



University Planning Committee

Wednesday, May 15, 2019 at 10:30 AM
Gilmour Hall, Council Room (Room 111)

AGENDA

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OPEN SESSION

1. **MINUTES OF PREVIOUS MEETING – MARCH 20, 2019 (OPEN SESSION)**
2. **BUSINESS ARISING**
3. **CHAIR'S COMMENTS AND UPDATE**
4. **MCMASTER ACCESSIBILITY COUNCIL 2017-2018 ANNUAL REPORT**
2 - 15 [McMaster Accessibility Council Annual Report \(INFORMATION\)](#)
5. **2019-2020 CONSOLIDATED BUDGET**
16 - 116 [2019-2020 Consolidated Budget \(INFORMATION\)](#)
6. **PRESIDENT'S ADVISORY COMMITTEE ON BUILDING AN INCLUSIVE COMMUNITY (PACBIC) ANNUAL REPORT**
117 - 135 [PACBIC 2018 Annual Report \(INFORMATION\)](#)
7. **CYCLICAL PROGRAM REVIEWS**
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8. **CAPITAL PLAN UPDATE**
231 - 264 [Capital Plan \(APPROVAL\)](#)
9. **OTHER BUSINESS**

CLOSED SESSION

10. **MINUTES OF PREVIOUS MEETING – MARCH 20, 2019 (CLOSED SESSION)**
11. **BUSINESS ARISING**
12. **PROJECT STATUS REPORT**
13. **OTHER BUSINESS**
14. **ADJOURNMENT**

McMaster Accessibility Council

2017-2018
Annual Report

McMaster Accessibility
Council (MAC)



McMaster Accessibility Council 2017-2018 Annual Report



McMaster Accessibility Council 2017-2018 Annual Report

DATE: May 7, 2019

SUBJECT: McMaster Accessibility Council – 2017-2018 Annual Report

TO: Patrick Deane, President
David Farrar, Provost and Vice President (Academic)
Roger Couldrey, Vice-President (Administration)

FROM: Anne Pottier, Chair, McMaster Accessibility Council (MAC)

Please find enclosed, for your review, the ninth annual report from the McMaster Accessibility Council (MAC).

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Message from MAC Chair

During this last year we continued to see increased awareness of accessibility across campus. We can now see that the way we do our work is changing and progress is being made across all areas of the university, but there is still much work to be done. Policies and processes are in place, but there is a need to communicate all of this information. One of the ways we hope to do this is with the introduction of this Accessibility Update, which we plan to provide to campus on a regular basis.

There continues to be more conversation taking place across campus around accessibility in our everyday work, not just in meetings where accessibility is an agenda item. We are regularly incorporating accessibility into discussions related to renovations and new physical design work and how best to ensure that we are taking into consideration the broad range of individuals who may attend classes (either in-person or virtually), meetings or other public events on-campus. We can see that communication is key to advancing this work. We need to share what work is being done across campus, in order to further encourage all areas to work together. We hope that this will help ensure that work isn't being duplicated, and more importantly, will support the sharing of what is working, what isn't working, and why.

While the McMaster Accessibility Council is working hard to advance accessibility at McMaster, it is important to acknowledge the staff, students and faculty who are also working to move the accessibility agenda forward. Accessibility is a shared endeavour and is not just the work of the Council. We all need to reflect on how we can integrate accessibility into our everyday work and ensure that accessibility becomes part of the way we do things at McMaster.

I am looking forward to a year filled with conversations around carrying out work more accessibly, and to see outcomes which incorporate this work naturally. I encourage everyone to do the same.

Anne Pottier

Message from Associate Vice-President, Equity and Inclusion

As the University Executive responsible for administering the university's Policy on Accessibility, it has been my pleasure to work this past year with senior colleagues on the McMaster Accessibility Council.

The Council is dedicated to advancing equity and inclusion for the diversity of persons with disabilities in our community. To that end, we have been working on developing an Accessibility Plan to support campus-wide efforts to meet and exceed Accessibility for Ontarians with Disabilities Act obligations.

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The Plan will accompany the release of McMaster's first Strategic Equity, Diversity, and Inclusion Action Plan. Guided by the Strategic EDI Planning Framework, the Accessibility Plan identifies several strategic actions across four pillars essential to institutional change:

- A. Institutional Commitment and Capacity;
- B. Academic Content and Context;
- C. Interactional Capabilities and Climate; and
- D. Compositional Diversity and Community.

McMaster University's Policy on Accessibility will be reviewed and revised as one of the strategic priorities under the Institutional Commitment and Capacity pillar. Stay tuned...we will be sharing the draft Accessibility Plan for community consultation in the spring of 2019.

I look forward to launching the Plan and to working with colleagues and community members to realize our vision of creating and maintaining barrier-free environments, promoting universally accessible programs and practices, and fostering a culture of awareness, respect and inclusion at McMaster.

Dr. Arig al Shaibah

Accessibility Accomplishments 2017-2018

Emerging McMaster Accessibility Plan

- MAC has been working with the AVP Equity & Inclusion on finalizing an Accessibility Plan, which will accompany the release of McMaster's first Strategic Equity, Diversity, and Inclusion Action Plan. Guided by the Strategic EDI Planning Framework, the Accessibility Plan will identify several strategic actions across four pillars essential to institutional change.
- McMaster Policy on Accessibility will be reviewed and revised as one of the strategic priorities.
- The Accessibility Action Plan will be shared for community consultation in the spring of 2019.

Environments and Spaces

- An Accessible Furniture Protocol was developed to ensure accessible furniture is available when and where required in classrooms and exam rooms, for both students and instructors, as part of the accommodation process. This was a joint protocol between SAS, Registrar's Scheduling Office, and Facility Services.
- Campus Accessibility Action Plan – 2017/18 Expenditures
 - New ramp to access the Physical Activity Centre of Excellence (PACE)
 - UH 108 washroom upgrades (near new Equity & Inclusion Office)
 - Hedden Hall – replacement of fire notification system to include bells and strobes
 - Installed 16 barrier free drinking fountains on campus

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- Creation of a new **Campus Accessible Tech Space (CATS)** in Mills Library
 - Two private study booths with automated height adjustable tables which have built-in digital memory controllers
 - Additional four automated height adjustable work stations
 - Collaborative study table
 - Low sensory study area, complete with sound-dampening Privy Booths and bean bag chairs
 - Variety of technology available for loan or use in this space
 - PC and MAC laptop loaded with adaptive software
 - Echo Pen with notebook
 - DAISY players
 - Flatbed scanners
 - Braille printer
 - Tactile embosser
 - CCTV text enlarger
 - Large print keybaod
 - Noise-cancelling headset with boom mic
 - High quality standing microphone for desk use
 - Various magnification devices

The Equity and Inclusion Office staff, the McMaster Accessibility Council Chair and Facilities Services have worked together to create an accessibility tracking protocol that allows McMaster community members to submit tickets for accessibility issues to Facilities Services using a newly created “Accessibility” category. These tickets are both prioritized to receive immediate attention and are further able to be tracked through Facilities Service’s ticketing system.

EIO staff are also tracking reported accessibility issues, including physical accessibility concerns to report back to MAC and Facilities Services in order to compare with tracked Facilities numbers.

Digital Accessibility

Web Accessibility Project

The efforts from the Web Accessibility Project continue with focus being placed on next steps and recommendations coming out the of Web Accessibility Survey. The Web Accessibility Survey has allowed for McMaster website producers to report on the current compliance levels of their websites, and their

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state of readiness in producing sites to meet legislative requirements. This information will be useful in identifying gaps that exist in capacity and to consider possible solutions.

Elements that will be discussed in the recommendations are as follows:

- Creation of web accessibility plans
- Strategies for compliance across a decentralized infrastructure
- Capacity building and sustainability of accessible practices
- Centrally developing and maintaining web accessibility information such as audit and best implementation practices for McMaster
- Working with external vendors to ensure the procurement of accessible web sites

Accessibility.mcmaster.ca will be the primary location for information regarding web accessibility for the community to access. As the new version of the [Accessibility Hub](#) is released, content will be refreshed containing training and implementation information for all levels of web teams including managers, designers, developers, and content creators. Further, the Accessibility Hub will undergo user and accessibility testing, as well as broad accessibility considerations in its re-design, where changes made to enhance usability of the site for disabled users can then be applied to all other sites designed by Media Production Services.

Faculty of Social Sciences: Creation of Web Accessibility Plan

The Faculty of Social Sciences has initiated a 'Web Accessibility Plan' in response to the Accessibility for Ontarians with Disabilities Act (AODA) and the 'Information and Communication Standards'. The following captures our approach to building a sustainable barrier-free website strategy:

1. Centralization and the Creation of Standards
2. Required Training and Culture Change
3. Developing a Sustainability Plan and Annual Auditing
4. Advocacy
5. Participation

Please refer to **Appendix A** for a detailed case study about how the Faculty of Social Sciences is accomplishing the above approach.

Communication

Since 2009, the McMaster Accessibility Council (MAC) has been tasked with compiling (this) Annual Accessibility Report that highlights and summarizes yearly MAC / EIO accessibility accomplishments and demonstrates how McMaster is meeting AODA legislative requirements on an ongoing bases.

This year and moving forward, we want to advance beyond reporting compliance requirements to facilitate greater awareness of accessibility work happening across campus by connecting students, staff, and faculty integrating accessibility into their teaching, work, and school practices and events.

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With the goals of:

1. Communicating better to campus communities about accessibility initiatives being led by MAC/EIO, and
2. Building cross-campus community around accessibility and disability inclusion work that the broader McMaster community members are engaged in,

The inaugural [Accessibility and Disability Inclusion Update 2017-2018](#) was published.

In its first year, the Update drew upwards of 40 submissions from McMaster students, staff and faculty, comprising 29 pages in total and broken down into the following, easy-to-navigate sections:

- Student Initiatives
- Policy
- Spaces and Environments
- Teaching and Learning
- Technology
- Employment
- Community Engagement
- Resources

Recognizing the challenges of implementing a centralized accessibility communication plan within the decentralized working, teaching and learning environments of McMaster University, the Update works to connect individuals and units across campus who might otherwise be isolated in their individual efforts to make McMaster more accessible, equitable and inclusive. A goal moving forward with the Update is to continue building community digitally and in-person; to promote supportive relationships, through which future communication regarding accessibility messaging is more broadly shared; and to encourage stronger commitments from the McMaster community to take-up and take-on the work that needs to be done to continue moving accessibility forward at the University.

Accessible Education

After the launch of [Forward with Flexibility: A Teaching and Learning Resource on Accessibility and Inclusion](#), EIO and MAC staff presented the resource, information about the revamp of the Accessibility Hub website and the Captioning protocol, as well as general information about what EIO and MAC are and do, during 7 beginning-of-year Faculty meetings (MBA Faculty, Engineering, Sciences, Integrated Science, Social Sciences, Humanities and to the Centre for Continuing Education).

Following this, a team of researchers at McMaster's MacPherson Institute are currently conducting research on factors that support (or discourage) the integration of accessibility principles in teaching and learning. Focus groups and interviews have been conducted with instructors and TAs from across campus, and have generated data that speaks to motivations for, and facilitators, and barriers to, accessible teaching. One component of this work considers the role of training opportunities, including resources like the [FLEX Forward e-book](#), in supporting the growth of accessible education. Findings from

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this project will be shared with staff at the MacPherson Institute and other relevant offices in order to inform efforts to support accessible teaching on campus.

Additionally, [The Student Partners Program](#), supported by the MacPherson Institute, also funded several additional projects focusing on accessibility and equity in teaching and learning in 2018. These include the following:

- Work assessing the extent to which student-faculty partnerships can contribute to campus and classroom equity and inclusion
- Research exploring the teaching experiences of TAs in relation to their identities and social locations (including disability)
- A project focused on enhancing field education experiences for equity-seeking students in Social Work
- Efforts to design a course focused on equity and inclusion in the Engineering workplace
- A project focused on developing diversity and inclusivity initiatives for students, staff, and faculty in the W. Booth School of Engineering Practice and Technology
- Investigation into accessibility barriers students face in completing social work assignments, and recommendations for redesign
- Exploring and proposing how to move forward with increasing Disability Studies curriculum on campus and recognition of accessible teaching through an awards program
- Students with disabilities user testing the Accessibility Hub website, the first point of contact for instructors with questions related to accessible education

With funding from SSHRC, researchers from the MacPherson Institute are also piloting an equity-focused stream of the Student Partners Program. In its pilot offering, this stream has connected 5 pairs of students and instructors, who are working together on advancing equity (including issues of accessibility) in the faculty member's course/program.

Employment

- Launch of new Human Resources Services website, where accessibility and accommodation information for employees is much easier to find / fore fronted on the Home page
- Ongoing work to have accessibility and accommodations statements included in all employee letters of offer, including temporary, TA/RA and work/study
- Ongoing relationship building and work with the Employee Accessibility Network and the EIO to create the Equitable and Accessible Workplace Accommodations training for McMaster managers and employees. Have so far provided 1 pilot session for the Network and 4 training sessions, (2 public, 2 for specific units), for approximately 50 McMaster managers and 20 members of disability and accessibility communities.

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Advocacy and Awareness Raising

Student Initiatives

Undergraduate and graduate student advocacy and awareness raising for accessibility and disability inclusion were incredible this year including:

- MSU Maccess hosting [DisVisibility Week](#) at the end of February 2018, which focused primarily on conversations about accessibility, disability and visibility around campus, including the creation of safe spaces for persons with disabilities at McMaster
- The creation of the first Accessibility Plan in consultation with the AccessMac program within the EIO for the [McMaster Health Advocacy Symposium](#), an annual student-led event that fosters the development of effective, responsible advocacy skills amongst health professional students.
- A collaboration of graduate and undergraduate students and recent alumni receiving SPICES funding from the School of Graduate Studies to establish a [Disability and Mad Studies Reading Group](#).
- With many more examples detailed within this year's [Accessibility and Disability Inclusion Update 2017-2018](#), under "Student Initiatives".

December 3rd International Day of Persons with Disabilities Celebration

This year's International Day of Persons with Disabilities Celebration was carried out through the organization of a 3-part discussion series in partnership with the EIO/AccessMac Program, the Disability and Mad Studies Reading Group and MSU Maccess. From November 29-December 3, participants in the series explored topics and discussion around disability, accessibility, stigma and celebration.

Additionally, and leading up to December 3, a 6-week social media campaign to launch the inaugural [Accessibility and Disability Inclusion Update 2017-2018](#) paired illustrations from the newly published [Open Accessibility: An Illustrated History of Disabled Advocacy at McMaster](#) comic with excerpts from the Update on Facebook and Twitter platforms. The campaign culminated on December 3 with the release of a celebratory and commemorative email to the McMaster campus community.

Advocacy Groups

Disability Discussions

The Equity and Inclusion Office has been working with MSU Maccess to amplify this year's "Disability DIScussions" series to both meet the needs of the students participating, and to connect students with disabilities to various services on-campus (for example, the School of Graduate Studies and the Student Success Centre). One of the central goals of these DIScussions continues to be capturing the gaps in accessibility in services and environments that continue to exist at McMaster, and which impact students with disabilities in complex and often, harmful, ways at the University. Salient points from this year's DIScussions will be documented and presented to the MAC to discuss ways in which the barriers students are describing can be acknowledged and acted upon for removal.

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The Employee Accessibility Network

The Employee Accessibility Network for employees with disabilities is now in its second year of meeting, where disabled employees at the University are invited to connect, network and collaborate, and where the Network acts additionally as a consultative unit to the MAC. This past year, the Network has worked together to consult and provide feedback in several areas, including:

- The Employee Accessibility Network's Terms of Reference and promotional material
- The McMaster Accessibility Policy
- The McMaster Tobacco and Smoke Free Policy
- Tuition rates for graduate students with disabilities in Masters studies
- Parking and parking lots on the main campus and satellite campuses
- The development of Accessible and Equitable Workplace Accommodations training for the entire McMaster community
- The (emerging) McMaster Accessibility Award
- The Post-secondary Education Standards Development Committee Mandate and Overview (provincial committee)

The Network has additionally hosted several educational opportunities and discussions for employees with disabilities, including:

- PATH Employment Services
- Employee Health Services workshop on workplace accommodations processes
- Career Advancement and Recruitment for employees with disabilities
- The emerging Equity, Diversity and Inclusion strategic framework for the University

Moving forward, some of the Network's goals include outreach and (flexible) recruitment of employees with disabilities, as well as continue to find ways in which the Network can remain a safe and inviting space for those who self-identify. To join the Network, please contact (confidentially) access@mcmaster.ca.

Consultation

MAC and EIO have been actively engaged in providing accessibility and disability inclusion consultations around the University for many years, and this past year we've seen the numbers are growing exponentially. Consultations may involve providing expertise in the areas of universal design for buildings/physical spaces, creation of media and digital presences, accessible customer service best practices, planning accessible meetings and events, accessible teaching and learning and accessibility within employment contexts. Some examples of consultations that have been provided over the last year have included:

- Hospitality and Residences Accessibility Audits
- McMaster Safety App
- MIRA Planning Grant (accessible art spaces)
- JHE Renovations Guidelines

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- 3D Campus Map Project
- Grant applications for ET Clark and for Campus Services Building
- Temporary Classroom Building (behind Divinity College)
- SAFE building, extension to David Braley Athletic Centre (DBAC)
- Peter George Centre for Living & Learning
- MSU Accessibility Policy
- Accessibility considerations for the Degroote School of Business Health and Safety Committee
- Emergency Buttons Project (for lifts and universal washrooms) (Facility Services, Student Accessibility Services, Parking and Security)
- Beacon technology applications for campus wayfinding (Facility Services, Faculty of Engineering)
- Protocol for blocking of temporary construction (Facility Services)
- Many training sessions, for example, workplace accommodations and creating safe / accessible and inclusive spaces

Moving Forward

The 2017/18 academic year saw increased communication around the many accessibility related initiatives which are now in place across campus, culminating in the inaugural release of the *Accessibility and Disability Inclusion Update*. It was so wonderful to read the more than 40 submissions which came in from so many units and service providers. The range of activities was broader than we could have hoped for, which we anticipate will be used as a springboard for even more activities to be initiated over the coming year. We are very much looking forward to the release of the 2nd update later this year.

