current valuation		(\$2,985)

⁴ Based on smoothed asset values.

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. A provision for adverse deviations in respect of the current service cost is determined in accordance with the Act.

The current service cost and the provision for adverse deviations in respect of the current service cost, during the year following the valuation date, compared with the corresponding values determined in the previous valuation, is as follows:

(\$ 000 'S)	2019/2020	2016/2017
Total current service cost ⁵	\$1,129	\$1,262
Estimated members' required contributions	(\$490)	(\$531)
Estimated employer's current service cost	\$639	\$731
Employer's current service cost expressed as a percentage of members' required contributions	131%	138%
Provision for adverse deviations in respect of the current service cost (based on the percentage defined in Appendix A)		
• As a dollar amount per year	\$124	N/A
• As a percentage of members' required contributions	25%	N/A
Employer's current service cost and provision for adverse deviations in respect of total current service cost		
• As a dollar amount per year	\$763	\$731
• As a percentage of members' required contributions	156%	138%

The key factors that have caused a change in the employer's current service cost excluding the provision for adverse deviations since the previous valuation are summarized in the following table:

Employer's current service cost as at previous valuation	138%
Demographic changes	14%
Plan amendments	(29%)
Changes in assumptions	8%
Employer's current service cost as at current valuation	131%

⁵ The Total Current Service Costs includes no amount for escalated adjustments as defined in the Act.

DISCOUNT RATE SENSITIVITY

The following table summarizes the effect on the going concern liabilities and current service cost shown in this report of using a discount rate that is 1% lower than that used in the valuation. For the purposes of the illustration, we have reduced the interest rate used to determine commuted values upon termination of employment by 1%. The effect of a change in the discount rate on the provision for adverse deviations is not reflected.

SCENARIO (\$000'S)	VALUATION BASIS	REDUCE DISCOUNT RATE BY 1%
Going concern funding liabilities	\$57,586	\$64,676
Current service cost		
• Total current service cost	\$1,129	\$1,324
• Estimated members' required contributions	(\$490)	(\$490)
Estimated employer's current service cost	\$639	\$834

PLAUSIBLE ADVERSE SCENARIOS

The financial impact on the going concern results of plausible adverse scenarios that would pose threats to the Plan's future financial condition is presented in Appendix G.

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VALUATION RESULTS – HYPOTHETICAL WIND-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 consistent with the hypothesized scenario on the valuation date. More details on such scenario are provided in Appendix D.

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

(\$000'S)	01.07.2019	01.07.2016
Assets		
Market value of assets, adjusted for in-transits	\$61,541	\$52,911
Termination expense provision	(\$180)	(\$150)
Wind-up assets	\$61,361	\$52,761
Present value of accrued benefits for:		
• Active and suspended members	\$35,127	\$36,289
• Pensioners and survivors	\$41,054	\$34,520
• Deferred pensioners	\$1,744	\$2,371
• Pending members	\$0	\$30
Total wind-up liability	\$77,925	\$73,210
Wind-up excess (shortfall)	(\$16,564)	(\$20,499)

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, compared with the corresponding value determined in the previous valuation, is as follows:

(\$000'S)	01.07.2019	01.07.2016
Number of years covered by report	3 years	3 years
Total hypothetical wind-up liabilities at the valuation date (A)	\$77,925	\$73,210
Present value at the valuation date of projected hypothetical wind-up liability at the next required valuation (including expected new entrants) plus expected benefit payments until the next required valuation (B)	\$82,064	\$79,064
Hypothetical wind-up incremental cost (B – A)	\$4,139	\$5,854

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, even 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 that is 1% lower than that used in the valuation:

SCENARIO (\$000'S)	VALUATION BASIS	REDUCE DISCOUNT RATE BY 1%
Total hypothetical wind-up liability	\$77,925	\$88,880

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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:

EXCEPTIONS	REFLECTED IN VALUATION BASED ON THE TERMS OF ENGAGEMENT
The circumstance under which the Plan is assumed to be wound up could differ for the solvency and hypothetical wind-up valuations.	The same circumstances were assumed for the solvency valuation as were assumed for the hypothetical wind-up valuation.
Certain benefits can be excluded from the solvency financial position. These include: <ul style="list-style-type: none"> (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. 	No benefits were excluded from the solvency liabilities shown in this valuation.
The financial position on the solvency basis needs to be adjusted for any Prior Year Credit Balance.	Not applicable.
The solvency financial position can be determined by smoothing assets and the solvency discount rate over a period of up to 5 years.	Smoothing was not used.
The benefit rate increases coming into effect after the valuation date can be reflected in the solvency valuation.	Not applicable.

EXCEPTIONS	REFLECTED IN VALUATION BASED ON THE TERMS OF ENGAGEMENT
<p>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.</p>	<p>The termination expense provision used in the solvency valuation is \$180,000, which is the same as the provision used for the hypothetical wind-up valuation.</p>

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 79%, compared to 72% at the previous valuation.

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MINIMUM FUNDING REQUIREMENTS

The Act prescribes the minimum contributions that McMaster University must make to the Plan. The minimum contributions in respect of a defined benefit component of a pension plan are comprised of going concern current service cost, the provision for adverse deviations in respect of the current service cost and special payments to fund any funding shortfall or solvency shortfall that exceeds the level as set out under the Act.

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 employee and employer contributions, for a period of three years following the valuation date are as follows:

Period beginning	EMPLOYER'S CONTRIBUTION RULE		
	Monthly current service cost ⁶	Provision for adverse deviations ⁷	Minimum monthly special payments
July 1, 2019	131%	25%	\$60,813
July 1, 2020	131%	25%	\$93,445
July 1, 2021	131%	25%	\$93,445

⁶ Expressed as a percentage of members' required contributions.

⁷ Expressed as a percentage of members' required contributions. The determination of the provision for adverse deviations is shown in Appendix A.

Period beginning	Monthly Employee Contribution	ESTIMATED EMPLOYER'S CONTRIBUTIONS			
		Minimum monthly special payments	Provision for adverse deviations	Monthly current service cost	Total minimum monthly employer contributions
July 1, 2019	\$40,833	\$60,813	\$10,333	\$53,250	\$124,396
July 1, 2020	\$40,833	\$93,445	\$10,333	\$53,250	\$157,028
July 1, 2021	\$40,833	\$93,445	\$10,333	\$53,250	\$157,028

The estimated contribution amounts for current service cost and the provision for adverse deviations in respect of the current service cost shown above are based on projected members' required contributions. Therefore, the actual employer's current service cost and provision for adverse deviations may 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.

Appendix A includes details on:

- the development of the minimum special payments;
- the determination of the provision for adverse deviations.

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 reduced solvency shortfalls, if any.

In addition, although minimum funding requirements do include a requirement to fund the going concern current service cost and a provision for adverse deviations in respect of the 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.

Timing of Contributions

Funding contributions are due on a monthly basis. Contributions for current service cost and the provision for adverse deviations 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 University must contribute the excess, if any, of the minimum contribution recommended in this report over contributions actually made in respect of the period following 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:

- 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.
- 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 required solvency special payments 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.

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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.

For purposes of this section on maximum eligible contributions only, any reference to the current service cost includes the provision for adverse deviations in respect of the current service cost.

In accordance with Section 147.2 of the ITA and *Income Tax Regulation* 8516, for a plan that 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 that 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 that 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, 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 2.56% 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 the hypothetical wind-up shortfall of \$16,564,000 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:

Year beginning	EMPLOYER'S CONTRIBUTION RULE			ESTIMATED EMPLOYER'S CONTRIBUTIONS
	Monthly current service cost including provision for adverse deviations ⁸	Monthly expense allowance	Deficit Funding	Monthly current service cost including provision for adverse deviations
July 1, 2019	156%	\$0	N/A	\$63,583

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.

⁸ Expressed as a percentage of members' required contributions.

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ACTUARIAL OPINION

In our opinion, for the purposes of the valuations,

- The membership data on which the valuation is based are sufficient and reliable.
- The assumptions are appropriate.
- The methods employed in the valuation are appropriate.

This report has been prepared, and our opinions 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

Chad Spence

Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries

Date

DRAFT

Angelita Graham

Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries

Date

APPENDIX A

PRESCRIBED DISCLOSURE

DEFINITIONS

The Act defines a number of terms as follows:

DEFINED TERM	DESCRIPTION	RESULT
Going concern assets	Total smoothed value of assets plus the sum of the following:	\$60,925,000
	(a) the present value of special payments in respect of any past service unfunded liability identified in a previously filed report	\$0
	(b) the present value of special payments in respect of any plan amendment that increases going concern liabilities	\$0
	(c) present value of special payments in respect of going concern unfunded liabilities identified in a previously filed report that are scheduled for payment within one year of the date of this report	\$0
Going concern excess / (unfunded liability)	The Going concern assets minus the sum of the following:	(\$2,985,000)
	a. the going concern liabilities	
	(i) liabilities excluding the value of escalated adjustments	\$57,586,000
	(ii) liabilities in respect of escalated adjustments	\$0
	b. the provision for adverse deviations in respect of the going concern liabilities excluding the value of escalated adjustments	\$6,324,000
c. Prior Year Credit Balance	\$0	