The addition of the new AVP Equity & Inclusion role to campus has provided the much needed high level analysis of the work which has been done around accessibility over the last several years. We are very happy to be assisting with the development of the Accessibility Plan which will be released later this spring and look forward to working within the new structure this plan will provide. Once the plan is in place we will resume the work of reviewing and updating the University's Policy on Accessibility.

The coming year will also see the release of the results and subsequent recommendations from the Web Accessibility Audit. We anticipate these recommendations will help frame the broader Web Accessibility Strategy which is being developed as part of the campus IT Strategy.

Appendix A – Faculty of social sciences case study on enhancing web accessibility across their faculty

- 1. Centralization and the Creation of Standards:** Focus on centralizing the mechanisms and training that users in the Faculty use to publish to the web. Template level accessibility from a central position, increasing the accessibility of all sites within the Faculty portfolio of CMS (content management system) tools implementing WCAG AA. In the process of implementing standards around HTML/CSS/JS and ARIA (Accessible Rich Internet Applications) in the deployment of the web publishing tool(s), and also standardizing the content editor experience and rich-text editor. The template design considers accessibility (including the integration of [McMaster brand tools code](#)), the disability experience, and accessible UI (user Interface) features.
- 2. Required Training and Culture Change:** Training is mandatory for staff, faculty or students who wish to access or edit websites in our Faculty. Applied semantic markup techniques and accessible media are a part of that required user training in our website content management system. In addition to basic CMS content editor training, accessibility is part of our training documentation. Additional training is also being rolled out for the creation of accessible digital media more broadly ([Microsoft Word](#), [PDF](#), [PowerPoint \(presentations\)](#), Excel, time-based media etc.) across all Faculty, Staff, and in some cases Students. Often it is this additional digital content (the content uploaded and linked to on our websites) that cannot be controlled via templating or systems/CMS that present barriers for users of assistive/adaptive technologies (AT), most notably users with disabilities, as well as disabled users who do not use AT. These guided workshops include awareness training on a variety of different disability experiences and kinds of disabilities, and how users who identify with certain types of disabilities (e.g. vision impairment, mobility impairment, hearing impairment, some cognitive disabilities) interact with the various digital content we create at McMaster.

Currently the Faculty has introduced digital accessible media training for over 100 individuals, facilitated 29 training workshops since March 2018, and provided several departmental information sessions covering the 'Information and Communication Standards' aspects of the AODA.

- 3. Developing a Sustainability Plan and Annual Auditing:** In addition to ongoing content editor training based on tightly controlled governance, a long-term accessibility strategy for website template renewal and audits is being developed. This plan will involve an evaluation methodology, audit schedule (evaluating WCAG AA compliance) soon (target: summer 2020) in a systematic and wholistic way. As part of this audit strategy, the Faculty of Social Science will look to hire and engage various disability community members as partners in this process. The Faculty is looking to develop a respectful, mutually beneficial, and meaningful relationship with

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disability experts and will be working closely with the Equity and Inclusion Office (Kate Brown), the McMaster Accessibility Council (MAC), and will look to engage other partners across campus and outside the McMaster community. The Faculty has identified that automated validation of digital content alone is not enough to address the barriers that face the disability community and will look to integrate a meaningful disability user-testing perspective to any audit process.

Advocacy: The Faculty is actively lobbying senior leadership at McMaster to sustain both a culture of digital accessibility and deploy technical training support mechanisms across the institution in ways that put the disability experience first. The Faculty believes the only way to achieve a sustainable accessible media creation culture is to develop adequate internally sustainable training, along with an audit framework for web properties that includes paid user experience experts who identify from a variety of different disability experiences. It is our hope that such a framework could then be scaled and integrated into the larger institutional 'Web Strategy' for McMaster and become part of the McMaster Accessibility Policy.

'IT Forum': The Faculty also hosted a speed learning table at the 2018 'IT Forum' facilitating a roundtable information discussion titled: 'Understanding Accessible Media: Accessibility for Ontarians with Disabilities Act (AODA) and the Information Communication Standards.' This interactive session introduced members of the McMaster IT community to the legislation and the way the integrated standards affect technology interventions on campus and the public sector compliance schedule.

Participation: The Faculty of Social Sciences participated in the 'Survey on Web Accessibility' at McMaster this year, reporting on both the strategy and current website accessibility compliance status for Faculty websites (currently not AODA compliant).



2019/20 Consolidated Budget

University Planning Committee
May 15, 2019

BRIGHTER WORLD



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1 QUICK FACTS

History

Founded in **1887** in Toronto.
Relocated from Toronto to Hamilton in **1930**.

Institutional Leadership

Chancellor: **Suzanne Labarge (August 2019) / Santee Smith (from September 2019)**
President, Vice-Chancellor and Chair of the Senate: **Dr. Patrick Deane (June 2019) / Dr. David Farrar (Acting, July 2019)**
Provost and Vice-President Academic: **Dr. David Farrar (June 2019) / Susan Searls-Giroux (Acting, July 2019)**

McMaster Model

Student-centred, research-intensive, problem-based, interdisciplinary approach to learning

Degrees Granted (in 2017-18)

7,049

Student Enrolment Headcount (as of fall 2018)

Undergraduate: **28,920**
Graduate: **4,857**
Domestic: **28,747**
International: **4,400**

Average Entering Grade (in fall 2018)

88.5%

Faculties

6

Full-Time Faculty (excluding Clinicians, 2018)

849

Staff (2018)

10,342

Alumni (2018)

196,547

Research Funding

\$391.6 million awarded in research funding in 2017-18
(McMaster and affiliated hospitals)

World Ranking (2018)

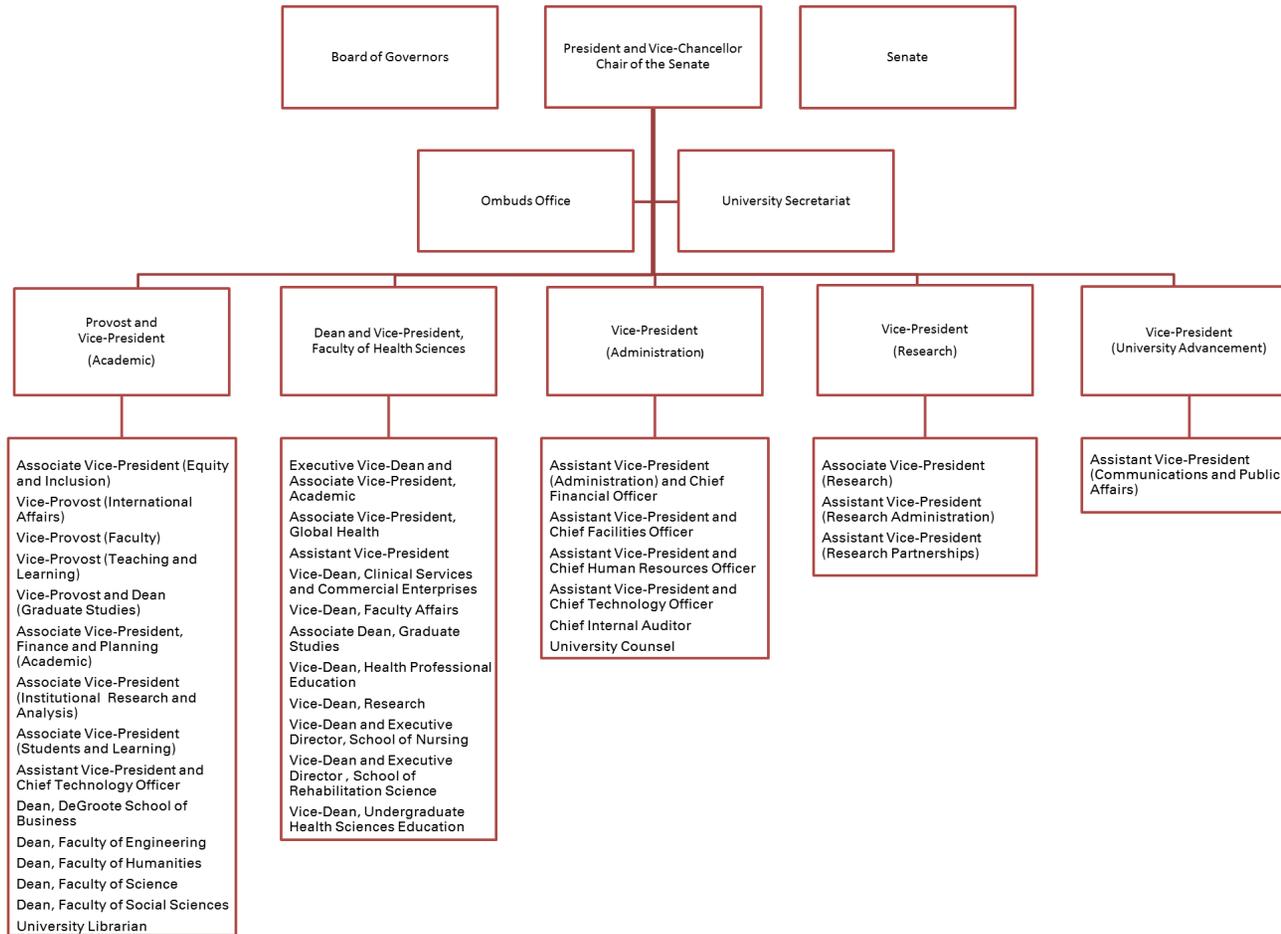
Shanghai Ranking: **86th**
Times Higher Education: **77th**
QS World Ranking: **146th**
Times Higher Education Global Impact Rankings: **2nd** in world for Societal and Community Impact
2018 – Recipient of the Global Teaching Excellence Award from Times Higher Education
2018 – Canada’s most research-intensive university – Research Infosource Rankings

Campus

152.4 hectares of property
4 libraries, **12** residence buildings, **1** athletic complex
Nuclear Reactor, WJ McCallion Planetarium, McMaster Museum of Art
4 campuses in Burlington, Waterloo, Niagara, and downtown Hamilton



2 ORGANIZATIONAL CHART



3 MESSAGE FROM THE PRESIDENT



The University's mission and strategic priorities provide the framework for the 2019/20 consolidated budget. McMaster's budget process engages all areas across the University in thinking about and demonstrating their use of resources in furtherance of the University's guiding strategy, *Forward with Integrity (FWI)*. The Strategic Mandate Agreement entered into with the provincial government is based on the principals outlined in *Forward with Integrity* and the resulting consolidated budget is therefore reflective of, and aligned with, McMaster's strategic priorities and with the provincial agreement.

The key priorities established by *Forward with Integrity* are:

- Strengthening research excellence and graduate education and training, while integrating research into the University's academic mission
- Developing a distinctive, personalized, and engaging student experience
- Enhancing the connections between McMaster and the communities we serve, locally, provincially, nationally, and around the globe

In support of these goals, McMaster is engaged in a major multi-year focus on research excellence and on enhancing the funding, infrastructure, and overall support for research. The *Research for a Brighter World — Strategic Plan for Research 2018-2023* lays out a vision and strategy to further the University's research mission and take our institution's research success to an even higher level. Beyond ensuring our researchers are properly supported and that the positive impact of their work is recognized and celebrated, the University is dedicated to securing additional funding from a variety of sources to strengthen and intensify the research enterprise.

In this budget and the planning years ahead, McMaster will continue to welcome a more diverse student population from all regions of the world and will continue to focus on enhancing the student experience and developing globally engaged citizens. Our engagement with the local and global communities that we serve will also continue and advance as the positive impact of our research, and the work of our faculty, students, and staff, is felt around the globe.

Each Faculty, department, and administrative area across the University has prepared a budget that reflects the resources available and outlines initiatives planned or already underway that support and advance these goals. The budget is structurally balanced and takes account of the revised tuition framework, drawing upon reserves to advance critical priorities.

This is the last consolidated budget I have the pleasure to support as President and Vice-Chancellor. I would like to highlight my sincere gratitude to the members of the Budget Committee and all staff across the institution who contributed to the development of this comprehensive document. Thank you also for the work that each and every department and unit does every day to advance and support the mission of the University, and for the time, energy, and dedication that you each contribute to McMaster's mission and strategic direction.

Sincerely,

Patrick Deane
President and Vice-Chancellor

4 MESSAGE FROM THE PROVOST

I am pleased to present McMaster University's 2019/20 budget to the University community. The budget supports our mission of the discovery, communication and preservation of knowledge. The budget plan enables the implementation of the University's strategic priorities by:

- Strengthening the excellence of our research and our graduate education and training through opportunities to integrate research more purposefully into our academic mission. This means supporting research that reflects current and emerging issues that has impact across a wide range of disciplines and issues. We intend to build on our track record in technology transfer and entrepreneurship to provide opportunities for commercialization for our faculty and students, and to bridge the gap between research and commercial application. We are focused on integrating research and teaching creatively across our programming by engaging students at all levels in research activities. Our graduate training is central to sustaining our research intensity; we are committed to equipping graduate students in all programs with the practical skills and experiential knowledge that will enable them to translate their academic achievements into success after graduation.
- Developing a distinctive, personalized, engaging and sustainable student experience, and building on the success of our most creative and innovative programs to provide an enriching and transformative learning experience for all students. This includes opportunities for experiential, work-integrated and self-directed learning and allowing for the consideration of multidisciplinary perspectives. McMaster is committed to integrating our world-class research enterprise into teaching and learning, and connecting the learning experience to our local, national and international communities.
- Enhancing the connections between McMaster and the communities we serve, locally, provincially, nationally and around the globe. We do this by fostering ongoing collaboration between the University and its partners. This enables us to understand and consider more fully the issues identified as priorities by local and global communities, and to integrate them fully and meaningfully into the work of the academy. In addition to societally focused research, teaching and service, McMaster also supports the broader community by fostering a diverse campus community and creating enhanced pathways and improved supports for underrepresented groups.

The current budget plan includes a ten percent cut in domestic tuition and a domestic tuition freeze for next year. Faculties will meet the reduction of revenues by spending some of their accumulated surpluses. Under the current enrolment corridor mandated by the Ministry of Training, Colleges and Universities, McMaster has reached the upper limit for enrolment of domestic undergraduate students. We have also reached the Ministry's cap for funding PhD students. Maintaining our research intensity will require growth in our PhD student enrolment. Therefore, increases in undergraduate and PhD enrolment will come from an intensified and diversified international recruitment, which is not limited by the Ministry's funding cap.

There remains room for growth in Masters student enrolment, particularly in professional Masters programs. These programs fulfill McMaster's commitment to providing lifelong learning and ongoing skill development for our graduates and our community.

Although demand for McMaster programs remains strong, there are other risks that could impact the current budget plan including: changes in government priorities and funding; our ability to attract and retain a diversified international student base; and other legislative changes.

Strategically aligned initiatives intended to broaden our revenue include: the retention and success of international students; new international partnership programs; increased summer use of campus; new professional graduate programs; and a life-long learning focus including micro-credentials. We will continue to focus on effective budget strategies through ongoing review of our administrative support models, as well as by enhancing and diversifying our revenue sources.

As Provost, my other strategic priorities include: enhanced support of research and research platforms; commercialization of our research activities; opportunities for additional Indigenous programs and research; externally focused experiential learning; and faculty renewal.

I would like to thank the academic and administrative staff across the University for their contributions to sound financial management and their hard work in contributing to this budget. Their collective efforts ensure the ongoing well-being of our great institution.

Sincerely,

David Farrar
Provost and Vice-President (Academic)

5 EXECUTIVE SUMMARY

The consolidated budget shows a surplus in 2019/20 and the outer planning years, and the Operating Fund representing 66% of the consolidated budget is structurally balanced despite funding changes by the Ministry of Training, Colleges and Universities (MTCU), such as the 2019/20 10% domestic tuition cut, and 2020/21 domestic tuition freeze in addition to the domestic enrolment cap at 2016/17 levels. The Operating Fund will be further affected by MTCU's recently announced cancellation of the Medical Doctorate (MD) and Graduate Expansion Grants, removing a total of \$52.9 million in capital funding, of which \$3.3 million is already committed, with the Operating Fund potentially being the new funding source for the committed funding. Other changes driven by MTCU include the 2019/20 implementation of student opt-out fees, predominantly affecting student associations and threatening the ongoing viability of programs that enhance student life. Finally, the provincial government will also consider legislative changes affecting individuals who are both working and collecting a pension; the impacts associated with any subsequent changes are not factored into this budget.

Delivering on McMaster's *Forward with Integrity (FWI)* vision remains a priority, utilizing prior years' savings in reserves (appropriations) as well as seed funding from the University Fund. This budget emphasizes *FWI* priorities related to delivering an optimal research-focused, student-centred experience, providing an integrated local-to-global community mindset, with consideration toward impact and sustainability of the environment we depend on. Plans include investments in research excellence, as well as technologically enabled pedagogical approaches, career pathways across programs, and broadening existing community initiatives and partnerships with the City of Hamilton and beyond.

McMaster's research focus involves the 2019/20 launch of the *Brighter World Research Initiative* aimed at raising funds to deliver on the research strategic plan. In addition, McMaster will progress its research commercialization initiative, building dedicated space to relocate research spin-off businesses to the McMaster Innovation Park. This space will be co-located with the new government-supported advanced manufacturing supercluster. In addition, the capacity of the nuclear reactor will increase to enhance research while balancing other commercial opportunities.

In an environment of reduced funding, these initiatives cause expense growth to exceed revenue growth in the Operating Fund (Figure 1). As a result, appropriations will be substantially reduced over the budget and planning years (Figure 2). In response to the MTCU funding changes, the University has increased its attention and targets on diversified international enrolment. Other revenue growth is in the planning stage and includes increasing professional Masters programs, expanding the use of campus in the summer, and introducing bit-coin and micro-credentials using online solutions that reduce the burden on physical infrastructure.