DEFINED TERM	DESCRIPTION	RESULT
Going concern funded ratio	The ratio of: (a) Total smoothed value of assets (excluding letters of credit) less the Prior Year Credit Balance; to (b) going concern liabilities	1.06
Transfer Ratio	The ratio of: (a) Solvency Assets minus the lesser of the Prior Year Credit Balance and the minimum required employer contributions including the provision for adverse deviations until the next required valuation; to (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.	0.79
Solvency Ratio	The ratio of: (a) Solvency Assets related to defined benefits and ancillary benefits plus the total amount of any letters of credit minus the Prior Year Credit Balance (b) the sum of the Solvency Liabilities related to defined benefits and ancillary benefits	0.79
Prior Year Credit Balance	Accumulated sum 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).	\$0
Solvency Assets	Market value of assets including accrued or receivable income and excluding the value of any qualifying annuity contracts.	\$61,541,000
Solvency Asset Adjustment	The sum of:	
	(a) the difference between smoothed value of assets and the market value of assets	\$0
	(b) the present value of going concern special payments required to liquidate any past service unfunded liability	\$0
	(c) the present value of going concern special payments identified in July 30, 2016 valuation and scheduled for 2016/2017	\$0
	(d) the present value of going concern special payments (identified in this report) that are scheduled for payment within 6 years following the valuation date	\$1,451,000
	(e) the present value of any previously scheduled solvency special payments (excluding those identified in this report)	\$5,557,000
	(f) the total value of all letters of credit in respect of the special payments due before the valuation date, subject to the limit of 15% of solvency liabilities	\$0
		\$7,008,000

DEFINED TERM	DESCRIPTION	RESULT
Solvency Liabilities	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, if elected by the plan sponsor, excluding liabilities for,	\$77,925,000
	(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.	
Solvency Liability Adjustment	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.	\$0
Solvency Deficiency	The amount, if any, by which the sum of:	
	(a) the Solvency Liabilities	\$77,925,000
	(b) the Solvency Liability Adjustment	\$0
	(c) the Prior Year Credit Balance	\$0
		\$77,925,000
	Exceeds the sum of	
	(d) the Solvency Assets net of estimated termination expenses ⁹	\$61,361,000
	(e) the Solvency Asset Adjustment	\$7,008,000
		\$68,369,000
		\$9,556,000

⁹ In accordance with accepted actuarial practice, for purposes of determining the financial position, the market value of plan assets was 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.

DEFINED TERM	DESCRIPTION	RESULT
Reduced Solvency Deficiency / (Solvency Excess)	The sum of:	
	(a) 85% of the Solvency Liabilities	\$66,236,000
	(b) 85% of the Solvency Liability Adjustment	\$0
	(c) the Prior Year Credit Balance	\$0
		\$66,236,000
	minus the sum of:	
	(d) the Solvency Assets net of estimated termination expenses ⁸	\$61,361,000
	(e) the Solvency Asset Adjustment	\$7,008,000
		\$68,369,000
		(\$2,133,000)

PROVISION FOR ADVERSE DEVIATIONS

The provision for adverse deviations has been established in accordance with regulations taking into account the following parameters:

	DEFINED AMOUNT	RESULTS				
Fixed Income Component (L)	The sum of the Plan's target allocation of assets (excluding those allocated to annuity contracts and meeting the minimum rating requirement) as described in the regulations, according to the investment policy applicable, at the valuation date:	45.0%				
	<table border="1"> <thead> <tr> <th>Investment</th> <th>Target</th> </tr> </thead> <tbody> <tr> <td>Canadian Bonds and debentures</td> <td>45.0%</td> </tr> </tbody> </table>	Investment	Target	Canadian Bonds and debentures	45.0%	
	Investment	Target				
Canadian Bonds and debentures	45.0%					
Alternative Investment Component (M)	The sum of the Plan's target allocation of assets (excluding those allocated to annuity contracts) meeting requirements as described in the regulations, according to the investment policy, applicable at the valuation date	0.0%				
Investment Component (N)	Plan's target asset allocation for mutual, pooled or segregated funds	0.0%				
Investment Component Fixed Income % (P)	Portion of Investment Component (N) that is allocated to investment categories accounted for in Fixed Income Component (L)	N/A				

Investment Component Alternative Investment % (Q)	Portion of Investment Component (N) that is allocated to investment categories accounted for in Alternative Income Component (M)	N/A
Annuity Contract Allocation (R)	Annuity contracts that have been purchased from an insurance company and excluded from the Fixed Income Component (L) and Alternative Investment Component (M)	0.0%

Combined Target Actual Asset Allocation for Fixed Income Assets (J)

Sum of		
• Fixed Income Component (L)	45.0%	
• 0.5 x Alternative Investment Component (0.5 x M)	0.0%	
• Investment Component x Investment Component Fixed Income % (N x P)	0.0%	
• 0.5 x Investment Component x Investment Component Alternative Investment % (0.5 x N x Q)	0.0%	
		45.0%
Divided by		
• 100% - Annuity Contract Allocation (100% - R)	100%	
Combined Target Asset Allocation for Fixed Income Assets		45.0%

Combined Target Asset Allocation for Non-Fixed Income Assets (K)

100% – Combined Target Asset Allocation for Fixed Income Assets (100% - J)	55.0%
----------------------------------------------------------------------------	--------------

Duration of going concern liabilities at valuation date

= $(F - G) / (G \times 0.01)$	12.33
where,	
G = going concern liabilities at valuation date established using the discount rate determined for this valuation	\$57,586,000
F = going concern liabilities at valuation date established using the discount rate minus 1%	\$64,676,000

Benchmark Discount Rate (E)	
Base rate	0.50%
Effective yield from CANSIM Series V39056 (H)	1.68%
1.5% x Combined Target Asset Allocation for Fixed Income Assets (1.5% x J)	0.68%
5.0% x Combined Target Asset Allocation for Non-Fixed Income Assets (5.0% x K)	2.75%
Benchmark Discount Rate	5.61%

Provision for Adverse Deviations	
ii. 5.0% for a closed plan and 4.0% for a Plan that is not a closed plan	5.00%
iii. Provision based on Combined Target Asset Allocation for Non-Fixed Income Assets	6.00%
iv. Greater of zero and the	
• Duration of going concern liabilities at valuation date	12.33%
Multiplied by:	
– Going concern valuation gross discount rate net of active investment management fees (D), less	5.08%
– Benchmark Discount Rate (E)	5.61%
	0.00%
Provision for Adverse Deviations (A + B + C)	11.00%

The available actuarial surplus that may be used according to the Act is established as follows:

Available actuarial surplus	
Excess of	
• Assets determined on basis of going concern valuation including accrued and receivable income but excluding the value of any letters of credit	\$60,925,000
Over	
• Going concern liabilities	\$57,586,000
• Provision for adverse deviations in respect of the going concern liabilities	\$6,324,000
• Prior Year Credit Balance	\$0
	\$63,910,000
	\$0 (a)

Excess of		
<ul style="list-style-type: none"> Solvency assets excluding the value of any letters of credits and lesser of Prior Year Credit Balance and minimum required employer contributions, including the provision for adverse deviations until the next required valuation 	\$61,541,000	
Over		
<ul style="list-style-type: none"> Wind-up liabilities x 105% 	\$81,821,250	
	\$0	(b)
The available actuarial surplus = the lesser of a) and b) above	\$0	

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%; or
- 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.

Accordingly, the next valuation of the Plan will be required as of July 1, 2020.

SPECIAL PAYMENTS

The present values as at July 1, 2019 of the monthly special payments determined in the previous valuation are as follows:

**Present Value of Monthly Special Payments
Determined at Previous Valuation**

TYPE OF DEFICIT	START DATE	SPECIAL PAYMENT	END DATE	PRESENT VALUE OF REMAINING PAYMENTS AS AT 01.07.2019	
				GOING CONCERN BASIS ¹⁰	SOLVENCY BASIS ¹¹
Solvency	July 1, 2017	\$98,692	June 30, 2024	N/A	\$5,557,000
Total		\$98,692			\$5,557,000

The valuation revealed a going concern unfunded liability of \$2,985,000, as outlined in the Definitions section of this appendix. In accordance with the Regulation, the going concern unfunded liability must be amortized over a period not exceeding 10 years, beginning 12 months after July 1, 2019.

Since there is a Solvency Excess of \$2,133,000, as outlined in the Definitions section of this appendix, but it is less than the present value of the special payments set out in the prior valuation report to fund any reduced solvency deficiency, either the monthly rate or the amortization period of the solvency special payments can be reduced so as to reduce the solvency excess to zero for any amortization period for which special payments end within six years after the valuation date. As a result, the prior solvency special payment has been reduced.

As such, special payments must be made as follows:

¹⁰ Calculation only considers going concern special payments and is based on a going concern discount rate.

¹¹ Calculation considers both solvency and going concern special payments (six years only) and is based on the average solvency discount rate.

TYPE OF PAYMENT	START DATE	END DATE	MONTHLY SPECIAL PAYMENT	PRESENT VALUE	
				GOING CONCERN BASIS ¹²	SOLVENCY BASIS ¹³
New going concern	July 1, 2020	June 30, 2030	\$32,632	\$2,985,000	\$1,451,000
Solvency	July 1, 2017	June 30, 2024	\$60,813		\$3,424,000
Total			\$93,445	\$2,985,000	\$4,875,000

TRANSITIONAL RULES

Transitional rules under the Act state that any increase in contributions caused by the new funding rules above what the old funding rules determined under the Regulations in effect immediately before May 1, 2018 would have required can be phased-in over the three-year period following the first report filed under the new framework, with no requirement for an increase in the first year.

The minimum funding requirements that would have been required in each of plan years 2019/2020, 2020/2021 and 2021/2022 under the old funding rules would have been higher than minimum funding requirements under the new funding rules. As such, the transitional rules have no impact on the minimum funding requirements.