Actual and projected enrolment growth has increased the strain on campus capacity. In 2019/20 McMaster will open the Peter George Centre for Living and Learning (PGCLL) providing over 500 additional undergraduate beds and an additional 36% in classroom capacity. Additional capacity-enabling projects include building the McLean Center for Learning and Discovery on top of Innis Library, and two additional residences, including integrated learning and research spaces. One residence will be for undergraduate students on campus land and include an integrated intergenerational research space. The other residence will be on McMaster capital leased land downtown and include integrated learning spaces. Both additional residence projects are public-

private partnerships (P3), whereby McMaster owns or holds the lease on the lands. Further, McMaster operates, manages and maintains the residences and student life programming the same as any non-P3 residence. The P3 projects are strategically important capacity initiatives that the University could not finance on its own. These P3 projects could be at risk if changes are made to existing development charge exemptions offered to McMaster. Further, other capacity enabling future projects, not yet committed to, may be cancelled due to MTCU's recent cancellation of the expansion grant commitment it made to McMaster for delivering specific increased MD and graduate enrolment.

High inflationary pressures in Ontario affect salary, wages, supplies, and deferred maintenance. MTCU has announced it will increase deferred maintenance support to those schools in the greatest need. Close to 70% of McMaster's buildings are over 40 years old. In 2019/20, the higher education sector will adopt a more accurate methodology for measuring deferred maintenance that considers functions within buildings. This is predicted to increase the true cost of deferred maintenance by as much as 130% over the five-year implementation.

McMaster will continue to focus on benchmarking data initiatives to target efficiency projects with the greatest savings potential to allow the academy to grow while holding support services constant. McMaster has adopted the UniForum annual benchmarking program, which has resulted in significant savings at other international institutions, and 2019/20 will mark the third year of data collection. In addition, administrative reviews target opportunities to minimize bureaucracy and streamline activities. Completed reviews have focused on IT services, research financial administration support, and in 2019/20 will further focus on human resources support services.

Given the above, the consolidated budget is structurally balanced, largely due to investment income and internal reserve strategies to set aside funding for future-oriented obligations. The consolidated surplus is ideally 10% of revenues per year. The projection for 2018/19 does not achieve this level due to a 4.5% projected investment return. Future years assume a 5.9% return consistent with McMaster's historical real return. In 2019/20 and beyond, the consolidated surplus is impacted by the MTCU tuition framework and the cancellation of capital funding, tightening the spread between revenues and expenses (Figure 3). Future obligation settlement strategies already in place will be reviewed for ongoing funding viability.

Figure 1: Operating Fund Outlook

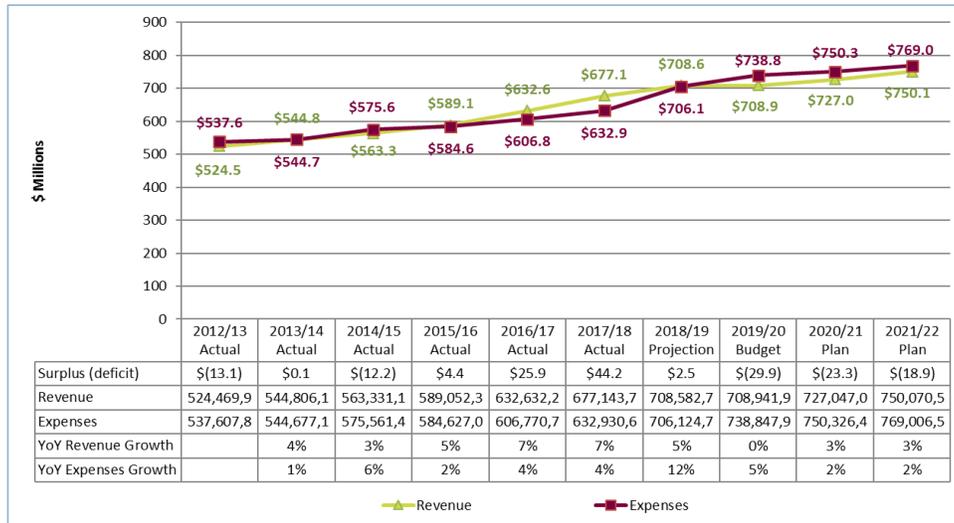


Figure 2: Operating Fund Appropriations

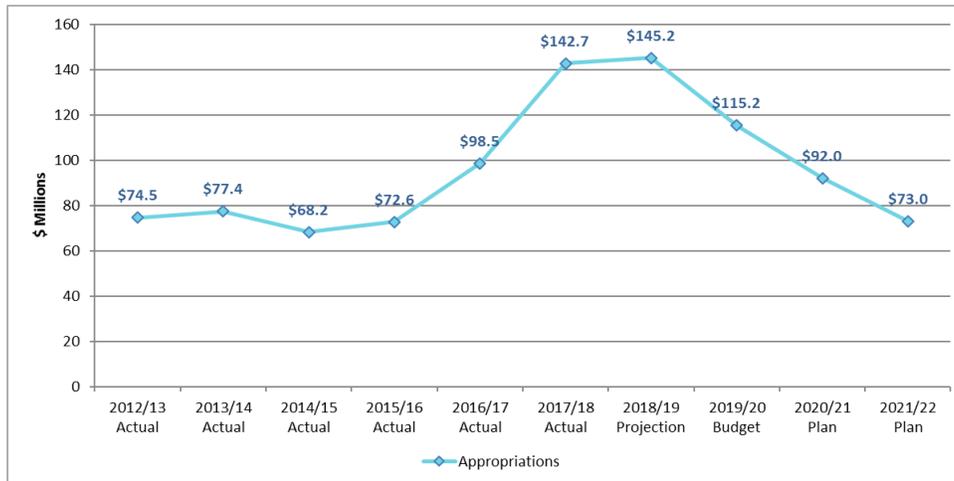
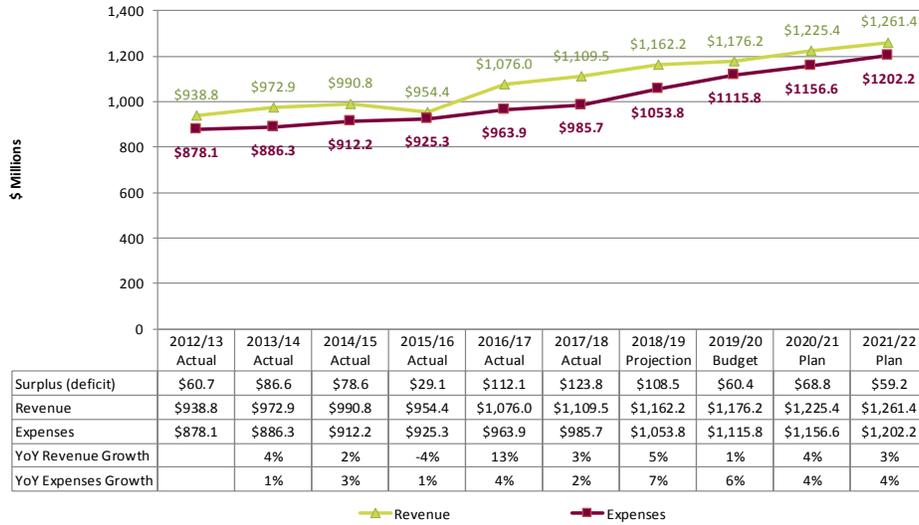


Figure 3: Consolidated Outlook



Surplus (deficit)	\$60.7	\$86.6	\$78.6	\$29.1	\$112.1	\$123.8	\$108.5	\$60.4	\$68.8	\$59.2
Revenue	\$938.8	\$972.9	\$990.8	\$954.4	\$1,076.0	\$1,109.5	\$1,162.2	\$1,176.2	\$1,225.4	\$1,261.4
Expenses	\$878.1	\$886.3	\$912.2	\$925.3	\$963.9	\$985.7	\$1,053.8	\$1,115.8	\$1,156.6	\$1,202.2
YoY Revenue Growth		4%	2%	-4%	13%	3%	5%	1%	4%	3%
YoY Expenses Growth		1%	3%	1%	4%	2%	7%	6%	4%	4%

▲ Revenue ■ Expenses

6 McMASTER'S KEY STRATEGIC PLANS

6.1 FORWARD WITH INTEGRITY AND STRATEGIC MANDATE AGREEMENT

The Ministry of Advanced Education and Skills Development¹ and McMaster University signed the Strategic Mandate Agreement (SMA) for the period May 1, 2017 to April 30, 2020. This second SMA follows an initial three-year SMA for the period of May 2014 to April 2017. The SMA captures McMaster's areas of strength, growth and direction as a University and aligns to the priorities embedded within *Forward with Integrity (FWI)*. These priorities set forth McMaster's differentiating characteristics such as:

- Strengthening research excellence and graduate education and training, while integrating research into our academic mission
- Developing a distinctive, personalized, engaging student experience
- Enhancing connections between McMaster and the communities we serve, locally, provincially, nationally, and around the globe

The SMA process continues to evolve, formally connecting McMaster's priorities into the provincial agreement. This agreement further includes additional metrics to demonstrate the achievement of the University's priorities and includes financial metrics that can indicate the degree of the University's financial strength and sustainability. During the budget year, McMaster will begin to consider the next SMA with the MTCU covering a 5 year horizon May 1, 2020 to April 30, 2025 (SMA3) that will include a substantial increase in performance- or outcomes-based funding (from currently around 8% to approximately 60%).

The budget is the result of a University wide process that engages Faculties and departments to outline their effective and efficient use of available resources to further McMaster's *FWI* priorities, embedded in the SMA. Budgeted operating grant revenues incorporate the corridor-funding model. The corridor mid-point is based on an enrolment average over five years, phased in beginning in 2016/17². Domestic tuition revenues are based on the tuition framework involving the 10% domestic tuition cut followed by a domestic tuition freeze for 2020/21. For planning purposes, the domestic tuition budget assumption for 2021/22 and beyond holds tuition flat. International tuition revenues include assumptions regarding a growing diversified international student participation.

¹ The Ministry has since been renamed to its former name Ministry of Training, Colleges and Universities (MTCU).

² The corridor methodology means that McMaster's government grant is equal to the weighted grant units at the corridor midpoint, in other words at its 2016/17 funding level. Fluctuations within the corridor ($\pm 3\%$) will not affect the grant.

6.2 RESEARCH

The *Research for a Brighter World — Strategic Plan for Research 2018-2023* lays out a vision and plan to bolster McMaster’s research mission and to take our institution’s research success to an even higher level. Centered on our commitment to research excellence and informed by our core values, the plan is designed to nurture our culture of collaboration with our hospital, government, and industry partners; advance our dynamic research enterprise; and guide our development of key, strategic research initiatives of local, national, and global importance, to further advance human and societal health and well-being.

The plan builds on our individual strengths and interdisciplinary capacity, it outlines our commitment to a broad range of research approaches and methodologies, and our responsibility to place our knowledge in the hands of those who can put it to its best use, through knowledge mobilization and translation, technology transfer, and commercialization.

The plan was developed under the direction of the Vice-President (Research), and the Strategic Research Plan Committee – including representation from all Faculties, and the Associate Vice-Provosts of Faculty and International Affairs. Subsequently, and over the course of several months, University-wide feedback was solicited and consultations were held, ensuring input from all stakeholders.

6.3 CAPITAL MASTER PLAN

McMaster University’s *Five Year Capital Plan (A Future Outlook) Version 3, 2017 – 2022* is a planning document to guide the University’s priority setting and planning of capital projects for all buildings, both on and off the main campus. The plan supports McMaster’s *FVI*, integrating and incorporating input from all stakeholders across the University community. The Capital Plan is a dynamic document that is subject to change in order to align itself with the shifting priorities of the University.

According to the Board-approved capital planning process, this plan is updated annually with input from University stakeholders to ensure infrastructure supports academic enrolment plans and research priorities. It is supported by further detailed documents, including the Campus Master Plan, the Campus Capacity Study, the Asset Management Plan, the Campus Accessibility Action Plan, and the Energy Management Plan.

The Capital Plan and other key strategic priorities are integrated into the University’s Debt Strategy, which involves multi-year financial projections. The Debt Strategy determines the University’s financial capacity to fund initiatives and examines whether internal and/or additional external financing is required to move critical capital priorities forward.

7 CONTEXT

7.1 REVENUE GENERATION ENVIRONMENT

7.1.1 ENROLMENT TRENDS

Provincial grants for domestic enrolment make up 33% of the Operating Fund's budgeted revenues (or 20% of the University's Consolidated Budget). Domestic tuition accounts for another 28% of the Operating Fund's budgeted revenues. Both domestic grant and domestic tuition funding growth have been limited over recent years due in part to the corridor funding model introduced in 2017/18 freezing grant funding to 2016/17 levels and remaining unchanged in the 2019/20 budget and future planning years. Further affecting results are the changes to domestic tuition framework set by MTCU that caps the magnitude of annual tuition rate increases and reduces domestic tuition by 10% in 2019/20 approximating \$22.3 million in less tuition revenues for 2019/20 and holding domestic tuition frozen in 2020/21. The cut to domestic tuition revenues and ongoing loss of inflationary funding on both the operating grant and future domestic tuition revenues has called for an increased examination of McMaster's international participation across all disciplines and in connection with campus capacity. The opportunity to increase international enrolment across certain programs exists, whereas the historic University enrolment focus was toward domestic enrolment growth to assist the province in its accessibility priority. The provincial funding changes have also increased the University's focus on broadening its diversified revenue sources.

McMaster has achieved domestic enrolment caps for undergraduate and PhD enrolment. Therefore, in the budget and planning years McMaster is able to focus on a more diverse student population aimed at enhancing the student experience. International tuition represents 17% of the Operating Fund's budgeted revenues for 2019/20. McMaster is seeing unprecedented growth in applications both domestically at over 3% for 2019/20 (exceeding the demographic university-age population growth rate approximating less than 1%) and internationally at over 17% for 2019/20 compared to the previous year. This application demand suggests budgeted enrolment plans are achievable which align with approved capacity-enabling infrastructure initiatives such as, the Peter George Centre for Living and Learning, the McLean Centre for Collaborative Discovery at the DeGroot School of Business, and two additional public-private student residence projects.

7.1.2 PROVINCIAL GRANT FUNDING

The Ministry's corridor funding model caps the operating grant at 2016/17 levels. This MTCU model provides funding to the University by means of three funding components:

1. Domestic enrolment-based funding referred to as the Core Operating Grant (COG), whereby funding is for each eligible domestic student enrolled based on weighted grant units (WGU) by program. This aspect of the funding model is managed through the application of an enrolment corridor mechanism³.
2. Differentiation funding (also referred to as performance- or outcomes-based) is the portion of grant funding linked to the University's achievement of priorities and/or metrics within the

³ The corridor methodology means that the government grant is fixed by the corridor midpoint. Domestic enrolment fluctuation will not affect the grant unless enrolment (based on a moving five-year average calculation) were to fall below the corridor floor, defined as 3% beneath the midpoint. The corridor midpoint is set at the 2016/17 level.

SMA. This funding focuses on differentiation across the higher education sector, student success, and strengthening existing areas of excellence.

3. Special Purpose Grants represents funding programs based on government and/or system priorities, such as improving access for Indigenous learners, francophone students, and students with disabilities.

The University's performance based funding is currently less than 10% of overall grant revenue, however this will grow to approximately 60% over the next SMA period ending in 2025 with the offset primarily reducing enrolment-based funding by proportional reductions in the WGU values per student enrolled. This direction aligns with the Province's objective to focus funding on University, and SMA, priorities and outcomes rather than enrolment. The change will focus on ten performance metrics, nine sector-wide and one institution specific, that will form the basis of the differentiation envelope that will be distributed based on metric outcomes. Metrics will focus on skills/job outcomes and economic/community impact. As well, two additional metrics will focus on University productivity, accountability and transparency.

Another change to provincial funding includes an April 2019 announcement cancelling University MD and Graduate expansion grants. These grants are infrastructure expansion funds committed to the University for delivering additional enrolment targets. McMaster has met the enrolment targets required by the province for these grants; however, the province has canceled its funding commitment for the capital funds. This cut eliminates \$52.9 million in expected funding scheduled between 2019/20 to 2032, of which, McMaster has existing contract commitments of over \$3 million that cannot be cancelled and will be absorbed in this budget.

Finally, the University has worked diligently on the changes the province has mandated to differentiate fees between essential and non-essential fees. The Ministry requires the University and student organizations to allow for an opt-out process for all non-essential fees. The impact to student clubs and associations is not yet known and it is anticipated that opting out could affect the student life experience.

7.1.3 TUITION

The budget incorporates the MTCU's two year tuition framework affecting domestic enrolment, which stipulates in 2019/20 that a ten percent reduction over the prior year's tuition fees be implemented followed by a zero percent increase for 2020/21 for all funding eligible programs. For planning purposes of 2021/22 and beyond zero percent increases are assumed.

For international students, annual increases will continue and vary by program. International tuition fees do not have the benefit of provincial supplemental operating grant support; as such, these tuition fees are higher than domestic peers and are monitored relative to McMaster's key peers.⁴ Overall, international student enrolment funding is reduced by a \$750 per student head tax on international enrolment required by the province.

⁴ Key peers include members of the G6, a group of leading research-intensive universities in Ontario. The G6 universities are McMaster University, University of Ottawa, Queen's University, University of Toronto, University of Waterloo, and the University of Western Ontario.

7.2 INVESTMENT RETURNS

The University investment pool consists of endowments and internal reserves established to settle future obligations and totals just over \$1 billion. Annual revenues associated with endowment spending and reserves flow through McMaster's consolidated results. The size of this portfolio and the interest return budgeted versus achieved results in potential material effects to the annual results. Each year McMaster budgets investment income using the long-term rate of return expectation after inflation or 5.9%. For each plus or minus 1% difference achieved from budgeted returns the impact to McMaster's annual results is approximately \$5.9 million. McMaster budgeted 5.9% in 2018/19 and the current projection is a 4.5% return, which has a negative \$8 million impact on the consolidated results. The budget and planning years assume 5.9% returns along with continued annual spending of 4% and fundraising support of 1%.

The Operating Fund receives annual support of \$9 million per year from endowed gifts and internally restricted assets. The Operating Fund will also receive an additional \$3 million for 2019/20 based on past investment performance and completion of a five-year commitment from the Investment Reserve totaling \$15 million. The Investment Reserve holds interest earnings and losses and protects the Operating Fund from volatility or annual interest revenue swings. The investment reserve protects spending during prolonged down markets recognizing the need to continue many committed funding initiatives, such as chair salaries, student scholarships and bursaries and the annual Operating Fund commitment.