PENSION BENEFITS GUARANTEE FUND (PBGF) ASSESSMENT

A PBGF assessment is required to be paid under Section 37 of the Act. The PBGF assessment base is derived as follows:

Solvency assets	\$61,541,000	(a)
PBGF liabilities	\$77,925,000	(b)
Solvency liabilities	\$77,925,000	(c)
Ontario asset ratio	100%	(d) = (b) ÷ (c)
Ontario portion of the fund	\$61,541,000	(e) = (a) x (d)
PBGF assessment base	\$16,384,000	(f) = max(0, (b) – (e))
Amount of additional liability for plant closure and/or permanent layoff benefits which is not funded and subject to the 2% (3% for years after 2018) assessment pursuant to s.37(4)	\$0	(g)

¹² Calculation only considers going concern special payments and is based on a going concern discount rate.

¹³ Calculation considers both solvency (all remaining scheduled payments) and going concern special payments (six years only) and is based on the average solvency discount rate.

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:

(\$000'S)	2016/2017	2017/2018	2018/2019
July 1	\$52,848	\$56,176	\$58,466
PLUS			
Members' contributions	\$487	\$446	\$563
University's contributions	\$1,128	\$1,637	\$1,711
Investment income	\$1,263	\$1,548	\$1,568
Net capital gains (losses)	\$3,750	\$1,805	\$2,580
	\$6,628	\$5,436	\$6,422
LESS			
Pensions paid	\$2,419	\$2,559	\$2,876
Lump-sums paid	\$561	\$227	\$34
Administration and investment fees	\$320	\$360	\$417
	\$3,300	\$3,146	\$3,327
June 30	\$56,176	\$58,466	\$61,561
Gross rate of return ¹⁴	9.6%	6.0%	7.2%

¹⁴ Assuming mid-period cash flows.

(\$ 000 'S)	2016/2017	2017/2018	2018/2019
Rate of return, net of expenses ¹⁵	9.0%	5.4%	6.4%

The market value of assets shown in the above table is adjusted to reflect in-transit amounts as follows:

(\$ 000 'S)	CURRENT VALUATION	PREVIOUS VALUATION
Market value of invested assets	\$61,561	\$52,848
In-transit amounts		
• Members' contributions	\$34	\$38
• University's contributions	\$146	\$91
• Expenses	(\$1)	(\$1)
• Benefit payments	(\$199)	(\$65)
Market value of assets adjusted for in-transit amounts	\$61,541	\$52,911

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.

¹⁵ Assuming mid-period cash flows.

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

	INVESTMENT POLICY			ACTUAL ASSET MIX AS AT JULY 1, 2019
	Minimum	Target	Maximum	
Canadian equities	10%	20%	30%	20.7%
US equities	8%	18%	28%	20.8%
Non-North American equities	7%	17%	27%	20.1%
Bonds	25%	45%	65%	38.0%
Cash and cash equivalents	0%	0%	10%	0.4%
		100%		100%

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, realized and unrealized capital gains (losses) arising during a given year are spread on a straight-line basis 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, 2019 was derived as follows:

(\$000'S)	2017/2018	2018/2019
Market value of assets at July 1	\$56,176	\$58,466
Payments into Plan	\$2,083	\$2,274
Payments out of Plan ¹⁶	\$2,786	\$2,910
Expected interest	\$2,792	\$2,907
Investment experience gains (losses)	\$201	\$824
Market value of assets at June 30	\$58,466	\$61,561

¹⁶ Other than administration fees.

Market value of assets		\$61,561
LESS		
Investment experience gains (losses)	2018/2019: \$824 x 66.67% =	\$549
	2017/2018: \$201 x 33.33% =	\$67
		\$616
Smoothed value of assets		\$60,945

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

(\$000'S)	CURRENT VALUATION	PREVIOUS VALUATION
Smoothed value of assets	\$60,945	\$53,389
In-transit amounts		
• Members' contributions	\$34	\$38
• University's contributions	\$146	\$91
• Expenses	(\$1)	(\$1)
• Benefit payments	(\$199)	(\$65)
Smoothed value of assets, adjusted for in-transit amounts	\$60,925	\$53,452

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, 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 and the provision for adverse deviations must be amortized over no more than 10 years through special payments beginning one year after the valuation date. 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 cost 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 cost 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.

ASSUMPTION	CURRENT VALUATION	PREVIOUS VALUATION
Discount rate:	4.75%	5.00%
Inflation:	2.00%	2.00%
ITA limit / YMPE increases:	3.00%	2.50%
Pensionable earnings increases:	3.25%	3.25%
Post-retirement pension increases:	0.33% on January 1, 2020, 0.00% per year thereafter	0.00%
Interest on employee contributions:	4.75%	5.00%
Retirement rates:	20% where first eligible for an unreduced pension, remainder at age 64	20% where first eligible for an unreduced pension, remainder at age 64
Termination rates:	None	None
Mortality rates:	115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)	115% of the rates of the 2014 Public Sector Canadian Pensioners Mortality Table (CPM2014Publ)
Mortality improvements:	Fully generational using CPM Improvement Scale B (CPM-B)	Fully generational using CPM Improvement Scale B (CPM-B)
Disability rates:	None	None

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, 2019 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:

- An **assumed investment return** based on estimated return for each major asset class that are consistent with market conditions on the valuation date modified to include a provision for increases in market interest rates to a level higher than current historically low levels, on the expected time horizon over which benefits are expected to be paid, and on the target asset mix specified in the Plan's investment policy. Consistent with market observable and available data, the assumed investment return is a gross return for all asset classes.
- An **assumed passive investment management expense provision** which represents the hypothetical fees for passive investment management of assets based on estimated fees charged by index managers for balanced mandates.
- An **implicit non-investment management expense provision** determined as the average rate of non-investment expenses paid from the fund over the last 3 years. These would include all fees payable from the fund (administration, custodial, audit, consulting, etc.) except those payable to investment managers, to the extent that these fees are not covered in an explicit provision for expenses added to the current service cost

The discount rate was developed as follows:

Assumed investment return	5.08%
Assumed passive investment management expense provision	(0.08%)
Implicit non-investment management expense provision	(0.23%)
Rounding to nearest 5 basis points	(0.02%)
Net discount rate	4.75%

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's expectations.

POST-RETIREMENT PENSION INCREASES

The assumption is based on the Plan formula and inflation assumption above. The 0.33% increase on January 1, 2020 represents the actual indexation that was granted.

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. Two mortality improvement scales were recently published by the Canadian Institute of Actuaries (CIA) and may apply to Canadian pension valuations:

- The Canadian Pensioners Mortality (CPM) study published in February 2014 included CPM Improvement Scale B (CPM-B) which is also used for commuted value calculations.
- A report released by the Task Force on Mortality Improvement on September 20, 2017 includes an analysis of the rate of mortality improvement for the Canadian population and provides for mortality improvement scale MI-2017 to be considered for the purpose of reflecting future mortality improvement in Canadian actuarial work, while acknowledging that it might be appropriate to use alternative mortality improvement assumptions to reflect the nature of the work.

The CIA Committee on Pension Plan Financial Reporting published a revised version of the Educational Note on the Selection of Mortality Assumptions for Pension Plan Valuations on December 21, 2017. The Educational Note indicates that given the recent publication of the CPM-B and MI-2017 improvement scales and the similar data sets used in their development, it may be appropriate to use either scale in the absence of credible information to the contrary, such as the publication of a successor scale by the CIA.

For the present valuation, we have continued to use the CPM-B scale, which is a reasonable outlook for future mortality improvement.

Based on the assumption used, the life expectancy of a member age 65 at the valuation date is 22.0 years for males and 23.8 years for females.

INTEREST ON EMPLOYEE CONTRIBUTIONS

The assumption is based on Plan terms and the underlying 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.

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.

The Standards of Practice of the Canadian Institute of Actuaries require that the scenario upon which the hypothetical wind-up valuation is based be postulated. However, there are no benefits under the Plan contingent upon the circumstances of the plan wind-up or contingent upon other factors. Therefore, it was not necessary to postulate a scenario upon which the hypothetical wind-up valuation is made. No benefits payable on plan wind-up were excluded from our calculations. The plan wind-up is assumed to occur in circumstances that maximize the actuarial liability.

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, 2019.

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, 2018 and December 30, 2019 (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 margin for adverse deviations in the solvency and hypothetical wind-up valuations.

The assumptions are as follows:

Form of Benefit Settlement Elected by Member	
Lump sum:	70% of active members under age 55, and 50% of active members over age 55, elect to receive their benefit entitlement in a lump sum
Annuity purchase:	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.
Basis for Benefits Assumed to be Settled through a Lump Sum	
Mortality rates:	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
Interest rate:	2.30% per year for 10 years, 2.80% per year thereafter

Basis for Benefits Assumed to be Settled through the Purchase of an Annuity	
Mortality rates:	100% of the rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) with fully generational improvements using CPM Scale B
Adjustment to mortality rates:	No adjustment
Interest rate:	2.66% per year
Retirement Age	
Maximum value:	Members are assumed to retire at the age that maximizes the value of their entitlement from the Plan, based on the eligibility requirements that have been met at the valuation date
Grow-in:	The benefit entitlement and assumed retirement age of Ontario members whose age plus service equals at least 55 at the valuation date reflect their entitlement to grow into early retirement subsidies
Other Assumptions	
Special payments:	Discounted at the average interest rate of 2.56% per year
Final average earnings:	Based on actual pensionable earnings over the averaging period
Family composition:	Same as for going concern valuation
Maximum pension limit:	\$3,025.56
Termination expenses:	\$180,000

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 and therefore would not be able to reimburse the Plan for the termination expenses. 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.