In addition to the investment pool, McMaster also manages pension plan assets of over \$2.0 billion. In the case of pension-related University costs, a plus or minus 1% swing in interest returns materially affects projected pension liabilities and pension payment schedules to the plan by over \$200 million. In order to protect the University from adverse fluctuations associated with market volatility, McMaster uses a five-year smoothing approach to measuring the pension assets versus liabilities, and manages a benefit reserve that smoothens the Faculty and department employer pension costs over a ten-year horizon, meaning this reserve may be temporarily negative during the ten-year cycle. These approaches enable the budget process with pension cost stability at the unit level.

7.3 RESEARCH FUNDING

Federal research funding programs have helped McMaster retain, for the second year in a row, its status as Canada's most research-intensive university (Research Infosource 2018). The federal *Budget 2019* builds on last year's unprecedented investment in science and university research, which included \$925 million in new funding for fundamental research. The federal *Budget 2018* proposed a new investment of \$210 million over five years for the Canada Research Chairs (CRC) Program to better support early-career researchers and increase diversity among chairholders. As a result of this investment, McMaster has been awarded an additional 12 CRCs over the next three years and our early-career CRCs will receive an additional research stipend of \$20,000 per year to help them establish their research programs.

The federal *Budget 2019* recognizes the importance of non-profit research organizations to Canada's research community. McMaster is a partner of the Brain Canada Foundation and the Terry Fox Research Institute, an associate member of TRIUMF (Canada's particle accelerator centre), a host institution of Let's Talk Science, and a recipient of significant funding and support from the Stem Cell Network, Ovarian Cancer Canada, and Genome Canada. The proposed new investments in these

research organizations, together with the new Strategic Science Fund's principles-based approach to the allocation of federal funding, will help to strengthen and sustain the national organizations and facilities that enable Canadian research and innovation.

The federal *Budget 2019* includes new investments in research to address the unique health challenges of Canada's military members and veterans, including \$25 million over ten years in support of the Canadian Institute for Military and Veteran Health Research (CIMVHR) and \$20.1 million over five years for a proposed new Centre of Excellence on Chronic Pain Research. McMaster is a member of the CIMVHR and was recently awarded \$12.5 million by the Canadian Institutes of Health Research's Strategy for Patient-Oriented Research to establish the Chronic Pain Network. Working in partnership with patients, the Network supports and coordinates world-class, innovative and high-impact research to improve chronic pain management.

To support the recruitment and retention of diverse research teams, the federal *Budget 2019* proposes to expand parental leave coverage from six to 12 months for students and postdoctoral fellows who receive funding from the federal granting councils through an investment of \$37.4 million over five years and \$8.6 million per year ongoing. McMaster is committed to excellence in research and training for the benefit of Canadians. Achieving a more equitable, diverse and inclusive Canadian research enterprise is essential to creating the excellent, innovative and impactful research necessary to seize opportunities and to respond to global challenges.

Provincial funding opportunities, in particular the programs of the Ministry of Economic Development, Job Creation and Trade, continue to support research excellence in Ontario. As Canada's leading university in corporate research income (Research Infosource 2018), McMaster looks forward to working with the expert panel proposed in the *2019 Ontario Budget* to maximize the commercialization potential of academic research. The *2019 Ontario Budget* also identifies investment in automotive research and commercialization as key elements of the provincial automotive plan, *Driving Prosperity: The Future of Ontario's Automotive Sector*. McMaster is a partner in Ontario's Autonomous Vehicle Innovation Network (AVIN) – located at McMaster Innovation Park – designed to build on Ontario's position as a global leader in automotive manufacturing, and home to the McMaster Automotive Resource Centre (MARC), one of the world's leading academic research centres focused on transportation electrification.

Many federal and provincial programs continue to require the provision of matching funds from institutions and other partners. The indirect costs of research incurred in the Operating Fund are partially subsidized by federal and provincial grants, in addition to overhead income from research contracts and royalties (see Figure 11). In 2018/19, these grants to McMaster are projected to total \$12 million and \$3 million, respectively. Although actual indirect costs exceed 40%, the federal Research Support Fund (RSF) in 2018/19 paid indirect costs to McMaster at 20.1% of all eligible Tri-Agency receipts, the same as in 2017/18. As a highly research-intensive university, these financial requirements can be challenging.

Finally, McMaster's partner support is critical to advancing the endeavours of our research community, in particular the many collaborations with Hamilton Health Sciences and St. Joseph's Healthcare Hamilton.

7.4 FACULTY RENEWAL

The Faculty budget plans, taken together, include a 6% overall increase in faculty complement. The largest hiring increase occurs in the coming academic year to address the growth in student-to-faculty ratios. The plans for subsequent years forecast continued growth at a lower rate; these plans are preliminary and will be adjusted as actual enrolments, revenues and strategies solidify. Hiring is predominantly in tenure-track and teaching-track appointments. There is continued interest in increasing teaching track appointments to address increased teaching demands and to enable other research-focused appointments.

In addition to planned new positions, there is significant renewal forecasted within the existing complement. In 2018/19, renewal of 7% of existing faculty occurred through retirements and an additional 5% is planned for 2019/20.

7.5 INFLATION

Cost inflation is a significant issue for McMaster. With many existing revenue sources flat or deflationary, management has limited tools to address the full extent of expense inflation which is particularly high in Ontario relative to Canada. McMaster competes globally for talent so salaries must attract and secure the most qualified faculty, staff and researchers, nationally and internationally. Salary inflation adds broad expense pressure particularly as seen with the passing of Bill 148, *Fair Workplaces, Better Jobs Act, 2017*, which increased Ontario minimum wage inflation beyond historical averages by almost 23% in 2017/18. This Bill has had ripple effect across many other expense categories, including capital infrastructure, whereby third parties increase prices to address or pass on these added costs. The result of these increased wages across the Ontario system has been broad cost inflation affecting everything from food to other goods and services perhaps making the standard of living no more cost effective for the original targeted increased wage recipients than preceding the changes.

The consumer price index inflation for Ontario approximated 2.3% compared to Canada approximating 1.9% in 2018. The Bank of Canada projects inflation for Canada to fall closer to 1.8% in 2019, however Ontario is still expected to have inflation of over 2.1%. McMaster will launch a procurement project in 2019/20 aimed at delivering savings by increasing pre-negotiated contract buying. The project, MacBuy, should assist in defraying from of the inflationary pressures across the University.

Unprecedented cost inflation is also affecting books and academic journals as competition amongst publishers' declines and monopolies arise controlling the majority of the academic journals. The result is that average acquisition costs for books and journals rises by over 5%, with some individual titles increasing even more. This cost pressure further increases, as some prices are associated with the University's research intensity factor, whereby McMaster's increased research success has led to automatically increased library costs for the same products.

Utility prices also remain volatile. The biggest cost pressure is any increase in electricity rates, which is affected by the Global Adjustment for provincial infrastructure, and changes to the electricity market. McMaster's suspension of the Chasing the Peak initiative in 2017 did not result in the expected increase in costs due to changes in the energy market. As well, Ontario's Cap and Trade System started in 2017, which was to impact McMaster in the future following the use of free allowances until 2020, was cancelled in 2018. With the recent legislative changes to the Energy

Market, we are now receiving rebates that have reduced electricity pricing. However, in addition, the City of Hamilton is planning water rate increases and potentially additional development charges, which could result in the cancellation of once-viable projects.

The 2019/20 budget includes allocations to support units for compensation inflation. However, the budget model does not allocate resources on a basis of inflationary needs rather units have an opportunity to request funding for inflationary pressures. The decision to allocate compensation related inflationary funding or other inflationary requests is made on a year-by-year basis and, as a conservatism rule, budget managers are expected to find efficiencies in order to meet higher costs.

7.6 CURRENCY EXCHANGE RATES

The cost of certain expenditures sourced internationally are impacted by currency. Most of McMaster's imported goods and services are in US dollars (USD). The Canadian dollar has decreased in value over the past several years compared to its American counterpart, from trading at par in January 2013 to \$0.75 USD in mid-March 2019. If the US Federal Reserve raises its rates, the Canadian dollar is likely to weaken further impacting McMaster's cost of educational materials purchased in USD.

Among other economic factors, the direction of the Canadian dollar will be impacted by the level of interest rates in Canada relative to the US, and by uncertainty around the nature of US trade relations and the UK's Brexit. If the US Federal Reserve raises interest rates at a faster pace than the Bank of Canada, the Canadian dollar is likely to weaken, further impacting McMaster's exchange risk.

McMaster receives a portion of its revenues in USD and holds a USD account with funding levels set to settle annual USD expenditures. The University's approach to USD funding management acts as a partial natural hedge to US foreign exchange risk.

7.7 PENSION AND POST-RETIREMENT BENEFITS

7.7.1 PENSION PLANS

McMaster University maintains defined benefit (DB) and group RRSP pension plans for full-time employees. The University has made significant progress to reduce the long-term financial impact of pension obligations through the collective bargaining process for unionized employees. All employee groups remaining in the DB plans have increased contributions over the past few years. Employee cost sharing through contribution increases help plan sustainability and are one of the key reasons that the plans have previously qualified for temporary solvency relief measures offered by the province.

The Ontario Pension Benefits Act and regulations require McMaster University to submit an actuarial valuation for the Contributory Pension Plan for Salaried Employees of McMaster University Including Divinity College (Plan 2000) and the Contributory Pension Plan for Salaried Employees of McMaster University Including Divinity College (Original Plan) (together known as "the Salaried Pension Plans") no later than every three years. The legislative filing requirements were met by filing the Salaried Pension Plans actuarial valuations as at July 1, 2017 in March 2018. However, in April 2018 the Ontario Pension Benefits Act Regulation 250/18 was enacted for all plans filed on or after January 1, 2018. The Act formalized into law a number of anticipated changes to the defined pension plan funding framework, including:

- Strengthening going concern funding by applying a best estimate discount rate (no margin), creating a new funded provision for adverse deviation (PfAD)⁵, and applying a ten-year amortization of going concern special payments and re-amortization at each valuation point
- Elimination of solvency funding requirements where funded solvency status is 85% or greater.
- New funding rules for benefit improvements and restriction on contribution holidays

As a result, of the funding rule changes, the University elected early adoption for the Salaried Pension Plans, completing new valuations as at July 1, 2018 filed in March 2019, based on the following benefits:

- Improvement in the funded status of the Salaried Pension Plans since the last valuation, which is captured in pension contribution certainty to 2021.
- Reduction in fees payable to the Pension Benefits Guarantee Fund ("PBGF"), which is the provincial benefit plan insurance fund. Savings to McMaster approximate over \$4 million for 2019 and 2020.
- Elimination of solvency payments because the Salaried Pension Plans meet the new solvency funding threshold of 85%. These reductions are partially offset by new payments into the PfAD, however the overall cash flow is significantly improved.
- Filing under the new rules make explanations about the current status of the plan more transparent applying the current regulations rather than referring to a measurement until 2020 under the old regime.

The consolidated budget incorporates the updated salaried valuations and former regime rules for the smaller closed hourly plan (next scheduled valuation is July 1, 2019).

Funding requirements associated with pension plans remain challenging as employee contributions never fully reached 50% of the current service costs despite increased contributions levels given other changes such as improved mortality. The table below shows both the salaried (Plan 2000) and hourly plans on a going-concern basis⁶ and a solvency basis⁷. The status of the plans based on the most recent full valuations have improved largely due to strong asset returns over the last several years and an improved interest rate environment.

⁵ The amount required to fund the provision for adverse deviation is a function of a pension's going-concern liabilities and its related assets and how those funds are invested across debt and equity holdings. Further, the amount required is 3-5% higher for plans defined as closed, or not open to new entrants or original employee categories (McMaster's hourly and original salaried plans). Since McMaster's Plan 2000 is not open to all original employee categories the new legislation defines the plan as a closed plan.

⁶ Going-concern basis refers to the pension plan asset and liability gap measured assuming the University will continue to operate over the long term, thereby using a long-term interest return rate for assets and discount rate for liabilities, and that the University will continue to collect employee contributions over future working periods until retirement.

⁷ Solvency basis refers to the pension plan asset and liability gap measurement methodology whereby the key assumption is that the University will cease to continue operating and must immediately settle pension obligations.

Table 1: Pension Plan Status

\$ millions	Plan 2000	Hourly Plan
	Valuation date July 1, 2018*	Valuation date July 1, 2016
Going concern surplus (deficit)	\$ (143.4)	\$ 1.6
Solvency surplus (deficit)	\$ (197.2)	\$ (16.0)
Solvency ratio	91%	72%

*Including PfAD

The Plan 2000 going concern surplus before the PfAD is \$90.9 million (versus a \$30.8 million deficit at July 1, 2017), however the new PfAD to be funded is \$234.3 million. The solvency deficit of \$197.2 million reflects a significant improvement compared to the July 1, 2017 solvency deficit of \$342.1 million. The estimated minimum total annual funding requirements (current service cost and special payments) for Plan 2000 are \$6.8 million lower over 2018/19 and 2019/20 under the new filing in addition to a reduction in required payments to the pension benefit guarantee fund. Funding originally planned to be directed to solvency payments will be redirected to the PfAD.

In 2019/20 the province will undertake a review of its legislation affecting employees working and drawing a pension concurrently. The impacts to salary and pension costs related to this initiative are not known or factored into the budget.

7.7.1 NON-PENSION EMPLOYEE FUTURE BENEFITS

McMaster offers non-pension retirement benefits including extended health, dental and life insurance for many of its full-time employees. Plan design changes intended to reduce the size of the liability⁸ have been made over the past few years. In 2011/12, the University worked with its actuaries to quantify the impact of plan changes on the unfunded liability and while the liability remains largely unfunded, the changes employee groups agreed to mitigate its growth significantly. In addition a post-retirement benefit (PRB) reserve has been established, which is unitized in the investment pool. This internally restricted reserve accumulates interest and is funded by a 0.25% surcharge included in employer benefit costs. The reserve initially had only 1% of the required cash to fund the present value of the obligation, but today the reserve holds just under 9% of the required cash obligation. The PRB reserve is reviewed every three years involving an updated actuarial valuation. Strategies to ensure this obligation is settled may include any combination of the items noted below:

- Further plan design changes and co-payment strategies;
- Continuation of a charge to operating and research units and/or addition to the support unit budget allocation to increase the funding reserve; and/or
- Contribution of any additional surpluses from the Operating Fund, University benefits reserve or Investment Reserve.

⁸ As of April 30, 2018, the liability for non-pension employee future benefits is estimated at \$248 million, with reserves of \$83 million.

7.8 FACILITIES

7.8.1 CAPACITY

Since 1960, McMaster has added a total of 37 buildings on campus (38 on completion of the Peter George Centre for Living and Learning in 2019) to its existing infrastructure through new construction. Renovations and additions have often been completed in order to update technological, electrical, and utility infrastructure as well as add usable space. These construction projects have been supplemented with infrastructure growth off campus, particularly in the last decade, through the procurement and/or lease of buildings and property.

Physical capacity on McMaster's main campus has been largely determined by its geographic limitations and physical structure, which contains a well-established hierarchy of streets and natural features. As identified in the Campus Master Plan, the current capacity available for new development is estimated to be 3,000,000 gross square feet of ground area on the main campus.

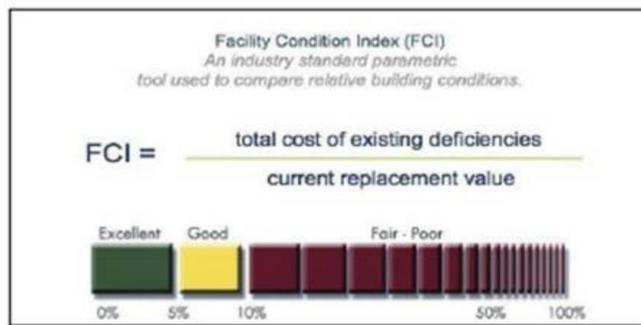
Enrolment growth is an additional stress on the capacity of physical space. The amount of classroom space on campus is close to 85% of what is needed as defined by Council of Ontario Universities (COU) standards. Residence bed spaces fall short in accommodating all first-year students. In McMaster's most recent Campus Capacity Study further critical needs include graduate student offices, assembly facilities, administrative offices and related space, and service space. In addition, accessibility compliance needs are high with the *Accessibility for Ontarians with Disabilities Act*, including new installations of barrier-free ramps, washrooms, and fire alarm strobe lights.

Multiple projects are underway to address capacity issues, including the Peter George Centre for Living and Learning due for completion August 2019, which will add a 36% increase in classroom space, as well as an expansion of the McLean Centre for Collaborative Discovery and new residence buildings for undergraduate and graduate students. Further specific funding for classroom renewal and accessibility retrofit projects has been included in the budget. Some projects underway are funded from the MTCU MD Expansion or Grad Expansion grants, which are annual capacity expansion grants based on delivered additional enrolments. The grant programs extend annual capital commitments to 2031 and some contractual capital commitments exist relying on these future annual funds. However, the MTCU recently announced cancellation of the expansion grant program, regardless that the additional expanded enrolments being delivered. The cancellation means a loss of \$52.9 million in expected capital funds. This recent announcement will require additional changes to capital plans in the annual 2019/20 update.

7.8.2 DEFERRED MAINTENANCE

A total of 69.8% (44 of 63) of McMaster buildings are over 40 years old, of which 63.5% have a fair to poor facilities condition, see figure below. The current deferred maintenance backlog in academic buildings and infrastructure excluding residences and McMaster University Medical Centre (MUMC) is estimated at \$259.6 million. Maintenance needs are prioritized based on critical and non-critical building systems. With deferred maintenance funding of approximately \$13 million annually from multiple sources including the Operating Fund and the MTCU, the backlog of critical priorities is forecasted to slightly decrease from the 2019 position of \$194 million to approximately \$180 million in 2029. However, additional requirements may be identified as a result of future rotational infrastructure audits.