Although the termination expense assumption is a best estimate, 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, 2019, 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.

	01.07.2019	01.07.2016
Active Members		
Number	145	178
Total pensionable earnings for the following year	\$7,137,650	\$8,381,396
Average pensionable earnings for the following year	\$49,225	\$47,086
Average years of pensionable service	18.6	16.5
Average age	55.8	53.4
Suspended Members¹⁷		
Number	4	N/A
Total pensionable earnings for the following year	\$172,043	N/A
Average pensionable earnings for the following year	\$43,011	N/A
Average years of pensionable service	8.4	N/A
Average age	49.2	N/A
Deferred Pensioners		
Number	51	58
Total annual pension	\$122,293	\$183,384
Average annual pension	\$2,398	\$3,162
Average age	55.4	52.9
Pensioners and Survivors		
Number	292	290
Total annual lifetime pension	\$2,775,504	\$2,386,871
Average annual lifetime pension	\$9,505	\$8,231
Average age	74.7	73.9

¹⁷ Refers to members that have moved to salaried positions at McMaster but retain frozen pensions in the Plan.

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

	ACTIVES	SUSPENDED	DEFERRED	PENSIONERS AND SURVIVORS	PENDING	TOTAL
Total at 01.07.2016	178	0	58	290	1	527
Terminations:						
• Transfers/ refunds	(5)	-	(1)	-	(1)	(7)
• Deferred pensions	(4)	-	4	-	-	-
Suspended	(1)	4	(3)	-	-	-
Deaths	(2)	-	-	(33)	-	(35)
Retirements	(22)	-	(2)	24	-	-
Beneficiaries	-	-	(1)	11	-	10
Data corrections	-	-	(3)	-	-	(3)
Rehire	1	-	(1)	-	-	-
Total at 01.07.2019	145	4	51	292	0	492

The distribution of the active members by age and pensionable service as at the valuation date is summarized as follows:

Age	YEARS OF PENSIONABLE SERVICE							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 +	
Under 30								
30 to 34			1 *					1 *
35 to 39		2 38,508		2 54,276				4 46,392
40 to 44			1 *	2 57,229				3 *
45 to 49		1 *	7 57,772	7 46,263	3 45,256			18 *
50 to 54	1 *	2 38,508	8 55,638	11 45,963	2 58,043	5 49,094	1 *	30 49,237
55 to 59		4 38,508	9 49,416	19 44,235		10 46,274	6 53,121	48 46,265
60 to 64		5 38,508	2 62,844	9 49,961	3 42,591	5 54,395	6 63,828	30 51,687
65 +			3 52,860	3 50,731	1 *	1 *	3 43,983	11 50,653
Total	1 *	14 *	31 55,098	53 47,071	9 *	21 *	16 *	145 49,225

* Not shown to protect member confidentiality.

The distribution of the inactive members by age as at the valuation date is summarized as follows:

Age	DEFERRED PENSIONERS		PENSIONERS AND SURVIVORS	
	Number	Average Pension	Number	Average Pension
34 and under				
35 – 39	2	2,973		
40 – 44	3	5,197		
45 – 49	11	2,765		
50 – 54	13	2,704	2	10,233
55 – 59	8	2,117	16	12,497
60 – 64	6	1,983	26	11,229
65 – 69	3	1,111	56	12,958
70 – 74	3	172	59	10,369
75 – 79	2	1,254	48	9,168
80 – 84			37	6,830
85 – 89			29	5,313
90 – 94			17	4,197
95 +			2	3,769
Total	51	2,398	292	9,505

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, 2019. Since the previous valuation, the Plan has been amended to update employee contribution rates and define service and benefit accruals for suspended members.

The following is a summary of the main provisions of the Plan in effect on July 1, 2019. This summary is not intended as a complete description of the Plan.

Background	The Plan became effective July 1, 1962. Benefits are based on a set formula and are partially paid for by the University.
Eligibility for Membership	The Plan was completely closed to new entrants on March 15, 2010.

Employee Contributions	Employee Contribution Rate on Annual Earnings			
	Class of Member	Period Beginning	Up to YMPE	In Excess of YMPE
Operations and Maintenance		July 15, 2018	7.00%	10.00%
		November 29, 2020	8.00%	11.00%
Hospitality Services		July 15, 2018	7.00%	10.00%
		April 7, 2019	8.00%	11.00%
Parking and Transit Services		July 15, 2018	7.00%	10.00%
		July 14, 2019	8.00%	11.00%
Machinists and Operating Engineers		July 15, 2018	7.00%	10.00%
Special Constables		July 15, 2018	7.00%	10.00%
		October 2, 2022	8.00%	11.00%
Retirement Dates	<p>Normal Retirement Date</p> <ul style="list-style-type: none"> The normal retirement date is the first day of the month coincident with or next following the member's 65th birthday. <p>Special Early Retirement Date</p> <ul style="list-style-type: none"> A member whose age plus Credited Service equals or exceeds 80 points may retire early without any reduction for early retirement. <p>Early Retirement Date</p> <ul style="list-style-type: none"> A member may retire early with a reduced pension at any time during the 10-year period preceding the member's 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. <p>Postponed Retirement Date</p> <ul style="list-style-type: none"> A member may postpone the actual retirement and commencement of pension (with University consent prior to December 12, 2006), but in any event the member's pension shall commence no later than the 1st of December of the year of attainment of age 71. The member will continue to make contributions and benefits under the Plan and will continue to accrue benefits until such postponed retirement date. 			

<p>Normal Retirement Pension</p>	<p>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</p> <p>b) Service from July 1, 1979 to December 31, 1985, 40% of member contributions in each year PLUS</p> <p>c) One-third of the benefits accrued under (a) and (b) above PLUS</p> <p>d) 20% of the benefits accrued under (a), (b) and (c) above PLUS</p> <p>e) 8% of the benefits accrued under (a), (b), (c) and (d) above PLUS</p> <p>f) 20% of the benefits accrued under (a), (b), (c), (d) and (e) above PLUS</p> <p>g) 1.5% of the benefits accrued under (a), (b), (c), (d), (e) and (f) above PLUS</p> <p>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 the member's required contributions with interest exceed 50% of the commuted value of the member's benefit shall be paid to the member.</p>
<p>Bridge Benefits</p>	<p>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 the early retirement date, the bridge benefit will be unreduced.</p> <p>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.</p>
<p>Annual Pension Increase</p>	<p>Pensions in payment are 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.</p>

Maximum Pension	<p>The total annual pension payable from the Plan upon retirement, death or termination of employment cannot exceed the lesser of:</p> <ul style="list-style-type: none"> • 2% of the average of the best three consecutive years of total compensation paid to the member by the University, multiplied by total credited service; and • \$3,025.56 or such other maximum permitted under the Income Tax Act, multiplied by the member's total credited service.
Death Benefits	<p>Pre-retirement:</p> <ul style="list-style-type: none"> • 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. <p>Post retirement:</p> <ul style="list-style-type: none"> • 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	<p>If a member becomes totally and permanently disabled, the member shall continue to accrue benefits on the basis of their earnings in the twelve-month period preceding the onset of disability.</p> <p>A disabled member shall not be required to contribute to the Plan.</p>
Termination Benefits	<p>If a member terminates employment prior to retirement, the member may elect to receive one of the following:</p> <ol style="list-style-type: none"> a) A refund of the member's 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. <p>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.</p> <p>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.</p>

APPENDIX G

PLAUSIBLE ADVERSE SCENARIOS

In this Appendix, the financial impact on the Plan's going concern results (i.e., going concern financial position at the valuation date and current service cost from the valuation date to the next valuation date) of plausible adverse scenarios that would pose threats to the Plan's future financial condition is illustrated for the following risks:

- Interest rate risk, the potential that interest rates will be lower than expected;
- Deterioration of asset values; and
- Longevity risk, the potential that pension plan members will live longer than expected.

The following table summarizes the going concern results, where we assumed for:

- Interest rate risk, an immediate parallel decrease in market interest rates of 100 basis points
- Deterioration of asset values, an immediate decrease of 15% in the market value of non-fixed income assets; and
- Longevity risk, that life expectancy from the valuation date at age 65 for a male and a female would increase by 1.46 years and 1.33 years, respectively.

000'S SCENARIO	GOING CONCERN VALUATION RESULTS AS 01.07.19	PLAUSIBLE ADVERSE SCENARIO RESULTS AS AT 01.07.19		
		INTEREST RATE RISK	DETERIO- RATION OF ASSET VALUES	LONGEVITY RISK
Market value of assets	\$61,541	\$63,779	\$56,464	\$61,541
Going Concern Financial Status				
Smoothed value of assets	\$60,925	\$61,671	\$59,232	\$60,925
Going concern funding target	\$57,586	\$60,777	\$57,586	\$59,127
Provision for Adverse Deviation	\$6,324	\$6,674	\$6,324	\$6,493
Funding excess (shortfall)	(\$2,985)	(\$5,780)	(\$4,678)	(\$4,695)
Estimated Employer's Current Service Cost including Provision for Adverse Deviation				
Plan Year 2019/2020	\$763	\$861	\$763	\$805
Plan Year 2020/2021	\$763	\$861	\$763	\$805
Plan Year 2021/2022	\$763	\$861	\$763	\$805

The balance of this Appendix provides details of the plausible adverse scenarios selected and the determination of the impact on the going concern results.