Further in 2018/19 the higher education sector agreed to revise the former building condition assessment approach. The change will result in more accurate building replacement costs as well as deferred maintenance costs than under the former model. The former model included building assessments using a cost model applying a square footage approach, McMaster used this model for re-assessments of the University infrastructure each year. The new measurement approach will use a system model that considers the functions within the building to assess requirement costs. The requirement costs were also not reflective of the actual project costs and the new assessments add a factor of 1.3 to the requirement cost to offset this. This change will result in future higher reported deferred maintenance costs. Further McMaster will adopt the same measurement cycle as peers, measuring 20% of the University’s infrastructure each year. Prior to 2019/20, McMaster had measured 25% of its deferred maintenance costs each year.



8 BUDGET CREATION

8.1 ACCOUNTABILITY

The effective management of the budget is a responsibility of the President assigned by the Board of Governors. The University's budgets are prepared on a modified cash basis and pursuant to the concepts of fund accounting. Fund accounting enhances accountability and budgetary control by assuring that restricted grants and contributions are spent for the purposes intended.

The President delegates budget accountability to the Budget Committee, a sub-committee of the University Planning Committee, to oversee the development of budgets for both the Operating and Ancillary Funds, which account for two thirds of the University's annual expenditures, and to recommend the annual budget to the President. In addition, specifically externally funded programs, such as those funded by the Ministry of Health and Long-Term Care, are included in each envelope's submission to the Budget Committee. The funds not overseen by the Budget Committee have restricted uses and other governance and/or committee oversight.

8.2 BUDGETING PRINCIPLES

In his September 2011 letter *Forward with Integrity*, President Deane stressed that McMaster's future success will depend on the cultivation and celebration of integrity in all its forms. He outlined the following principles that will guide the University community as we strive to achieve our goals.

- We are an institution devoted to the cultivation of human potential, which we believe cannot be realized by individuals in isolation from one another, from their history or their imagined future, from the society which surrounds them, or from the physical universe which sustains them. Our programs and activities will reflect this comprehensive view.
- It follows that in defining our strengths and seeking to build on them, we will adopt a multidisciplinary perspective, recognizing that even the most specialized problem requires an appropriately broad-based approach.
- Our future shall be continuous and consistent with our past, expanding upon and fulfilling the historic character of McMaster as an institution. We will foster the distinct identity of this University, while at the same time continuing to recognize the importance of collaboration and dialogue with sister institutions in Ontario, Canada, and abroad.
- Notwithstanding that commitment to continuity with the past and to coordination with practices elsewhere, we will place the highest value on original thought and on innovation.
- To that end, we will not only reaffirm the importance of radical questioning at the heart of the academic enterprise, but we will ensure the integrity of our work by bringing a critical view to all of our practices – those which bear directly upon education and research as well as those less directly related to it.
- Wherever possible, we will reduce or eliminate obstacles to cooperation.

- We will acknowledge, and seek to integrate in all our work and in ways appropriate to our specific fields, an obligation to serve the greater good of our community – locally, nationally, and globally.

The 2019/20 budget and following two-year plans are developed using principles and priorities aligned to *Forward with Integrity* and embedded in the Strategic Mandate Agreement:

- The academic and research mission of the University is foremost in the development of budget guidelines for envelope managers. This includes student experience and support.
- Revenue must be strategically allocated in support of the University mission.
- Ongoing and one-time costs need to be identified in order to develop a clear picture of McMaster's overall financial position.
- Envelopes must be structurally balanced within each Vice-President's area of responsibility, with ongoing expenditures less than or equal to ongoing revenues.
- Allocations of funding to priorities must be decided using a rigorous process in a way that is strategic, fair and equitable across the University, and avoids a piecemeal approach.

8.3 BUDGET DESIGN

Separate funds are set up for activities, with each fund comprised of its own revenue and expenses. The following funds are used:

1. **Operating Fund:** Unrestricted general revenues and expenses that are directly related to the mission of the University, education and activities supporting research (i.e. not restricted by an agreement or contract). The Board of Governors has approved a policy of permitting envelopes to carry forward unexpended budgets into the subsequent fiscal year.
2. **Research Funds:** Research-related funds externally restricted by an agreement or contract for specific research purposes. The use of these funds is restricted by the donor or granting agency.
3. **Capital Fund:** Funding and expenditures for capital projects.
4. **External Endowments:** Donations or bequests received by the University that have a non-expendable requirement as well as other legal requirements for use as agreed upon by the donor and the University.
5. **Internal Endowments:** Unrestricted donations and bequests, and other monies which have been endowed by action of the Board of Governors.
6. **Ancillary Fund:** Sales of goods and services by departments that are defined as being supplementary to the University's primary operating activities of education and research. Such sales may be made to the University community and/or to external clients. Ancillary operations are self-sustaining.

- 7. **Specifically Funded:** Funding provided by an external entity, restricted by an agreement outlining expenditure of the funds and a requirement to return unspent funds at the end of the term.

8.4 BUDGET MODEL

To allocate Operating Fund resources, McMaster uses a hybrid between a full activity-based model and an incremental model. Implemented in 2014/15, the model aims to strike a balance between providing transparent activity-based funding to the Faculties while maintaining financial flexibility to address strategic goals. Funding to support units is fixed year-over-year where incremental allocations are annual decisions based on funding availability and unit-level requests considered a priority. Support unit funding does not increase with changes to enrolment or research.

Figure 4: Operating Fund Budget Model Revenue Streams



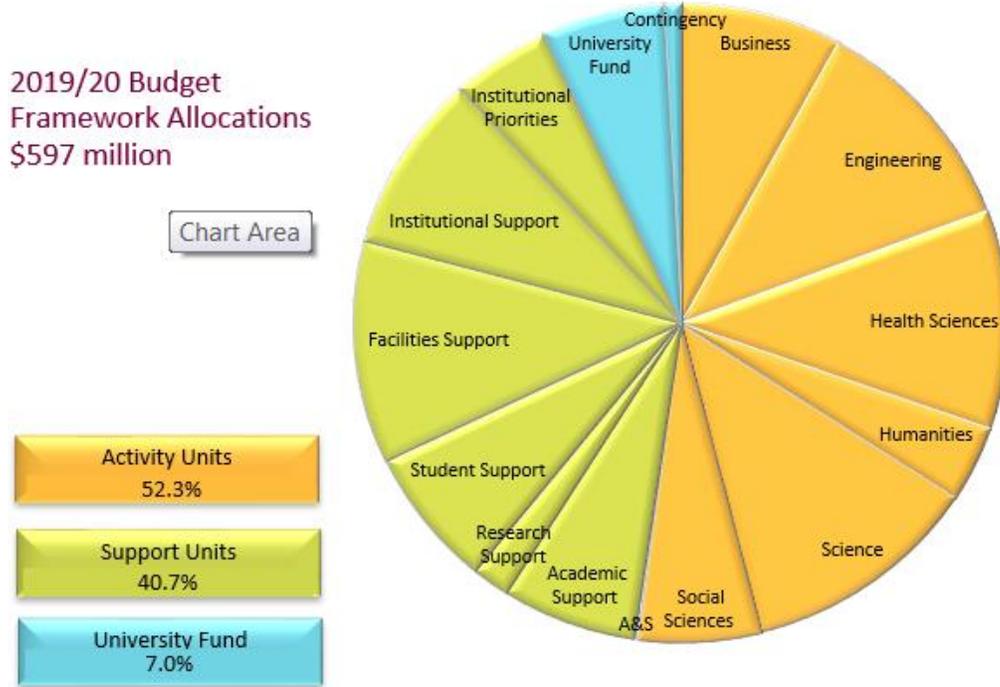
In the simplest terms, all central revenue streams are allocated to Faculties based on activities (such as student enrolment and teaching) as earned. The model mostly matched how the MTCU flowed funding to universities. However, the model allows for two strategic funding pools to be created as a percentage of Operating Fund revenue: i) the Research Discretionary Fund to be used by the Vice-President (Research) for strategic research initiatives, and ii) the University Fund to be allocated by the Provost for pan-university strategic purposes.

Recognizing that the indirect costs of research are not fully covered by overhead revenue, the Research Infrastructure Fund and Research Excellence Fund redistribute a portion of revenue to the most research-intensive Faculties. Further research support exists in the way occupancy costs are charged out to a host Faculty at an overall campus average rate per square meter without distinction to the higher cost of research labs.

After all revenue allocations are made to the Faculties and strategic funds, allocations of central support unit costs are charged to Faculties based on a relevant proxy-based cost drivers, for example Human Resources costs are charged out based on employee full-time equivalents.

All Faculties or activity unit allocations are adjusted based on actual revenues and cost driver results after year-end.

Figure 5: Operating Fund 2019/20 Budget Framework Allocations by Area

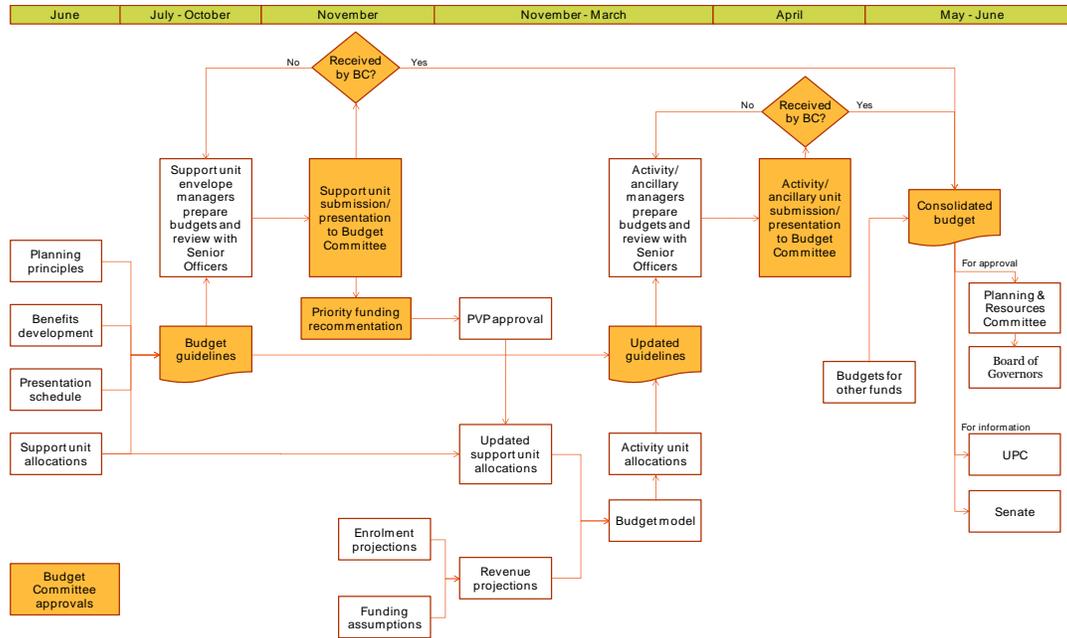


The budget approach has been continually assessed and evaluated both internally and externally, the latter involving the sharing of best practices with other Canadian and U.S. universities, as well as participating in research undertaken by the Education Advisory Board. Review feedback and ongoing input and analysis has resulted in some changes to the budget to either address concerns or enhance incentives aligned to strategic priorities. The budget adjustments mostly alter values of the parameters and not the underlying principles. The most recent review of the budget model involving external and internal budget leaders was released in September 2017, and did not recommend any substantive changes be made. Additional information on the budget model is available at <http://budgetmodel.mcmaster.ca/>.

Changes to the MTCU funding allocation approach are expected in the next SMA shifting funding from primarily enrolment based toward roughly 60% performance- or outcomes-based by 2025. The shift in funding focus by the MTCU will be examined for its possible implications on the University's budget model approach.

8.5 BUDGET CYCLE

Figure 6: Budget Cycle



June: The budget cycle for the Operating Fund and Specifically Funded Programs begins as the Budget Committee reviews and approves the assumptions and guidelines that will apply to all units across the University. Submissions include a projection for the current year, budget for next year, and plans for the following two years. The Budget Committee requests the submissions on a standard template, identifying:

- Strategic objectives and their relationship to *Forward with Integrity* and the Strategic Mandate Agreement
- Key metrics and benchmarks, including enrolment trends, ratio of students to faculty, staffing levels, and space requirements
- New initiatives and cost pressures, the actions taken to achieve a balanced budget, effects on the University community, and the related risks
- All one-time costs and the related funding sources
- Capital and/or renovation plans, including funding sources or internal financing capacity

Benefit rates are set to cover statutory deductions as well as pension, post-retirement benefits, and other benefit costs associated with employer plans offered to employee groups. Assumptions for salary and wage increases by employee group are reviewed, incorporating information from collective agreements. Support units have a fixed budget year-over-year unless otherwise unit-level approved allocations and/or approved strategic investments are made. Incremental allocations to support units to defray compensation increases are discussed, and if feasible are allocated for the upcoming budget year only.

July to October: Budget allocations to activity units follow both the total level of funding and the allocations made to support units. The budget cycle is divided into two stages, with support units preparing their budgets first from July through October, so that any funding for any recommended priorities may be incorporated into the activity unit allocations.

November: Support units present budgets during a three-day Budget Committee conference, attended by additional guests including the Vice-Presidents, Faculty Deans and Directors of Faculty Administration. This allows the Faculty or activity unit leaders to consider and comment on the budget priorities and expenditures of all support units before the Budget Committee votes to receive each budget.

While receiving budget submissions, the Budget Committee identifies unfunded priorities and potentially unacceptable cost-cutting actions. The Committee explicitly prioritizes these items for review by the President, recommending some for funding. In consultation with the Vice-Presidents, as many of these important items as possible are funded.

November to March: Activity units begin budget preparation. Reasonable estimates of future enrolment and revenues based on provincial regulations, strategic objectives, historical demand, and other commitments are prepared. The activity unit allocations are updated in the budget model using the revenue estimates and the final support unit allocations, and the Operating Fund Guidelines are released with the updated allocations.

Ancillaries are self-funded and not dependent on support unit allocations, but may use enrolment assumptions in their revenue estimates. Ancillary Fund Guidelines are issued using the same salary and benefit cost assumptions as the Operating Fund, and including rent charges and amounts to be contributed to the Operating Fund.

April: Activity units and ancillaries present their budgets during a two-day Budget Committee conference, attended by additional guests including the Vice-Presidents, Faculty Deans and Directors of Faculty Administration. The Budget Committee votes to receive each budget, and reviews the final total.

Budgeted consolidated financial statements are prepared incorporating plans for the remaining funds. In order to finalize the budget, senior management reviews the financial position over the three-year planning horizon and makes adjustments, where necessary, to ensure reasonableness of the consolidated position and continued financial sustainability while promoting the academic mission.

May to June: The budget is presented to the University Planning Committee and the Senate for information and comment before presentation to the Planning and Resources Committee and Board of Governors for approval.

8.6 REVENUE ASSUMPTIONS

8.6.1 ENROLMENT

Overall enrolment is projected to increase in accordance with the Strategic Mandate Agreement and the enrolment management targets, enabled by the completion of Wilson Hall in 2016/17, the Peter George Centre for Living and Learning opening in August 2019, and the McLean Centre for Collaborative Discovery. McMaster demand remains greater than the number of spaces available. Many applicants whose academic record suggests that they could be successful at McMaster must be turned away. Enrolment increases are expected to be maintained and managed through a combination of admitting eligible domestic applicants up to the corridor midpoint and allowing increased international participation rates due to MTCU limitations on domestic new entrants.

The undergraduate enrolment projection model uses the Enrolment Management Team's level 1 targets to forecast each Faculty's annual intake. For movement between levels 2 and above, within each Faculty and between Faculties, the model applies a flow-through methodology that incorporates each Faculty's three-year average transition rate.

To project graduate enrolment, since no level 1 intake targets are set at the graduate level, the graduate enrolment projection model is a flow-through model based on the following two elements:

- Each Faculty's historical level 1 intake: The 2018/19 level 1 intake (i.e. as of November 1, 2018) is applied as the anticipated level 1 intake from 2019/20 to 2023/24, unless a specific target was provided by a program.
- The transition probabilities of students from levels 2 and above: Similar to the undergraduate projection, for movement between levels 2 and above, within each Faculty and between Faculties, the graduate model applies a flow-through methodology that incorporates each Faculty's three-year average transition rate, adjusted for mid-year graduation rates.

For both undergraduate and graduate enrolment projection models, actual enrolment data at the student level are used to simulate the projections. The projection data includes FTEs, headcount and WGU counts by Faculty, level, registration status, immigration status, and fee category.

Table 2: Enrolment Assumptions

		2018/19 Budget	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Undergraduate FTEs	Domestic	23,419 +0.6%	23,645 +1.6%	23,446 -0.8%	23,424 -0.09%	23,446 +0.09%
	International	3,062 +30.8%	2,800 +19.5%	3,138 +12.1%	3,438 +9.6%	3,669 +6.7%
	Total	26,481 +3.4%	26,445 +3.3%	26,584 +0.5%	26,862 +1.0%	27,115 +0.9%
Graduate FTEs	Domestic	3,056 +2.8%	3,081 +3.6%	3,125 +1.4%	3,163 +1.2%	3,171 +0.2%
	International	1,140 +7.2%	1,238 +16.5%	1,258 +1.6%	1,284 +2.1%	1,298 +1.1%
	Total	4,196 +4.0%	4,319 +7.0%	4,383 +1.5%	4,447 +1.5%	4,469 +0.4%

8.6.2 TUITION RATES

The domestic tuition rate increase is expected to match that allowed by the MTCU tuition fee framework (see Table 3), for 2019/20 and 2020/21. In the absence of the Ministry tuition fee framework policy for 2021/22 and beyond, tuition increases have been held to zero percent, in other words frozen.

Incremental international tuition revenues are included in the budget and planning years, due to McMaster's corridor-capped domestic intake, allowing greater international participation. For 2019/20 and 2020/21, international undergraduate and graduate rates are assumed to increase by 10% per year for level 1 and 6% for level 2 and above, with exceptions to specific programs. However, due to the 4% maximum increase guarantee granted to international students enrolled prior to 2019/20, the 6% increase will be applied only to new cohorts. Note that international PhD tuition will mirror that of the domestic PhD in accordance with McMaster's decision last year to harmonize the international and domestic PhD tuition.