INTEREST RATE RISK

The purpose of this scenario is to illustrate the sensitivity of the Plan's going concern results to the potential that interest rates will be lower than expected. For this purpose, we have assumed an immediate parallel decrease in market interest rates underlying fixed income investments, where fixed income investments include the categories as shown in the investment policy summarized in Appendix B.

Using a methodology consistent with the one used to determine the going concern discount rate, we have determined that a parallel decrease in market interest rates of 100 basis points would have a non-trivial probability (between 1 in 10 and 1 in 20) of occurring within the year following the valuation date. For purpose of this scenario, we have assumed that such a decrease in market interest rates would occur immediately on the valuation date and would have the following impact on the value of assets and going concern assumptions:

DEFINED TERM	DESCRIPTION
Market value of assets	The decrease in market interest rates has been assumed to affect only the market value of the fixed income investments. The decrease is assumed to have occurred immediately on the valuation date.
Smoothed value of assets	For purposes of determining the smoothed value of assets, 33% of the change in the market value of asset has been recognized in the smoothed value of assets.
Discount rate assumption	It was assumed that the decrease in market interest rates affects only the expected return on assets for the fixed income portion of assets. The discount rate assumption was therefore decreased from 4.75% to 4.30%.
Other assumptions	Except for the interest rate on member's contributions, all assumptions used were the same as those used for this valuation. In particular, the discount rate used to value benefits assumed to be settled through a lump sum was not changed.
Provision for Adverse Deviations	The above changes would not affect the calculation of the Provision for Adverse Deviations

DETERIORATION OF ASSET VALUES

The purpose of this scenario is to illustrate the sensitivity of the Plan's going concern results to a deterioration of asset values. For this purpose, we assumed an immediate reduction in the market value of the Plan's non-fixed income assets, where non-fixed income investments include the following categories as shown in the investment policy summarized in Appendix B.

Using a methodology consistent with the one used to determine the going concern discount rate, we have determined that a decrease of 15% in the market value of value of non-fixed income assets would have a non-trivial probability (between 1 in 10 and 1 in 20) of occurring within the year following the valuation date. For purpose of this scenario, we have assumed that such a decrease would occur immediately on the valuation date and would have the following impact on the value of assets and going concern assumptions:

Market value of assets	The decrease in the market value of the non-fixed income portion of assets is assumed to have occurred immediately on the valuation date.
Smoothed value of assets	For purposes of determining the smoothed value of assets, 33% of the change in the market value of assets has been recognized in the smoothed value of assets.
Going concern assumptions	This scenario is assumed to have no impact on the assumptions used for this valuation.

LONGEVITY RISK

The purpose of this scenario is to illustrate the sensitivity of the Plan's going concern results to the potential that pension plan members will live longer than expected. For this purpose, we have determined that a plausible adverse scenario would be to assume that future mortality

improvements¹⁸ will be in line with the average improvements experienced by the Canadian population over the most recent 15-year period available, with uniform improvement rates for all future years but varying by age¹⁹ and gender.

The table below summarizes the improvement rates under the plausible adverse scenario compared to those currently assumed under the CPM-B scale and is based on Canadian population experience from the Human Mortality Database (HMD) from 2002 to 2016.

Age	MALES				FEMALES			
	CPM-B			Adverse Scenario	CPM-B			Adverse Scenario
	2020	2025	2030+		2020	2025	2030+	
20	1.59%	1.20%	0.80%	1.68%	0.98%	0.89%	0.80%	1.47%
30	1.88%	1.34%	0.80%	1.68%	0.98%	0.89%	0.80%	1.47%
40	1.80%	1.30%	0.80%	1.68%	1.17%	0.98%	0.80%	1.47%
50	1.17%	0.98%	0.80%	1.76%	0.98%	0.89%	0.80%	1.34%
55	1.47%	1.13%	0.80%	1.67%	1.11%	0.96%	0.80%	1.14%
60	1.77%	1.28%	0.80%	1.75%	1.24%	1.02%	0.80%	1.34%
65	2.06%	1.43%	0.80%	2.11%	1.36%	1.08%	0.80%	1.65%
70	2.06%	1.43%	0.80%	2.48%	1.36%	1.08%	0.80%	1.77%
75	2.01%	1.41%	0.80%	2.66%	1.36%	1.08%	0.80%	1.93%
80	1.96%	1.38%	0.80%	2.63%	1.36%	1.08%	0.80%	2.03%
85	1.38%	1.03%	0.68%	2.32%	1.31%	0.99%	0.68%	1.98%
90	0.75%	0.62%	0.48%	1.68%	0.75%	0.62%	0.48%	1.60%
95	0.16%	0.25%	0.34%	1.04%	0.16%	0.25%	0.34%	1.12%
100	0.14%	0.22%	0.30%	0.64%	0.14%	0.22%	0.30%	0.80%
105	0.14%	0.22%	0.30%	0.38%	0.14%	0.22%	0.30%	0.55%

¹⁸ i.e. starting one year after the valuation in this context

¹⁹ improvement rates below age 45 are set to those at age 45

APPENDIX H

EMPLOYER CERTIFICATION

With respect to the Report on the Actuarial Valuation for Funding Purposes as at July 1, 2019 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 University's decisions in regards to determining the going concern and solvency funding requirements.
- A copy of the official plan documents and of all amendments made up to July 1, 2019 was provided to the actuary and is reflected appropriately in the summary of plan provisions contained herein.
- The asset information summarized 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, 2019.
- All events subsequent to July 1, 2019 that may have an impact on the Plan have been communicated to the actuary.

Date

Signed

Name

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Mercer (Canada) Limited



Date: January 14, 2020
To: (PVP) Planning and Resource Committee
Subject: Debt Management Policy Update

Recommendation:

That the (PVP) Planning and Resources Committee approve, for recommendation to the Board of Governors, the revised Debt Management Policy attached.

Background

On December 13, 2007, the Board of Governors approved a formal debt management policy. The policy was updated in 2012 and in 2015. Management undertakes a periodic review to ensure the policy remains relevant, however the core principals and objectives below remain valid:

- Debt should be considered a perpetual component of the University's capital structure including guidelines on the use of debt to fund capital projects.
- Debt is a strategic resource and not dictated by specific project(s) to be financed. The University should take into consideration its debt capacity in relation to debt affordability and flexibility.
- The University will establish its own definition of debt capacity based on its mission, strategic plan, financial position and risk tolerance, and will consider but not base its debt strategy on the views and perceptions of external parties such as rating agencies and investors.

Financial Implications: No immediate implications, this item guides debt management and financial health monitoring, which is reported annually to PRC in the Debt Strategy Report.

Alignment with University Strategy: The Debt Policy is reviewed to ensure the University needs for strategic financing has a policy and monitoring framework to assess University financial health impacts.

Important Considerations (Context): The current review included an extensive study of metrics and computation methodologies used by peers, rating agencies and the Ministry. The objective of the review was to identify key limiting ratios as policy constraints and simplify, if possible, other ratios management may monitor annually due to other reporting requirements with Ministry. The review concluded that an overall revised Debt Management Policy is warranted. Key changes since the 2015 previous update:

- Management issues an annual debt strategy report that includes 10-year financial projections, with financial ratios, to guide recommendations about future borrowings;
- The Ministry introduced five financial health metrics¹ in 2016 with an annual reporting requirement, management further discloses these metrics in the Annual Financial Report;
- Both DBRS¹ and Standard and Poor's have updated rating methodologies and made some changes to the key ratios considered when rating a university; and
- McMaster issued a second 50-year debenture in 2015.

¹ DBRS refers to Dominion Bond Rating Service

PRC – for approval

Policy Review Objectives:

- Confirm whether the Debt Management Policy principles remain valid;
- Confirm whether financial ratios ranges or targets are more appropriate for the policy;
- Confirm which financial ratios are most relevant to debt decisions; and
- Confirm which financial ratios are not material to debt decisions that management may monitor due to other third-party reporting requirements.

Review Scope:

- Performance over the last five years relative to debt management policy ratios, Ministry ratios and key credit rating ratios;
- Review of financial ratios tracked and monitored across peer universities (Ottawa, Queen’s, Western and Toronto);
- Review of the key financial ratios tracked and monitored by DBRS and S&P; and
- Review and draft Policy modifications.

Major Risks & Mitigating Factors:

Risk of relying on the wrong debt principles to guide debt strategy	The principles set in 2007 involved management, third party advisory, and the Board. Subsequent reviews have included KPMG, credit rating agencies, and managements review against peer approaches, the principles remain reasonable.
Risk of selecting the wrong policy ratios to track	The recommended policy ratios are based on stress testing, the implications associated with a ratio being offside in relation to credit rating agencies risk-based financial health methodology (refer to Appendix B).
Risk of setting inappropriate metric targets compared to the University’s risk tolerance	Management adopted DBRS targets, where available, based on the University establishing a “low” financial risk position within its enterprise wide risk program.
Risk of poor debt strategies and decisions due to a poor policy	Management uses a North American third-party higher education financial health setting leader to review its annual recommended strategies where a proposal for new debt is involved (Prager & Co. LLC.). Thus, debt recommendations will not be made that are not supported by management and third-party review.