Table 3: Tuition Rate Assumptions

			2018/19 Budget		2018/19 Projection		2019/20 Budget		2020/21 Plan		2021/22 Plan		
			Level 1	Level 2 +	Level 1	Level 2 +	Level 1	Level 2 +	Level 1	Level 2 +	Level 1	Level 2 +	
Tuition rate	Domestic	Undergraduate	Arts & Science or other	3%	2.25%	3%	2.25%	-10%	-10%	0%	0%	0%	0%
			Professional	5%	5%	5%	5%	-10%	-10%	0%	0%	0%	0%
		Graduate	Research (with thesis component)	0%	0%	0%	0%	-10%	-10%	0%	0%	0%	0%
		Professional (course work only)	5%	5%	5%	5%	-10%	-10%	0%	0%	0%	0%	
	International	Undergraduate	Arts & Science or other	8%	4%	8%	4%	10%	6%	10%	6%	10%	6%
			Professional	8%	4%	8%	4%	10%	6%	10%	6%	10%	6%
Graduate		Research (with thesis component)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
		Professional (course work only)	8%	4%	8%	4%	10%	6%	10%	6%	10%	6%	

8.6.3 OPERATING GRANTS

In accordance with the provincial funding formula, grants are held flat at essentially the 2016/17 level as domestic enrolment remains within the corridor at the enrolment cap. However, a net decline in the operating grant is expected associated with the incremental \$750 per international student tax charged by the province to universities.

Table 4: Operating Grant Assumptions

			2018/19 Budget	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Operating grants	Core Operating Grant (COG)		\$2,903/WGU based on WGU midpoint 2016/17	Flat	Flat	Flat	Flat
	Differentiation Grant		\$261.7/WGU based on WGU midpoint 2016/17	Flat	Flat	Flat	Flat
	Graduate Expansion	COG	± \$2,903/WGU based on WGU 2016/17 as base	Flat	Flat	Flat	Flat
	Grant rate	Differentiation	± \$261.7/WGU based on WGU 2016/17 as base	Flat	Flat	Flat	Flat
	International student reduction		\$750 per international student	Flat	Flat	Flat	Flat

8.7 ACTIONS TAKEN TO ACHIEVE THE STRATEGIC PLAN

All areas across the University are involved in initiatives that support the strategic plan. Activity units and ancillaries fund activities from current revenue and appropriations⁹ carried forward. Under the budget model, allocations to support units are held flat, therefore new initiatives are either funded from appropriations or a request is made to the Budget Committee to fund priority items.

The budget process provides a transparent means of prioritizing incremental funding for strategic investments or unavoidable costs in support units. For the 2019/20 budget, additional allocations have been made for:

- A full-time Indigenous Curator position in the McMaster Museum of Art

⁹ Appropriations are the accumulated surpluses or deficits from prior years, also known as reserves. In accordance with the Operating and Ancillary Budgets Policy, these balances are carried forward to future years. Surplus appropriations may be used to provide funds to offset one-time spending and investments in deficit-reducing strategies. Envelope managers must present plans to eliminate deficit appropriations with their budget submissions.

- Further investment in the libraries' operations to eliminate potential structural deficits and provide collection and learning support
- The Forge entrepreneurship program
- Entrance scholarships for the higher enrolment expected
- For deferred maintenance as part of Phase 2 of the Campus Accessibility Action Plan
- Maintenance, custodial and utilities costs of the Peter George Centre for Living and Learning due for completion in 2019
- Various IT initiatives resulting from the IT Review and some license fee increases
- Wireless network expansion
- Further enhanced life cycle replacement cost funding for technology renewal assets

In addition to the above, a number of smaller base or one-time investments have been made in the 2019/20 budget and/or planning years. Not yet included in the budget are incremental resourcing needs in 2019/20 or beyond associated with a multi-year research initiative that began in 2018/19. Further to the actions that directly support the strategic plan, a series of administrative support reviews and benchmarking activities have been conducted to ensure that non-academic services are operating at maximum efficiency while continuing to reflect McMaster's values.

Initiated in 2017/18, UniForum is an annual benchmarking and feedback program that allows McMaster to collect information and data about the distribution of non-academic services and activities that support teaching and research. Participation in the UniForum program enables McMaster to understand how non-academic support services are being delivered, where they are being delivered, and at what cost. This information is being used to help the University fully understand how it is supporting the academic and research mission and how it benchmarks against other participating institutions. There are 46 participating post-secondary institutions worldwide—23 universities in Australia and New Zealand, 18 in the United Kingdom and now 4 others in Canada.

The Research-Finance Review brought together a team of internal and external researchers and administrators to evaluate delivery of strategic research financial and reporting services, and to determine the most efficient and effective basis on which to deliver those services. The resulting recommendations, including review and coordination of roles and procedures, are in various stages of implementation. Projects such as MacBill (an accounts receivable module), MacBuy (a procurement tool), and the new research report are examples of initiatives prioritized from the review.

The IT Services Review completed in 2016, resulted in the launch of a new IT governance framework in 2017. An IT Executive Committee now oversees enterprise-wide systems needs supporting teaching and learning, research, administration, and infrastructure and security. In 2018/19 a new IT Strategic Plan was developed which will help guide future IT investments. A number of IT projects have been prioritized, developed, and approved in the budget or planning years applying the new framework and plan.

An HR review was launched in the Fall of 2018, with a report expected in mid-2019.

Specific activities contributing to achieving the University's *FW*/strategic plan are put forward in each Faculty and department budget submissions. A summary of these activities follows.

8.7.1 STUDENT EXPERIENCE

Key initiatives affecting the student experience that McMaster will either continue or launch in the budget year are:

- Collaborate with international institutions to offer increased opportunities for student research and exchange experiences. Further, create a global rotational program with local employers that have offices abroad (i.e.: ArcelorMittal Dofasco). This initiative will provide students an opportunity to experience a job in different parts of the world but working for the same organization.
- Initiate a Graduate Admissions project aimed at easing the application process for potential students and reducing the workload for program administrators.
- Increase support for international students through expanded programs to enhance English skills.
- Explore revision of the French program's language curriculum to align with the Common European Framework of Reference for Languages (CEFR) in order to better prepare McMaster students for internationally-recognized diplomas awarded by the French Ministry of Education.
- Launch a new Global Experience Award for students on exchange. As well, launch a National Academy of Engineering (NAE) Grand Challenges Scholars Program (GCSP).
- Continue mentoring and experiential learning programs. As well, engage alumni, living abroad, to mentor students who are going abroad to decrease anxiety surrounding mobility.
- Enhance Student Support Services partnerships with Faculties of Social Sciences and Humanities to offer programming that addresses the needs of students at risk. Developing pre-university programming that will better prepare 1st year incoming students for the university's learning environment.
- Provide training in mental health & wellness, responsible drinking & sexual violence and harm reduction education (Opioids and Cannabis). As well, add an additional mental wellness week hosting a workshop series inviting speakers on the various dimensions of wellness.
- Conduct a review of existing and potential library services targeted to improving the 1st year student experience with a focus on mental health, academic success and retention.
- Continue to bring together students and campus/community partners in living-learning communities for a focused experience that enhances and extends student learning outside of the classroom.
- Deliver enhanced student spaces by opening the new Peter George Centre for Living and Learning. Initiate the development of the McLean Centre for Collaborative Discovery, and

continue the expansion of the Athletics and Recreation facility to provide additional athletic and student wellness space.

8.7.2 INNOVATION IN TEACHING AND LEARNING EXCELLENCE

- Design and build “collision space” within the Health Sciences Library that, once completed, will provide programming in support of student & faculty innovation and entrepreneurship. Further, partner academic curriculum with the Health Sciences Library to deliver the design studio courses (iBiomed curriculum) to define and support emerging health innovation opportunities for students.
- Embark on a transformational shift in Engineering to encourage design thinking, creativity, reflection and integrated learning through what we are calling The Pivot. The Pivot will be the first program of its kind to intensely focus on our engineering students and their learning, not the specific projects they will tackle.
- Launch Digital Citizenship curricula to help learners develop the skills necessary to become ethical users and producers of health information. Participate in national ehealth initiative to improve health informatics training across all Canadian medical schools with a view to improving health-care outcomes and reducing costs. Develop and deliver undergraduate course on the “politics” of health information.
- Embed digital learning excellence in new Business programs.
- Pilot a new model of providing an integrated blend of pedagogical and technical support in McMaster’s active learning classrooms (ALCs). Continue to deliver the intensive 24-hour Instructional Skills Workshops (ISW) within and across Faculties at McMaster.
- Re-envisioning of thesis writing boot camps, and develop thesis-writing module based on boot camp presentations.
- Implementation of Databee Exams Manager, a new system to manage examinations, improving the overall exams process.
- Partner with the Faculties, libraries, and the Campus Store to proactively plan for greater evolution and transformation of course content and supply in an effort to optimize the availability of lower or no cost educational materials.
- Actively developing a micro-learning strategy in Continuing Education given the market trend for just in time knowledge and skills training.
- Continue to publicly recognize outstanding contributions to education through innovation, continued excellence in teaching, and enhanced student learning by funding the President’s Award for Outstanding Contributions to Teaching and Learning, and supporting the annual President’s Retreat for past and present award winners to share best practices, share educational innovations and reflect on the overall student experience.

8.7.3 ACCESS AND EQUITY

- Increase the Library's collecting of books by First Nations authors. Actively build collections of rare books and primary sources relating to indigenous peoples. Contribute to national efforts to revise and adopt appropriate subject descriptors.
- Indigenous Student Services (ISS) improve Indigenous governance and policy development to maximize the student experience and success of Indigenous students. Further, continue with Longboat and Ontario Graduate Scholarship (OGS) Indigenous awards adjudicated and directed by McMaster Indigenous Research Institute (MIRI), Indigenous faculty and staff on campus.
- Development and launch of the McMaster Access Strategy to encourage under-represented groups to participate in post-secondary and provide a path for students who otherwise might not be able to attend McMaster. As well, develop a mentoring program for high school students by McMaster students who participated in the Career Access Program (CAPs) program to build efficacy, confidence, and motivation (breaking down barriers).
- Launch a new Exchange Bursary program to provide under-represented groups with access to exchange opportunities.
- Work with educational programs affiliated with the Association of Faculties of Medicine of Canada (AFMC) Network of Libraries to coordinate Health Sciences Library initiatives to support curriculum changes resulting from the *Truth and Reconciliation Commission of Canada's (TRC's) Recommendations for Training Health Care Providers*.
- Re-vamp fees structure for Graduate programs, especially Masters; unified change motivated by considerations for growing student mobility and accommodations.
- Continue the implementation of the Campus Accessibility Action Plan to improve access to campus facilities. Further, continue to prioritize accessibility and health related maintenance requests as the most urgent projects.
- Progress action plans across Hospitality Services related to a volunteer Accessibility for Ontarians with Disabilities Act audit aimed at delivering greater accessibility across all food operations. As well, complete an action plan for the Campus Store's volunteer Accessibility for Ontarians with Disabilities Act (AODA) audit to address findings.
- Identify and implement employment equity principles and best practices (e.g., objectives related to data collection, training and support of search committees). As well, progress the hiring practices actions underway with the office of employment equity, diversity and inclusion that includes selection committee training with a focus on unconscious bias, and the provision of census information at a unit and local demographic level.

8.7.4 RESEARCH EXCELLENCE AND IMPACT

- Launch the Brighter World Research Initiative.
- Complete plans underway to increase the McMaster Nuclear Reactor's capacity in order to support research programs and requests to use our facility both internally and externally.

- Support research commercialization of McMaster researchers by developing spaces for research spin-off companies at the McMaster Innovation Park enabling the relocation of new companies from campus to the innovation hub. In exchange, McMaster negotiates arrangements with newly formed companies that provide new companies access to space at an affordable start-up rate with access to shared services to reduce initial operating costs in exchange for equity or convertible debt.
- Partner in the advanced manufacturing consortium, along with Western and Waterloo. The province has invested funding in this consortium to develop expertise in the area of advanced manufacturing.
- Expand graduate student seminar series with sessions focused on information management, open access publishing, predatory publishing, and strategies for improved publication success.
- Develop additional support programming to enhance McMaster's ability to recruit, retain and develop diverse high caliber faculty and staff.
- Expand research space available to the Institute on Ethics for Policy and Innovation (IEPI) through a major renovation investment.
- Implement the new web-based system called McMaster Research Ethics Manager, to streamline the submission process of project to the McMaster Research Ethics Board and enhance review and monitoring of research ethics applications.

8.7.5 INNOVATION, ECONOMIC DEVELOPMENT AND COMMUNITY ENGAGEMENT

- In addition to the research commercialization strategy that is building a research business hub at the McMaster Innovation Park keeping research spin-off companies in Hamilton; McMaster will also invest in four large projects beginning in 2019/20. First, the McLean Centre for Collaborative Discovery a seven to nine storey expansion on top of Innis Library for multi-disciplinary problem-based learning; an undergraduate residence¹⁰ along Main Street West expanding McMaster's main campus; and finally, a graduate residence in downtown Hamilton adjacent to the David Braley Health Sciences Centre that will also house a parking garage.
- Launch initiative in Engineering to anchor proof of credentials by using the Bitcoin encrypted blockchain platform, which decouples verification from the issuer, and allows anyone to instantly validate the authenticity of a certificate forever after.
- Continue to provide leadership opportunities for graduate students to develop/deliver innovative and creative programs for graduate students, postdocs and the broader community

¹⁰ The undergraduate and graduate residence projects are public-private partnerships whereby a developer will build and finance the project and McMaster will manage, maintain, and operate the student life programming of the buildings just as it would any other residence. These projects are subject to affordability metrics and will be cancelled if the City amends its development charge exemption for McMaster projects as the projects would no longer be economically viable.

through the Student Proposals for Intellectual Community and Engages Scholarship (SPICES) program.

- Train student facilitators through the McMaster Children and Youth University in the City program and piloting academic credit for student participation, which is a platform for McMaster students from all disciplines of study to acquire valuable experiential learning while empowering youth and their families to engage in interactive education.
- Continue to work with the City and community on needs matching strategic importance to the university. As well, further develop and grow relationships with existing partners within the Hamilton community and continue collaborative efforts to grow and enhance existing programs.
- Establish and strengthen relationships with a diversity of racialized communities/groups in the City, to enhance support/service.
- Partner with Hamilton Public Library, City of Hamilton and Office of Community Engagement on a program to enhance digital skills across the city.
- Continue the Socrates Project, which acts as a point of convergence for artists, scholars, and diverse communities as they engage in crucial conversations regarding pressing issues.

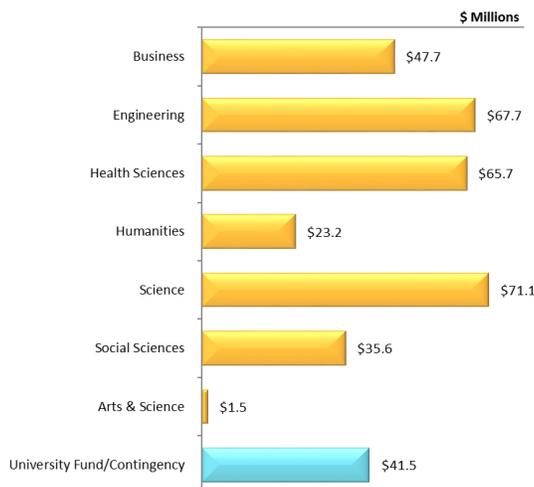
Utilize social marketing and media tools to engage students, faculty and the wider community in campus energy conservation. Infuse sustainability initiatives into everyday operations and in doing so provide students with responsible leadership and guidance to help enhance their own environmental stewardship.

- Launch a new Human Resources (HR) website with improved HR communications and outreach. Further, improve processes emerging from an HR Digitization project.
- Develop a cyber security roadmap which will provide a plan for year over year activities related to improved practices and policies to help mitigate IT security related challenges
- Launch of University short stay suites designed to make year-round executive style accommodation available to the campus and conferences hosted by McMaster.

9 ENVELOPE HIGHLIGHTS

9.1 ACTIVITY UNITS (FACULTIES)

Figure 7: Operating Fund 2019/20 Budget Activity Unit Allocations



9.1.1 FACULTY OF HUMANITIES

The Faculty of Humanities has been active in building six new concurrent certificates that highlight targeted competencies, along with recognizing experiential learning and community engagement. Although the research plan will be revised to ensure alignment with the Brighter World Research Initiative, a strong focus will continue to be on the ethics of innovation, the potential of digital technologies, the power of storytelling, and the integration of language, the arts and science.

The Faculty of Humanities faces budget pressures given the reduction in tuition. The Faculty is playing a critical role in supporting the international student recruitment efforts across the university by providing the highly successful McMaster English Language Development program and is benefitting from doing so. Diversifying the recruitment into the program remains a high priority.

The Faculty is committed to meeting objectives in a financially sustainable manner, which includes teaching courses of broad appeal for students from all disciplines as well as, carefully managing human and physical resources.

9.1.2 FACULTY OF BUSINESS

The DeGroote School of Business (DSB) has made significant progress over the current year in enhancing the student experience, within and outside of, the classroom. This year saw the launch of the new Blended Learning, Part-Time Master of Business Administration (MBA) which attracted over double the expected students, the continued growth of the joint Integrated Business & Humanities Commerce program and the exciting achievement of securing a lead donor for the recently approved McLean Centre for Collaborative Discovery. This space will facilitate exciting curriculum changes to the Commerce program, that include interdisciplinary, problem-based learning.

The domestic tuition cut for 2019 and the subsequent tuition freeze for 2020 has required deferral of several upgrades to space and new, long-term faculty additions pending better certainty around long-term revenue projections.

Despite revenue uncertainty, DSB remains confident in its ability to meet its financial commitments to the MacLean Centre and has increased its intake targets for specific graduate programs to mitigate some of the lost revenue. The coming twelve months will include focused fundraising efforts to attract maximum support for the McLean Centre and its programming. The Faculty will continue to monitor the business school landscape in search of new, cost recovery graduate program opportunities that align with its strategic position and goals.