Review Summary and Recommendation Results: Refer to attached Appendix A

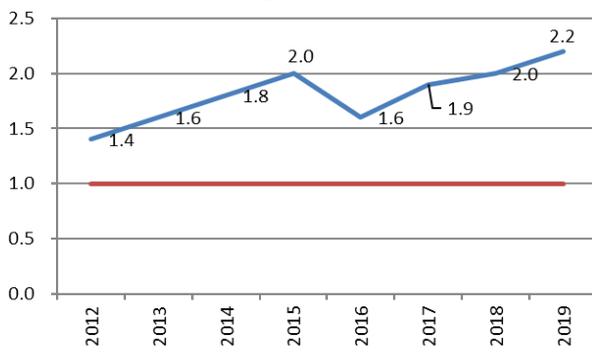
Public University Credit Rating Agency Metrics: Refer to attached Appendix B

Current and Proposed Revised Debt Management Policy: Refer to attached Appendix C

Prepared by: Nancy Gray, Executive Director, Strategic Projects, Financial Affairs;
Steven Moore, Treasurer, Financial Affairs; and
Deidre (Dee) Henne, AVP (Administration) & Chief Financial Officer

Reviewed by: Roger Couldrey, VP (Administration)

Appendix A: Review Summary and Recommendation Results

Measures of:	Short Description or Formula	Review Findings	McMaster's Data & Trend Chart (per Recommendations)	Debt Management Policy Recommendations																											
Capacity/Viability	<p>Available Expendable Resources (AER) / Debt</p> <p>Reflects how many times AER can cover debt.</p> <p>S&P defines a “low risk” target as greater than 1 times (“x”) coverage</p> <p>DBRS defines its “AA” rating target as greater than 0.8 times (“x”)</p>	<p>This ratio is currently in McMaster’s Debt Policy. This ratio is used by all peers reviewed, Ministry and both credit rating agencies. McMaster uses the term ‘Available Expendable Resources’ however most other definitions use the term ‘Expendable Assets or Expendable Net Assets’.</p> <p>In addition, McMaster & S&P use a more limiting definition of debt by including <u>any related and third-party debt guarantees</u> (e.g. MIP \$23M debt guarantee).</p> <p>McMaster’s current policy uses ratio ranges instead of a defined target. McMaster has always been above the upper bound of the allowed ratio range (which is 1x).</p>	<p style="text-align: center;">Mac - Viability Expendable Net Assets / Debt</p>  <table border="1"> <caption>Mac - Viability Data</caption> <thead> <tr> <th>Year</th> <th>Ratio - Mac</th> <th>Debt Policy Target (> 1.0X)</th> </tr> </thead> <tbody> <tr><td>2012</td><td>1.4</td><td>1.0</td></tr> <tr><td>2013</td><td>1.6</td><td>1.0</td></tr> <tr><td>2014</td><td>1.8</td><td>1.0</td></tr> <tr><td>2015</td><td>2.0</td><td>1.0</td></tr> <tr><td>2016</td><td>1.6</td><td>1.0</td></tr> <tr><td>2017</td><td>1.9</td><td>1.0</td></tr> <tr><td>2018</td><td>2.0</td><td>1.0</td></tr> <tr><td>2019</td><td>2.2</td><td>1.0</td></tr> </tbody> </table>	Year	Ratio - Mac	Debt Policy Target (> 1.0X)	2012	1.4	1.0	2013	1.6	1.0	2014	1.8	1.0	2015	2.0	1.0	2016	1.6	1.0	2017	1.9	1.0	2018	2.0	1.0	2019	2.2	1.0	<ol style="list-style-type: none"> Continue to use this policy ratio in the revised Debt Policy and rename Available Expendable Resources (AER) to the more generic ‘Expendable Net Assets’. Set the Policy target as greater than (“>”) 1x coverage.
Year	Ratio - Mac	Debt Policy Target (> 1.0X)																													
2012	1.4	1.0																													
2013	1.6	1.0																													
2014	1.8	1.0																													
2015	2.0	1.0																													
2016	1.6	1.0																													
2017	1.9	1.0																													
2018	2.0	1.0																													
2019	2.2	1.0																													
Capacity/Viability	<p>Ministry specific: Expendable Net Assets / Debt</p> <p>Similar to above, with minor different inclusions / exclusions in the numerator.</p>	<p>The Ministry uses a unique definition for McMaster by including the decommissioning obligation as debt. No other universities in Ontario have a decommissioning obligation.</p> <p>Neither S&P nor DBRS consider the decommissioning obligation as debt. McMaster has a set-aside or reserve fund for the decommissioning that it annually audited and disclosed in the notes to the financial statements.</p>	<p style="text-align: center;">Ministry - Viability Expendable Net Assets to Debt</p>  <table border="1"> <caption>Ministry - Viability Data</caption> <thead> <tr> <th>Year</th> <th>Ratio - MCU</th> <th>Debt Policy Target (> 1.0X)</th> </tr> </thead> <tbody> <tr><td>2012</td><td>1.6</td><td>1.0</td></tr> <tr><td>2013</td><td>1.8</td><td>1.0</td></tr> <tr><td>2014</td><td>2.1</td><td>1.0</td></tr> <tr><td>2015</td><td>2.3</td><td>1.0</td></tr> <tr><td>2016</td><td>1.7</td><td>1.0</td></tr> <tr><td>2017</td><td>2.0</td><td>1.0</td></tr> <tr><td>2018</td><td>2.1</td><td>1.0</td></tr> <tr><td>2019</td><td>2.3</td><td>1.0</td></tr> </tbody> </table>	Year	Ratio - MCU	Debt Policy Target (> 1.0X)	2012	1.6	1.0	2013	1.8	1.0	2014	2.1	1.0	2015	2.3	1.0	2016	1.7	1.0	2017	2.0	1.0	2018	2.1	1.0	2019	2.3	1.0	<ol style="list-style-type: none"> Add this ratio into the Debt Policy as a monitoring only ratio as long as it remains an annually reportable metric of Ministry. Since this ratio is less conservative than the previous ratio it will be monitored only. Set the monitoring target as > 1x coverage.
Year	Ratio - MCU	Debt Policy Target (> 1.0X)																													
2012	1.6	1.0																													
2013	1.8	1.0																													
2014	2.1	1.0																													
2015	2.3	1.0																													
2016	1.7	1.0																													
2017	2.0	1.0																													
2018	2.1	1.0																													
2019	2.3	1.0																													

Measures of:	Short Description or Formula	Review Findings	McMaster's Data & Trend Chart (per Recommendations)	Debt Management Policy Recommendations																		
Capacity/Viability	<p>Debt / Student FTE</p> <p>Reflects debt per full time equivalent student.</p> <p>DBRS defines its "AA" target as less than \$12,000 per Student FTE</p> <p>S&P does not use a debt per student metric. Rather it defines a "low risk" university as having greater than 20,000 FTE Enrolment</p>	<p>Management includes this ratio in its annual Debt Strategy Report; however, it is not currently a Debt Policy ratio.</p> <p>DBRS uses this ratio in determining whether the university has further debt capacity. Both University of Toronto and Ottawa include this ratio in their debt policies.</p> <p>Note: the trend chart shows a decline in debt per student, which is a function of student enrolment growth and no material change in debt.</p>	<p style="text-align: center;">Debt/FTE</p> <table border="1"> <caption>Debt/FTE Data</caption> <thead> <tr> <th>Year</th> <th>Ratio</th> </tr> </thead> <tbody> <tr><td>2012</td><td>\$5,895</td></tr> <tr><td>2013</td><td>\$5,866</td></tr> <tr><td>2014</td><td>\$5,677</td></tr> <tr><td>2015</td><td>\$5,582</td></tr> <tr><td>2016</td><td>\$9,901</td></tr> <tr><td>2017</td><td>\$9,472</td></tr> <tr><td>2018</td><td>\$9,292</td></tr> <tr><td>2019</td><td>\$8,873</td></tr> </tbody> </table>	Year	Ratio	2012	\$5,895	2013	\$5,866	2014	\$5,677	2015	\$5,582	2016	\$9,901	2017	\$9,472	2018	\$9,292	2019	\$8,873	<ol style="list-style-type: none"> 5. Add this ratio to the Debt Policy as a debt capacity measure ratio. 6. Set the Policy target as less than ("$<$") \$12,000 per Student FTE
Year	Ratio																					
2012	\$5,895																					
2013	\$5,866																					
2014	\$5,677																					
2015	\$5,582																					
2016	\$9,901																					
2017	\$9,472																					
2018	\$9,292																					
2019	\$8,873																					
Affordability	<p>Interest Burden: Interest Expense / Total Expenses</p> <p>Reflects interest expense as a percentage of overall University expenses.</p> <p>S&P defines "low risk" as less than 4%</p> <p>The Ministry tracks interest burden as one of its financial health ratios.</p>	<p>Management includes a similar ratio interest coverage in its current Debt Policy; this ratio is how many times net earnings can cover interest expense. Majority of peers reviewed use interest burden.</p> <p>Note: DBRS tracks a similar ratio for debt affordability using the interest coverage calculation, which is adjusted cash flows from operations plus interest expenses divided interest expense. DBRS defines the "AA" target as greater than 2.5x interest coverage. McMaster's interest coverage as at April 30, 2019 is 13.7x.</p>	<p style="text-align: center;">Interest Burden</p> <table border="1"> <caption>Interest Burden Data</caption> <thead> <tr> <th>Year</th> <th>Ratio</th> </tr> </thead> <tbody> <tr><td>2012</td><td>2.4%</td></tr> <tr><td>2013</td><td>3.5%</td></tr> <tr><td>2014</td><td>1.0%</td></tr> <tr><td>2015</td><td>1.0%</td></tr> <tr><td>2016</td><td>1.3%</td></tr> <tr><td>2017</td><td>1.5%</td></tr> <tr><td>2018</td><td>1.4%</td></tr> <tr><td>2019</td><td>1.4%</td></tr> </tbody> </table>	Year	Ratio	2012	2.4%	2013	3.5%	2014	1.0%	2015	1.0%	2016	1.3%	2017	1.5%	2018	1.4%	2019	1.4%	<ol style="list-style-type: none"> 7. Revise the Debt Policy interest coverage ratio to the interest burden ratio, which is the more conservative ratio. This ratio will align with the Ministry definition. 8. Set the Policy target as less than ("$<$") 4%.
Year	Ratio																					
2012	2.4%																					
2013	3.5%																					
2014	1.0%																					
2015	1.0%																					
2016	1.3%																					
2017	1.5%																					
2018	1.4%																					
2019	1.4%																					

Measures of:	Short Description or Formula	Review Findings	McMaster's Data & Trend Chart (per Recommendations)	Debt Management Policy Recommendations																		
Flexibility	<p>Primary Reserve: Expendable Net Assets / Expenses or Revenues</p> <p>Reflects available reserves as a function or percentage of either total expenses or total revenues. To convert to days, it's the percentage multiplied by 365.</p> <p>S&P ratio is based on expenses. the "low-risk" target is greater than 25%</p> <p>Ministry tracks this ratio in days.</p>	<p>Management includes this ratio in its current Debt Policy using revenues as the denominator, and, using the term 'Available Expendable Resources' instead of the more generic 'Expendable Net Assets'. Only S&P and Ministry use this ratio and both base the calculation on expenses.</p>	<p style="text-align: center;">Expendable Net Assets /Total Expense * 365 days</p> <table border="1"> <caption>Expendable Net Assets / Total Expense * 365 days</caption> <thead> <tr> <th>Year</th> <th>Ratio</th> </tr> </thead> <tbody> <tr><td>2012</td><td>95</td></tr> <tr><td>2013</td><td>102</td></tr> <tr><td>2014</td><td>120</td></tr> <tr><td>2015</td><td>128</td></tr> <tr><td>2016</td><td>175</td></tr> <tr><td>2017</td><td>201</td></tr> <tr><td>2018</td><td>204</td></tr> <tr><td>2019</td><td>215</td></tr> </tbody> </table>	Year	Ratio	2012	95	2013	102	2014	120	2015	128	2016	175	2017	201	2018	204	2019	215	<p>9. Modify this ratio in the Debt Policy to a monitoring only ratio based on expenses as the denominator while reportable to the Ministry and use the term Expendable Net Assets.</p> <p>10. Set the monitoring target as greater than (">") 25% converted to Ministry days, thus > 91.25 days.</p>
Year	Ratio																					
2012	95																					
2013	102																					
2014	120																					
2015	128																					
2016	175																					
2017	201																					
2018	204																					
2019	215																					
Liquidity	<p>Cash and ST Investments / Expenses Or, Cash, ST Investments, and Line of Credit / Expenses</p> <p>Reflects liquid funds as a function of total expenses.</p> <p>No peer or credit rating agency targets available. Credit rating agencies calculate liquidity, but it is only reported as supplemental information.</p>	<p>McMaster includes a liquidity ratio in its current Debt Policy. No other universities include a policy related liquidity ratio, nor does the Ministry require liquidity to be reported on.</p> <p>Both DBRS and S&P only refer to the liquidity ratio as a supplementary information ratio and it is only calculated in the body of the reports.</p>	<p style="text-align: center;">Liquidity Ratio</p> <table border="1"> <caption>Liquidity Ratio</caption> <thead> <tr> <th>Year</th> <th>Ratio</th> </tr> </thead> <tbody> <tr><td>2012</td><td>3.6</td></tr> <tr><td>2013</td><td>3.5</td></tr> <tr><td>2014</td><td>3.7</td></tr> <tr><td>2015</td><td>2.1</td></tr> <tr><td>2016</td><td>1.9</td></tr> <tr><td>2017</td><td>2.0</td></tr> <tr><td>2018</td><td>2.5</td></tr> <tr><td>2019</td><td>2.6</td></tr> </tbody> </table>	Year	Ratio	2012	3.6	2013	3.5	2014	3.7	2015	2.1	2016	1.9	2017	2.0	2018	2.5	2019	2.6	<p>11. Remove this ratio from the Policy and replace this ratio with monitoring ratios: the profitability ratios (below) and the flexibility ratio (above), which also measure liquidity.</p>
Year	Ratio																					
2012	3.6																					
2013	3.5																					
2014	3.7																					
2015	2.1																					
2016	1.9																					
2017	2.0																					
2018	2.5																					
2019	2.6																					

Measures of:	Short Description or Formula	Review Findings	McMaster's Data & Trend Chart (per Recommendations)	Debt Management Policy Recommendations																											
Profitability	<p>Net income / Revenue</p> <p>Reflects net income as a function of total revenue.</p> <p>DBRS defines an "AA" rating using a 5-year average greater than 1%.</p> <p>S&P defines a "low risk" organization target as greater than 1%</p>	<p>McMaster does not currently include a consolidated operating margin ratio in its debt policy. Nor do any of the other comparator universities. The Ministry does include this ratio as one of its monitoring ratios without a defined target. The graph on the right shows the Ministry ratio.</p> <p>DBRS uses a five-year average in its calculation.</p>	<p style="text-align: center;">Profitability 1</p> <table border="1"> <caption>Profitability 1 Data</caption> <thead> <tr> <th>Year</th> <th>Ratio (%)</th> <th>Debt Policy Target (%)</th> </tr> </thead> <tbody> <tr><td>2012</td><td>1%</td><td>> 1%</td></tr> <tr><td>2013</td><td>6%</td><td>> 1%</td></tr> <tr><td>2014</td><td>9%</td><td>> 1%</td></tr> <tr><td>2015</td><td>8%</td><td>> 1%</td></tr> <tr><td>2016</td><td>3%</td><td>> 1%</td></tr> <tr><td>2017</td><td>10%</td><td>> 1%</td></tr> <tr><td>2018</td><td>10%</td><td>> 1%</td></tr> <tr><td>2019</td><td>13%</td><td>> 1%</td></tr> </tbody> </table>	Year	Ratio (%)	Debt Policy Target (%)	2012	1%	> 1%	2013	6%	> 1%	2014	9%	> 1%	2015	8%	> 1%	2016	3%	> 1%	2017	10%	> 1%	2018	10%	> 1%	2019	13%	> 1%	<p>12. Add this ratio to the Debt Policy as a monitoring only ratio, using the Ministry definition while reportable to the Ministry.</p> <p>13. Set the monitoring target as > 1%.</p>
Year	Ratio (%)	Debt Policy Target (%)																													
2012	1%	> 1%																													
2013	6%	> 1%																													
2014	9%	> 1%																													
2015	8%	> 1%																													
2016	3%	> 1%																													
2017	10%	> 1%																													
2018	10%	> 1%																													
2019	13%	> 1%																													
Profitability	<p>Net Operating Revenues</p> <p>No peer or credit rating agency targets available.</p>	<p>This is a Ministry specific ratio that calculates cash flow from operating activities divided by total revenues shown as a percentage.</p>	<p style="text-align: center;">Profitability 2</p> <table border="1"> <caption>Profitability 2 Data</caption> <thead> <tr> <th>Year</th> <th>Ratio (%)</th> <th>Debt Policy Target (%)</th> </tr> </thead> <tbody> <tr><td>2012</td><td>3%</td><td>> 2%</td></tr> <tr><td>2013</td><td>15%</td><td>> 2%</td></tr> <tr><td>2014</td><td>19%</td><td>> 2%</td></tr> <tr><td>2015</td><td>14%</td><td>> 2%</td></tr> <tr><td>2016</td><td>8%</td><td>> 2%</td></tr> <tr><td>2017</td><td>14%</td><td>> 2%</td></tr> <tr><td>2018</td><td>12%</td><td>> 2%</td></tr> <tr><td>2019</td><td>15%</td><td>> 2%</td></tr> </tbody> </table>	Year	Ratio (%)	Debt Policy Target (%)	2012	3%	> 2%	2013	15%	> 2%	2014	19%	> 2%	2015	14%	> 2%	2016	8%	> 2%	2017	14%	> 2%	2018	12%	> 2%	2019	15%	> 2%	<p>14. Add this ratio to the Debt Policy as a monitoring only ratio while reportable to the Ministry.</p> <p>15. Set the target as > 2%.</p>
Year	Ratio (%)	Debt Policy Target (%)																													
2012	3%	> 2%																													
2013	15%	> 2%																													
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2019	15%	> 2%																													

Appendix B – Excerpts from Rating Agency Indicator Documents

Standard and Poor’s

S&P Rating indicators - Public Universities	Ranks					
	1 (Very Low Risk)	2 (Low Risk)	3 (Intermediate Risk)	4 (High Risk)	5 (Very High Risk)	6 (Extremely High Risk)
FTE Enrolment	> 50,000	20,000 -50,000	10,000-20,000	5,000-10,000	1,000-5,000	< 1,000
Operating Margin for Public Universities	> 5%	1% to 5%	-2% to 1%	-5% to -2%	-6% to -5%	< -6%
Available Resources to Annual Operating Expenses	> 35%	25% - 35%	15% - 25%	10% - 15%	3% - 10%	< 3%
Maximum Annual Debt Service Burden (MADS/total operating Expenses)*100	< 2%	2% - 4%	4% - 6%	6% - 8%	8% - 10%	> 10%
Available Resources to Debt	>2x	1x - 2x	0.7x - 1.0x	0.5x - 0.7x	0.2x - 0.5x	<0.2x