9.1.3 FACULTY OF HEALTH SCIENCES

Although facing funding cutbacks, the Faculty of Health Sciences is looking to maintain and grow excellence in research, education and clinical service by exploring opportunities for expansion of its very popular BHSc program among potential U.S. students, sustaining its core research facilities and piloting a tighter administrative restructuring model. At the same time, the Faculty will work to strengthen the student experience, be innovative in teaching, increase access and equity, sustain and grow research excellence and continually drive economic development and community engagement.

Potential threats to financial stability of the Faculty of Health Sciences are of great concern. These include rising costs, Royal College mandated changes in postgraduate medical education, tightened university operating funds, tuition cuts, and cancellation of the MD expansion grants. There are also considerable financial pressures on academic hospital partners and uncertainty of funds from the Ministry of Health and Long-Term Care for program support and physician compensation. The threatened withdrawal of Gulf State resident revenues is particularly impactful on the Faculty's operations.

The Faculty of Health Sciences will be looking to offer its BHSc program to the U.S. market, diversifying international resident revenue, and piloting an administrative hub model to streamline its processes and reduce the number of employees involved in high volume routine transactions.

9.1.4 FACULTY OF ENGINEERING

Key strategic initiatives for the Faculty of Engineering include increasing the number of female and international students in Engineering, and embarking on a transformation of the undergraduate curriculum to ensure a higher quality learning experience for students. Engineering is continuing to increase the impact of research, including a planned expansion in the area of advanced manufacturing to contribute to this goal.

Engineering's budget challenges result mainly from the Province's mandated tuition reduction. Engineering is showing a structural deficit for 2019/20 and beyond. Appropriations will address the issue in the short term, and exploring potential cost reductions and revenue generating activities in the longer term.

Delaying some of the planned faculty recruitment, and infrastructure renewal investments may occur until financial stability is assured. The Faculty is strongly engaged in the overall University strategy to increase a diverse international student enrolment.

9.1.5 FACULTY OF SOCIAL SCIENCES

The Faculty of Social Science is heavily engaged in improving the student experience, with initiatives that support first year students in a successful transition from high school, and in teaching innovation with new interdisciplinary courses that encompass community engaged research, and minors in social innovation. Access and equity continues to be a priority and this year will see the launch of a new four institution collaboration offering an Indigenous Pathways transfer program. Research Excellence also remains at the forefront which improved grant application success and quality.

After a period of decline, the attractiveness of Social Science programs has stabilized and seems to be on the rise. However, challenges related to tuition cuts and uncertainty regarding future funding, somewhat inhibit the ability to make necessary investments in critical new areas of activity (e.g., communications, recruitment, IT support) at a time of limited fiscal resources.

The Faculty is taking action on both revenues and expenditures, by continuing to invest in expanding and diversifying international enrolment, while at the same time streamlining processes to better use available resources in advancing the core educational and research mission.

9.1.6 FACULTY OF SCIENCE

The Faculty of Science has continued with strategic investments in faculty, staff and infrastructure that will have a positive impact on the student experience, teaching and learning, research excellence, innovation, economic development and community engagement, with a lens to increase diversity in student, staff and faculty complements.

This budget submission is the next phase in renewal and reinvigoration in the Faculty of Science, which began in the prior year. It is a balance of conservatism, due to the constraints of, and uncertainty in, the provincial funding models, with the need to advance major personnel and infrastructure initiatives.

The Faculty is ensuring streamlined processes and using data analytics to address top priorities that directly link to the SMA, to develop a new Faculty of Science strategic plan for the academic, research and community engagement missions which will guide future strategic investment.

9.1.7 ARTS & SCIENCE PROGRAM

The Arts and Science program continues to focus on achieving a robust, stable, and sustainable faculty complement. The Program does this through collaboration with other units, which supports enhanced experiential learning and student research opportunities and initiatives such as the McMaster Discovery Program. The Program is targeting a goal of 25% out-of-province and international admissions, with an aim to enhance the Arts & Science Program's community, national, and international profile. The addition of a Communications and Outreach Coordinator is intended to enhance the Program's profile and visibility, alumni engagement, and out-of-province and international student recruitment.

9.1.8 UNIVERSITY FUND

The University Fund has the goal of supporting excellence, innovation and renewal in all areas of the university. By design, the projects supported in this way have been short-term and allocated for specific purposes with the intention that successful innovations will be funded permanently by

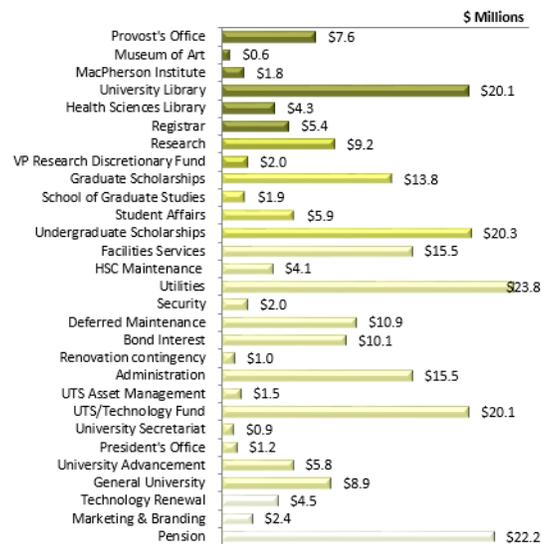
different means, thus freeing the University Fund for new initiatives of innovation and excellence. These funds enable greater flexibility in achieving the academic mission of the University and support discovery and learning opportunities.

The Office of the Provost is responsible for developing appropriate mechanisms to control and use the University Fund as a strategic tool for the University. This fund is used to support unforeseen or unfunded priorities and to seed new strategic initiatives. A significant portion of the Fund is now being used to support ongoing commitments and capital infrastructure, thus limiting the Fund’s capacity for supporting worthwhile new initiatives.

The Provost is actively supportive of *Forward with Integrity (FWI)*, and the *Brighter World Research Initiatives (BWRI)* and is providing funding from the University Fund to enable innovative projects that support the University’s mission. In future, the focus of the Fund will hopefully shift to greater support for research and emerging initiatives.

9.2 SUPPORT UNITS

Figure 8: Operating Fund 2019/20 Budget Support Unit Allocations



9.2.1 STUDENT AFFAIRS

Student Affairs has moved from shoring up its financial foundation, to focusing on initiatives that will drive internationalization, and toward innovations that will support inclusivity and well-being. These priorities are interrelated. Well-being is the foundation of student success and is even more critical for students who are here from abroad. Institutions that welcome and include students from diverse backgrounds, and that encourage domestic students to gain experience abroad, will enable innovation and nurture global citizens.

These priorities are funded on soft money and could be seen by some as peripheral to the core mandate of the institution. Rather than view these priorities through that lens, an alternative is to take

a holistic view that is core to student development and learning - one that values supporting well-being, creating global citizens, and nurturing an innovative mindset.

In the short term our entrepreneurship program, the Forge, requires funding to sustain operations. Government and donor strategies will continue to be pursued to develop a more sustainable model. An increase to student fees will be pursued to help mitigate some of the costs related to mental health support and career support (currently funded through MTCU Career Ready Fund (CRF)).

9.2.1 LIBRARIES

The University Library will move aggressively on a variety of fronts including enhancements to McMaster Experts (for showcasing faculty research), digitization of unique content, research data management, and classroom technology renewal. The organization will explore new models for better supporting student's first year experience, as well as, delivering on the University's community engagement mandate.

The University Libraries continue to face the ongoing problem of journal cost inflation. Our researchers need access to elite journals; the vast majority of our serial subscriptions are made consortially as part of binding, multi-year contracts in US dollars. Cost for journal subscriptions are linked to McMaster's research intensity and thus McMaster pays higher prices than some of our counterparts. The Health Science Library (HSL) allocation only covers a portion of planned spending.

The Libraries have implemented several cost-savings measures including complement review, trimming of low impact, low use journal subscriptions, and implementation of centrally mitigating exchange rate impacts.

9.2.2 OFFICE OF THE REGISTRAR (RO)

The Registrar's Office supports students and the teaching mission of the university. The office is committed to providing timely, relevant, and efficient service to students, and to support Faculties and other administrative functions at the university to ensure that it is aligned with, and contributing to the objectives of the Strategic Mandate Agreement. Projects of note in the coming year include the Campus Solutions 9.2 upgrade, and the service centre transformation, which includes implementing new online chat software and the Databee exam administration system. The office will continue supporting international student recruitment goals and will build on the Pathways ONTransfer initiative which will foster collaboration with colleges.

The most significant budget pressure facing the Office of the Registrar continues to be sufficient resources to support, maintain, enhance and upgrade Mosaic, and increased demands to support expansion in the student population.

The RO continues to review how to provide the best service in the most effective way and to look for cost-saving measures. Managers also work collaboratively to support each other during peak activity periods. The RO is working toward building a talented, flexible and efficient work group that responds quickly and effectively in serving the University mission.

9.2.3 SCHOOL OF GRADUATE STUDIES

The School of Graduate Studies works in concert with the Faculties to achieve their strategic priorities through assisting in the development of new graduate programs, ensuring that such proposals are

prepared according to the latest Council and Ministry guidelines which address key Ministry requirements and also clearly articulate the alignment between the proposal and the University's priorities.

The University priority for graduate enrolment growth and new program development will put significant demands on the graduate scholarship budget. Support for graduate scholarships is fixed, requiring the University to find new revenue sources to support graduate scholarship.

The primary focus of the next academic year will be communication, documentation and training on all graduate-facing system sustainment activities, in addition to ensuring the optimal distribution of graduate scholarship funds. In addition, the Graduate Student Life & Research Training area will be reviewed with an overall objective to enhance service levels to the stakeholders.

9.2.4 PAUL R. MACPHERSON INSTITUTE FOR LEADERSHIP, INNOVATION AND EXCELLENCE IN TEACHING

The initiatives undertaken by MacPherson Institute are directly tied to the directions of the Strategic Mandate Agreement. Specifically, recent initiatives like the piloting of an equity-stream in the Student Partners Program and the refinement of international teaching assistant supports, are tied to the Access and Equity priority. The commitment to the Institutional Quality Assurance Process, particularly in curriculum mapping, self-study preparation and articulation of program learning outcomes, aligns with directions in Student Experience and Innovation in Teaching and Learning as does the growing work in digital pedagogy. Finally, robust support of research in teaching and learning, and the publication of the International Journal for Students as Partners, contributes to the Research Excellence and Impact area of the SMA.

Current budget challenges reflect uncertainty with respect to the vendor costs (including license fees) for two centrally-supported educational technologies. Moreover, growing demand for some services, and the need to respond to recommendations from the recently conducted Teaching and Learning Review, will require prioritization of services, while also considering new funding sources, where applicable, to meet these needs.

As the external review of Teaching and Learning at McMaster concludes, opportunities to refine the mandate and clarify scope of services exist. The coming year will see a prioritization process for existing services and supports, as well as a comprehensive response to the needs of the campus community with respect to teaching and learning.

9.2.5 RESEARCH ENVELOPE

The Vice-President Research will continue to review the organization and needs of Research Institutes and Centres, the Nuclear Reactor, research operations, and support for research from the Office of the Vice-President Research (VPR) Discretionary Fund. Critical to each of these areas are the priorities outlined in McMaster's new Strategic Research Plan (SRP), which challenges us to continue to make a difference—in the competitiveness of our researchers, in the quality of our teaching, and in the impact we have on the world around us. The SRP outlines a number of enabling strategies, highlighting next steps to move our research excellence forward, particularly as they relate to the SMA priorities of "Research Excellence and Impact" and "Innovation, Economic Development and Community Engagement". Given the breadth of its impact, research excellence also enhances the Student Experience, supports Innovation in Teaching and Learning Excellence and both supports and

further the institutional priority of Access and Equity, particularly as they relate to opportunities to engage and lead in research. We look forward to participating in the opportunities provided to the research community through the Brighter World Research Initiative which will further the goals outlined in the SRP. In addition, key to success of the SRP is McMaster's Nuclear Reactor. As Canada's sole major neutron source, McMaster Nuclear Reactor makes McMaster the only university in Canada capable of hosting several types of research; its capabilities have been enhanced by the completion of new facilities enabled by the commitment of McMaster researchers and by provision of support to obtain and operationalize research funds.

The VPR recently led the development of "*Research for a Brighter World - Strategic Research Plan (SRP) 2018-2023*". Ongoing consultation involving the Faculty Deans, Associate Deans Research, other members of the research community and members of the Brighter World Research Initiative team will define how initiatives in the SRP can best be implemented. Expenses to support these new initiatives have not been included in the budget at this time.

In building new initiatives we must also turn our attention to existing support for research. Support provided through the university allocation is supplemented with income earned from royalties.

9.2.6 UNIVERSITY TECHNOLOGY SERVICES (UTS)

The Chief Technology Officer will be focusing on the implementation of the new McMaster IT Strategic Plan beginning in 2019 and the budget reflects on a number of the proposed and anticipated initiatives that will result from the Plan. Changes related to service, systems, and delivery are included. The focus is on creating a stable and secure environment while also implementing desired technologies and capabilities that can enhance the teaching, learning and research activities of the institution and improve the student experience.

There are always finite dollars balanced against infinite IT needs and enhancements. The lack of investment in IT over a number of years is now resulting in a large backlog of desired solutions and necessary spending related to infrastructure such as wireless networks.

University Technology Services will continue to enhance its focus on people, processes and technology across all current services and in line with strategic future services. Enhancing employee engagement and competency levels, reducing deferred maintenance risks, enhancing IT Security capabilities, developing strong partnership and collaboration opportunities with partners across campus, evaluating and 'rationalizing' IT services, and the ongoing support of projects and priorities highlighted as part of the McMaster IT Strategic Plan within the IT Governance framework are all key areas of focus.

9.2.7 ADMINISTRATION AND FACILITY SERVICES

The Administration Division budget itself has been constrained for the better part of a decade as resourcing is concentrated within the Academy. The Division is no longer able to fully self-fund investments and has made several requests of Budget Committee for the budget and planning years.

On a broader note, benchmarking data, "UniForum", suggests that when one considers end-to-end administrative processes that the university has significant efficiency and effectiveness opportunities. This data suggests that the University needs to urgently review how administrative work is undertaken across campus in order to help fund desired investments, and this review work has begun throughout the McMaster.

9.2.8 UNIVERSITY ADVANCEMENT

University Advancement (UA) plays an important role in supporting the SMA priorities by delivering creative and leading advancement programs. University Advancement's 2015-2020 business plan was built on the priorities outlined within McMaster's Strategic Mandate Agreement and Forward with Integrity, and was updated in 2018 to reflect changes in the landscape and respond to opportunities. The UA business plan is designed to support these objectives with a strong emphasis on internationalization, Indigenous programs and research, supporting a distinctive student experience and the needs of the research enterprise. The University priorities all require resources, strong relationships with key stakeholders, including government, funders, friends and alumni, and a robust university reputation. By working collaboratively, each area within the University Advancement team delivers on these commitments so McMaster is well-positioned to maximize its strengths and priorities

University Advancement is using strategic savings to seed staff positions for the Brighter World Research Initiative, however will be partnering with the Vice-President Research Office for a funding ask in support of this important university priority with a goal of significantly growing revenue.

We continue to focus on our key success factors for building McMaster's relationships, reputation and resource. Our work in support of the University enables other areas to be successful in achieving their respective objectives that directly correlate with the tenets of the SMA. UA will continue to play a lead role in the University's marketing and branding exercise as McMaster recognizes that the strength of its brand is integral to the achievements of its institutional objectives in the increasingly competitive post-secondary environment. Public Affairs (formerly Government Relations) continues to be a priority at both the provincial and federal levels as we work to influence policy and secure investment. UA is playing a lead role, in partnership with the Vice-President Research Office, in the planning and implementation of the Brighter World Research Initiative to bring more revenue into the University's research enterprise.

9.2.9 UNIVERSITY BRAND

The marketing initiative has taken great strides over the past year as McMaster has embraced a new purpose statement: "advancing human and societal health and well-being" and has begun the rollout of its new Brighter World brand. Differentiating McMaster in an increasingly competitive national and international environment underpins the marketing strategy.

The full scope of work that will be required over time to support the University's goals requires a base of budget support that is currently not secured beyond the scope of the current plan. While the current focus is on priority projects in the plan, it is clear that areas across the University will benefit from increased assistance in developing modern and comprehensive marketing approaches so they can compete for students, faculty and help influence government and attract other funding sources

The marketing initiative will continue to support the priorities established by the Steering Committee to achieve both short and long-term objectives in delivering an efficient, effective and innovative marketing program for McMaster. Time will be spent with the Steering Committee over the next year to create alignment with the goals it wants to achieve on an ongoing basis and the funding required to deliver the strategy to the University.

10 BUDGET BY FUND

10.1 OPERATING FUND

Table 5: Operating Fund Summary

(\$ thousands)	2018/19	2018/19	2018/19		2019/20	2020/21	2021/22
	Budget	Projection	Variance		Budget	Plan	Plan
Revenues							
Provincial grants	235,368	235,016	(352)	-0.1%	235,868	235,544	235,360
Tuition	334,153	327,272	(6,881)	-2.1%	326,962	351,173	376,611
Research overhead income	25,904	28,933	3,029	11.7%	27,470	27,182	27,181
Investment income	12,901	12,901	(0)	0.0%	12,634	9,467	9,467
Other income	93,990	104,461	10,471	11.1%	106,008	103,681	101,452
Total revenues	702,316	708,583	6,267	0.9%	708,942	727,047	750,071
Expenses							
Salaries, wages and benefits	476,153	473,605	2,547	0.5%	496,875	511,905	525,618
Utilities and maintenance	38,749	35,469	3,280	8.5%	38,638	41,770	42,524
Equipment and renovations	50,392	58,286	(7,893)	-15.7%	52,030	50,048	53,459
Scholarships, bursaries and work study	37,252	39,303	(2,051)	-5.5%	38,739	37,671	37,770
Library acquisitions	12,829	12,650	179	1.4%	13,249	13,714	14,240
Debt and financing charges	18,423	22,623	(4,200)	-22.8%	18,220	21,405	21,405
All other expenses	64,773	64,189	584	0.9%	81,096	73,813	73,991
Total expenses	698,571	706,125	(7,553)	-1.1%	738,848	750,326	769,007
Excess of revenues over expenses	3,745	2,458	(1,287)	-34.4%	(29,906)	(23,279)	(18,936)
Fund balance, beginning of year	110,679	142,698	32,019	28.9%	145,156	115,250	91,970
Fund balance, end of year	114,423	145,156	30,732	26.9%	115,250	91,970	73,034

The Operating Fund is projected to result in annual deficits beginning in 2019/20 on an aggregate one-time (non-structural) basis as a reflection of both the domestic tuition rate cut and freeze, cancellation of the expansion grants, and use of appropriations to support strategic initiatives. Details of the variances between the 2018/19 budget and projection are available in Appendix 1. The revenue trend table that follows in the next section is not inflation adjusted, meaning where revenues remain flat or fixed over time the actual purchasing power of those funds is decreasing by approximately 2% per year (average of Ontario consumer price index inflation).