FTE Enrolment	FTE can create both economies of scale and enrollment diversity, which may limit the degree of enrollment fluctuation
Operating Margin for Public Universities	Measures to what extent the enterprise produces enough income, or surplus revenue, to cover its operating expenses and long term needs, including debt service, depreciation expense, and plant renewal
Available Resources to Annual Operating Expenses	Reflect the ability to fund obligations from unrestricted funds on hand
Maximum Annual Debt Service Burden (MADS/total operating Expenses)*100	Used as a more conservative and more forward-looking measure than annual debt service and indicates University's flexibility to service its future debt in times of diminished financial performance
Available Resources to Debt	Measures all of the available resources a University has in order to pay all of its debt, the ratio is used to determine how heavily leveraged the University is

Source: S&P 2018 Rating Guide – Public Universities

DBRS

Public Universities – Primary FRA Metrics

Primary Metric	AA	A	BBB
Debt per FTE ¹	< \$12,000	\$12,000 to \$18,000	> \$18,000
Expendable resources-to-debt ²	> 80%	5% to 80%	0%
Interest coverage	> 2.5x	1.3x to 2.5x	< 1.3x
Surplus (deficit)-to-revenue (five-year average)	> 1%	0% to 1%	Steady deficits

¹ DBRS notes that this metric is adjusted periodically. ² Including unrestricted or internally-restricted endowment assets, internally-restricted net assets (excluding investment in capital assets and employee future benefits) and the unrestricted surplus (deficit).

Source: Rating Public Universities – DBRS Rating Guide – May 2018

McMaster University

Policies, Procedures and Guidelines



Complete Policy Title: Debt Management Policy	Policy Number (if applicable): n/a
Approved by: Board of Governors	Date of Most Recent Approval: TBD – March 5, 2020
Date of Original Approval(s): December 13, 2007	Supersedes/Amends Policy dated: April 16, 2015 June 7, 2012 December 13, 2007 December 12, 2002 (Private Placement Bond Management Policy)
Responsible Executive: Vice-President (Administration)	Enquiries: University Secretariat
DISCLAIMER: <i>If there is a Discrepancy between this electronic policy and the written copy held by the policy owner, the written copy prevails.</i>	

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SECTION I - PREAMBLE

This document serves to outline the application and use of external debt by McMaster University. This policy further outlines internal methods used for the assessment of proposed projects and internal loans.

Since capital projects will require a combination of financing sources including internal reserves, external debt, gifts, future revenue streams, grants and deferred contributions, debt will be considered a perpetual component of the University's capital structure. The specific amounts, types, term, and uses of debt will be selected to help the University achieve the lowest cost of capital consistent with the University's risk tolerance profile.

SECTION II - OBJECTIVES

In order to ensure that debt and University reserves are used prudently, the University will give higher priority to projects that are considered mission-critical and/or self-supporting.

The strategic use of debt will be aligned with the University's investment policies to manage the overall cost of capital and limit the level of risk as determined through the university's enterprise wide risk management program. Bridge financing, derivative products, short and long term, fixed, and variable rate debt will all be considered to achieve this goal of risk reduction and reduced cost of capital. In determining different debt strategies, McMaster will take into account the University's assets, liabilities, unrestricted cash flow and market conditions when evaluating different debt strategies and instruments.

This policy will help guide the University's on-going relationship with the rating agencies, bond purchasers and external constituents by providing continuous communication and education.

SECTION III - ESTABLISHMENT OF POLICY RATIOS

The University has established guidelines regarding the optimal amount of outstanding debt through monitoring University-wide financial ratios. These ratios measure University balance sheet resources and annual cash flow. They can be derived from the University's financial statements and are subject to review periodically.

Ratio 1 – Viability: Expendable Net Assets-to-Debt Ratio: This ratio measures balance sheet leverage by comparing University's Expendable Net Assets¹ to outstanding debt obligations, including any debt guarantees, but excluding decommissioning obligations as these obligations have offsetting restricted assets.

$$\frac{\text{EXPENDABLE NET ASSETS}}{\text{TOTAL UNIVERSITY DEBT}} > 1.0 \times \text{coverage}$$

(including guarantees, and excluding decommissioning obligations)

Management has established a target of greater than one times coverage.

¹ Expendable Net Assets include Internal Reserves (as outlined in the University's audited financial statements), Internal endowments, and Unrestricted net assets.

Ratio 2 – Affordability: Interest Burden: This ratio indicates debt affordability as it quantifies interest expense as a percent of total expenses net of amortization. This ratio is also included in the Ministry’s Financial Health Metrics.

$$\frac{\text{INTEREST EXPENSE}}{\text{OPERATING EXPENSES - AMORTIZATION}} < 4\%$$

The target for interest burden is less than four percent to ensure sufficient funding for debt interest is available.

Ratio 3 –Capacity: Debt per FTE: This ratio divides debt by the total number of full time equivalent (FTE) students registered at the university and reflects debt capacity relative to university size. While not a metric required by the Ministry, it is a key metric referenced by rating agencies. The measurement is calculated as follows:

$$\frac{\text{DEBT (same definition as Ratio 1)}}{\text{\# FTE STUDENTS}} < \$12,000$$

The target for debt to FTE is less than twelve thousand.

The ratios and targets above are not intended to track a specific credit rating, but rather to ensure the maintenance of the University’s financial profile competitively. Other ratios, such as the additional Financial Health metrics reported annually to the Ministry of Colleges and Universities (Ministry) will be monitored in order to provide management with a more complete understanding of the University’s credit and financial profile. These ratios are included in Appendix A.

SECTION IV – COMPLIANCE WITH BOND COVENANTS

At the time of review and approval of the Annual Financial Statements of the University, the Audit Committee will review a report that documents the University’s compliance with all covenants and obligations associated with any outstanding bonds, including the punctual payment of debt service.

The University will ensure sufficient funding for interest payments along with annual costs (trustee fees, credit rating fees, etc.) in the multi-year financial plan approved by the Board of Governors and the Annual Consolidated Budget approved by the Board of Governors.

SECTION V – REQUIREMENT FOR DEBT AND SINKING FUNDS

Requirement for Debt: The need for external debt is reviewed annually and informed by the Capital Plan and additional strategic projects as approved by the President and Vice Presidents. External debt calls will be led by the AVP (Administration) & Chief Financial Officer, with an assembled internal team inclusive of the Treasury department, and in accordance with the Execution of Instruments policy.

Loans: The University will maintain a Central Bank Policy for internal loans, regardless of source of funding, for projects which require University debt. The Policy will include acceptable ranges for amortization, prepayment terms and a University-wide blended interest rate reflecting the University's overall cost of capital and cost of administering the loan. To the extent that internal loan payments are not needed to pay annual debt service in a given year, they will be deposited into an internally restricted fund which can be used either to fund additional loans/projects, or to pay debt service costs in the future, including principal.

Sinking Funds: Each debt instrument that requires a bullet payment is required to have a sinking fund set up designed to ensure there will be sufficient funds to repay principal on outstanding debt, when due.

Sinking funds should be invested with the objectives of:

- Maximizing investment earnings over the time horizon and to achieve a minimum annual average rate of return at least equal to the blended rate on the University's debt over the life of the fund.
- Provide appropriate diversification of asset mix to ensure prudent and effective management of the funds.

Based on the long-time horizon that exists for the sinking funds, the University has determined that the sinking funds will be invested within the McMaster University Investment Pool. As such, the Investment Pool's Statement of Investment Policies and Objectives will govern the administration and investment management of the sinking funds.

On an annual basis, the Planning and Resources Committee will review the sinking funds' value relative to projected target and consider recommendations to increase a sinking fund to ensure sufficiency of funds to repay principal.

SECTION V – REVIEW AND OVERSIGHT FOR THIS POLICY

This debt management policy will be reviewed tri-annually to remain consistent with the University's objectives and the external environment. The Planning and Resources Committee will have on-going oversight and regularly review the asset and liability structure related to this policy. Management may recommend to the Planning and Resources Committee revisions to the policy in the future if deemed desirable. The structure of any individual transaction will be based upon overall University needs to ensure that long-term costs are minimized consistent within the context of other strategic objectives and that overall risk does not exceed acceptable levels.

At a minimum, management will report the historical debt policy ratios to the Planning and Resources Committee on an annual basis. In addition, management will include a ten-year debt projection in the annual multi-year financial projections reported to the Planning and Resources Committee to monitor debt capacity, affordability, flexibility and liquidity.

Where any two of the historical or projected debt policy ratios do not meet the established targets, management will undertake a more comprehensive review and provide a report with recommendations to the Planning and Resources Committee.

Appendix A – Monitoring Ratios

The table below includes additional ratios that the Ministry uses to measure the Financial Health of universities. While the Ministry does not set targets, the university has included its targets below.

Ratio	Description	Calculation and target
Net Income/Loss	A performance measure that calculates the net income or loss as a percent of total revenues	Net income / Total expenditures >1.0%
Net Operating Revenues	A performance measure that calculates cash flow from operating activities as a percent of revenues	Cash generated from operations/Revenue > 2.0%
Primary Reserve (days)	A liquidity measure that calculates the number of days university reserves can cover operating expenses	Expendable net assets / Total expenses *365 days > 91 days
Viability	A leverage measure that calculates the number of times that long-term debt could be settled using unrestricted assets	Long term debt (including decommissioning obligations, and excluding guarantees) / Expendable net assets > 1.0