10.1.1 REVENUE

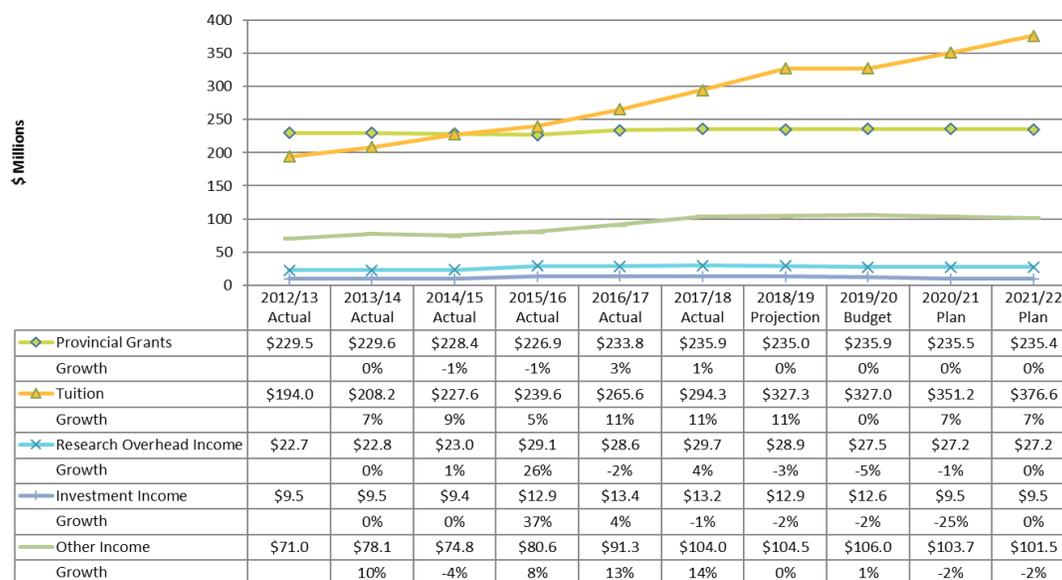
Figure 9: Operating Fund Revenue Trend



Figure 10: Operating Fund 2019/20 Budget Revenue by Type



Figure 11: Operating Fund Budget Revenue Trend by Type



10.1.1.1 PROVINCIAL GRANTS

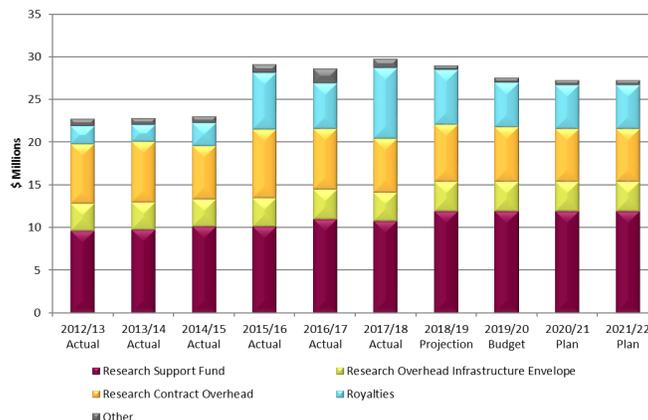
With enrolment of domestic students projected to stay within the provincial corridor, both the Core Operating Grant and Performance/Student Success Grant are expected to remain flat over the planning horizon. Graduate enrolment growth will result in an increase in the Graduate Expansion Grant, partially offset by the International Student Reduction (\$750 tax per international student enrolled) as international enrolment increases. The next phase of the Strategic Mandate Agreement is in 2020/21 is expected to increase outcomes-based funding from under 10% up to 60% by 2024/25. The increase to at-risk funding will result in a corresponding decline in the Core Operating Grant by adjusting weighted grant units downward.

10.1.1.2 TUITION

Based on the enrolment targets outlined previously and the revised tuition framework, 2019/20 tuition income is projected to decrease by \$3.3 million (-1%) from the 2018/19 projection. This decrease is a combination of the domestic tuition rate cut of 10% partially offset by the estimated international enrolment growth and associated international tuition fees. The Ministry has stipulated a zero percent increase for 2020/21 but has not outlined a tuition framework (rate increase caps) for 2021/22 or beyond. For planning purposes a continuation of the zero percent framework has been assumed.

10.1.1.3 RESEARCH OVERHEAD INCOME

Figure 12: Operating Fund Research Overhead Income Trend



Research overhead income has been conservatively budgeted. All research overhead income is intended to fund a portion of central and departmental administrative and infrastructure costs related to conducting research.

The federal Research Support Fund and provincial Research Overhead Infrastructure Envelope grants are calculated based on the amount of Tri-Council research funding the University receives. As a result of the incremental investment in Tri-Council research in the federal *Budget 2018*, additional funding to McMaster known as the Incremental Projects Grant (IPG) within the Research Support Fund has been built into projections based on the 2018/19 amount received. These grants are distributed to activity units through the budget model.

Overhead is levied on research grants and contracts from the private sector and other agencies where allowed. It is normally calculated as a percentage of direct research costs, with the objective of recovering the full amount of indirect costs. Revenue fluctuates with the funding received, and has been budgeted at the average historical amount. The income is credited directly to activity units, where it may be further distributed to departments or reinvested in research.

Royalty income is payment for commercial use of intellectual property owned by McMaster as a result of research discoveries. Similar to research contract overhead, it will fluctuate depending on usage and has been budgeted at the average amount normally received. This income is also credited directly to activity units, with a share going to inventors.

Other research overhead income may be earned on funding from Centres of Excellence, Canada Research Chairs, and Early Researcher Awards.

10.1.1.4 INVESTMENT INCOME

The Operating Fund receives a share of the investment pool interest revenue derived from two primary sources. First, the H. Lyman Hooker Endowment Fund, which is a gift directed to “provide a steady annual flow of funds to support programs that will enrich the academic achievements of the University and to provide a suitable memorial to Dr. Hooker”. Second, the employer portion of the

pension payout in 2003. Annual interest from these two funds at the smoothed expected long-term return rate approximates \$9 million per year.

The annual Operating Fund investment income allocation is fixed at \$9 million regardless of actual positive or negative annual investment returns. This approach ensures a stable level of funds to support ongoing operating expenditures. During the period 2015/16 to 2019/20, the investment reserve provides an additional \$3 million per year. The additional income has helped defray the additional cost of external debt taken out in 2015 for the Peter George Centre for Living and Learning project. The additional interest income allocation to the Operating Fund ends in 2019/20 when the building project becomes available for use.

10.1.1.5 OTHER INCOME

Other income is primarily earned directly by budget envelopes, including:

- Ministry of Health and Long-Term Care grants
- Post-graduate medical training
- Tuition from non-Ministry funded programs
- Nuclear Reactor sales
- Ancillary sales contributions to the Operating Fund (reflecting 4.5% on sales)
- Contributions to the Athletics and Recreation facility expansion
- Registration and service fees
- Recovery of utility costs from partners

10.1.2 EXPENSE

Figure 13: Operating Fund Expense Trend

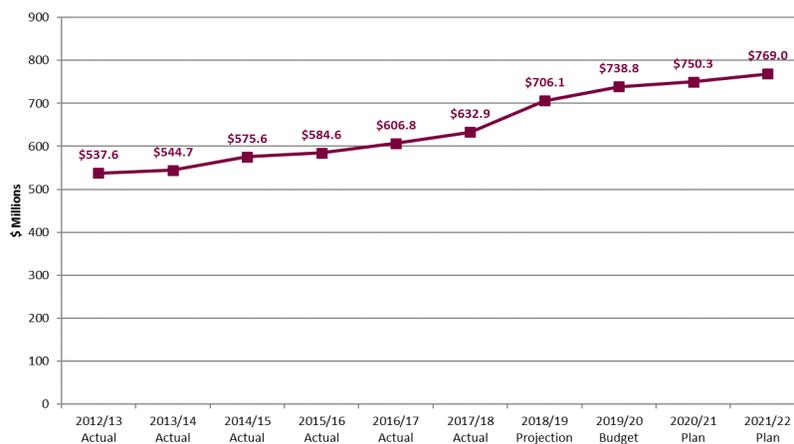


Figure 14: Operating Fund 2019/20 Budget Expense by Type

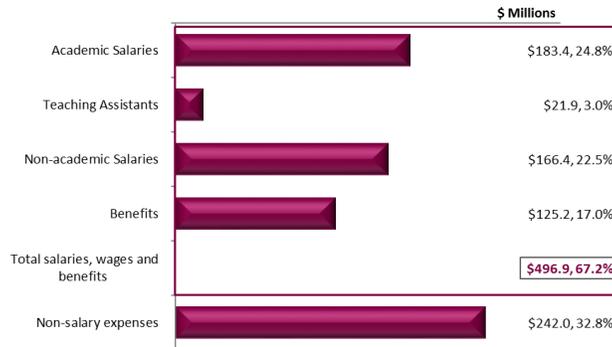
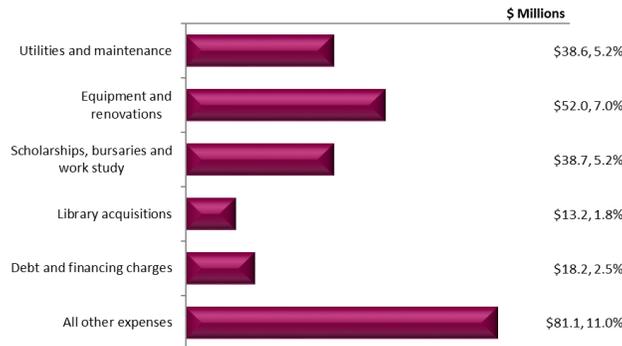


Figure 15: Operating Fund 2019/20 Budget Non-salary Expenses by Type



10.1.2.1 SALARIES, WAGES AND BENEFITS

At close to 70% of all expenditures, salaries, wages and benefits are the largest component of the operating budget. As a research-intensive, student-centered university, the quality of the faculty driving the education and research mission is a key success factor. Highly skilled administrative and support staff are required to facilitate academic work and sustain an exceptional student experience.

In order to maintain the quality of education, accommodate new programs and additional enrolment, and prepare for upcoming retirements, there is an increasing emphasis on faculty renewal. Teaching by tenured, tenure-track or teaching-track faculty will be maintained while addressing the growth in student-to-faculty ratios. In addition, there is a focus on staff processes underway, drawing on benchmarking information, examining further opportunities to streamline business processes in order to maintain a reasonable complement of support staff.

Through labour negotiations, McMaster has pursued strategies targeted at optimizing the rate of compensation increases to control costs while being mindful of the need to be competitive in the market to ensure effective retention and recruitment. The *Fair Workplaces, Better Jobs Act, 2017* has had a significant impact on wage inflation. The budget reflects increases to minimum wage, as

well as the requirement for equal pay for all employees doing substantially the same work regardless of differences in employment status.

The benefit rates used for budgeting purposes collect smoothed funding into a benefit reserve to settle the variable cash outflow schedules produced by the plan actuaries. The payment schedules are updated routinely and compared to benefit rate collections. McMaster recently completed an early filing election for the Salaried Plans adopting the new *Pension Act* provisions put in place in 2018. The updated filing provides payment certainty under the rules until 2021 and eliminates the funding requirement for solvency while introducing a new funding requirement for the provision for adverse deviation. Due to these changes the budget has been adjusted to reflect a new lower smoothed benefit rate for employer contributions.

The salary pension plan charge-out rate approved by the Budget Committee at the beginning of the budget process were as follows:

- The employer contribution rate built into the benefit charges for salaried faculty and staff remain at 175% of employee contributions for all funds including ancillary
- 2020/21 and 2021/22 high-level planning assumes 175% for the departmental rate, and 175% for the ancillary rate.

However, due to the new valuation results the revised rate approved by Budget Committee is:

- The employer contribution rate built into the benefit charges for salaried faculty and staff is 150% of employee contributions for all funds including ancillary for 2019/20, 2020/21, and 2021/22.

Taking these factors into account, the increase in total compensation costs approximates just under 5% over the planning horizon.

10.1.2.2 UTILITIES AND MAINTENANCE

Utilities and maintenance represent 5.2% of the operating budget, including annual contributions of \$10 million to deferred maintenance. Total costs will increase slightly in 2020/21 as the Peter George Centre for Living and Learning opens in the fall.

Costs for utilities can be volatile, subject to market rates, weather fluctuation, unplanned maintenance failures, and campus behavior. The requirement for McMaster to act as backup for the hospital can potentially lead to increased costs due to utility requirements at high-cost time periods. In addition, critical components of the physical campus infrastructure, such as the central electrical station, are beyond end of life. Replacement costs are part of the deferred maintenance plan.

The largest component of utility costs is electricity. Rates have been conservatively budgeted at about \$0.10 per kilowatt hour for all three years, but have the potential to be lower depending on achievement of strategic utility plans. A large favourable variance experienced in 2017/18 was due to lower electricity pricing, lower consumption, and rebates received, however there is no guarantee that this occurrence will be repeated.

McMaster tracks the Ontario Association of Physical Plant Administrators (OAPPA) numbers for benchmarking purposes. The most recent OAPPA benchmark was \$3.85 per square foot, which was

9.6% higher than McMaster's cost of \$3.21 per square foot. Due to the energy-intensive nature of health research, the costs for the McMaster University Medical Centre and the Michael DeGroot Centre for Learning and Discovery have a significantly higher cost index. Excluding these two facilities, the energy cost index for the McMaster campus was \$2.62 per square foot.

10.1.2.3 EQUIPMENT AND RENOVATIONS

Physical and technical infrastructure resources are essential to achieving the strategic plan and delivering an optimal student experience. Space is increasingly a challenge as enrolment increases and additional capacity for research is required. In addition, equipment and software renewal is essential for leading-edge education and research. Infrastructure physical and technical is a key priority to facilitate student registration, control administrative costs, and minimize risk of infrastructure failure or security issues.

The budget includes transfers to capital at approximately \$27 million per year for new and upgraded physical facilities, including new community spaces. A key focus includes classroom renewal whereby investments are directed based on areas of greatest need as identified by the University community. Other major items include:

- Upgrades to lab equipment and classroom audio-visual equipment
- Systems to improve the student experience, including Visual Schedule Builder, document management, and customer relationship management
- Expansion of the wireless network
- Annual investment towards the deferred maintenance
- Improved security through maintenance and enhancement of campus emergency assistance phones

10.1.2.4 SCHOLARSHIPS, BURSARIES AND WORK STUDY

Scholarships support the University's recruitment and admission goals, recognize student achievement, and aid in retention. Favourable positioning of McMaster's admission and scholarship offers is imperative in recruiting the best students. Depending on need, additional support may be provided to students in high-cost programs through the provincially mandated Student Access Guarantee (SAG).

In support of the provincial government, McMaster issues a net bill to students, which details the costs of education less Ontario Student Access Program (OSAP) and other student aid reductions. The net bill builds off the net estimate initiative, which provided new students a net cost estimate before accepting an offer of admission. Together these initiatives aim to increase transparency and help students make decisions that are more informed. Although McMaster's entrance awards on their own are not competitive when compared to other Ontario universities, this initiative will allow the total aid and award package from multiple sources of funding to be managed and remain attractive students.

Enrolment growth has increased the demand for need-based aid over recent years. The number of student requests for work program opportunities and bursary assistance continues to rise across the University. To ensure that sufficient funding is available to meet SAG obligations, the funding provided through the budget model varies with actual amounts required. The budget incorporates estimated expenses given the enrolment assumptions and has provided additional incremental funding for 2019/20.

10.1.2.5 LIBRARY ACQUISITIONS

As the number of publishers of academic journals decreases, their ability to raise prices increases. The cost of purchasing the collection of core titles climbs by approximately \$0.5 million annually.

In order to achieve the University's mission, access to the journals with the highest profile and impact must be maintained. Most serial subscriptions are purchased through the Canadian Research Knowledge Network (CRKN) consortium as part of a binding, multi-year contract for large publisher journal packages. While reducing flexibility, purchasing through a consortium helps to mitigate the impact of journal inflation. Controlling costs by purchasing subscriptions individually is not an option.

McMaster's high research intensity works to increase journal costs since the CRKN subscription fees are linked to a University's research intensity factor. McMaster has higher pricing than some peers, unrelated to student numbers or usage, but because the University pulls in more research dollars.

Several actions have been taken to try to contain costs. An analysis of cost per use data will be done to suggest packages for possible cancellation. A comparison of holdings against those of partners will determine if there is any overlap. Results from CRKN initiatives will be monitored to ensure alternatives are explored.

The budget reflects the combined impacts of inflation and expected exchange rates. In order to reduce pressure on the library envelopes, the US exchange rate has been internally fixed at the long-term rate, with any gain or loss covered centrally.

10.1.2.6 DEBT AND FINANCING CHARGES

In 2002 McMaster issued \$120 million in debentures. Expense of \$7.4 million represents the interest-only payment on the bond with a coupon rate of 6.15%. The principal will be repaid in 50 years as a bullet payment. An internal reserve or sinking fund of \$6.1 million was established in 2002. The sinking fund is invested in the investment pool and monitored annually is expected to be sufficient to repay the principal in 2052. The annual balance in this internally restricted reserve is disclosed in the notes to the audited financial statements.

In 2015 McMaster issued an additional \$120 million in 50-year private placement (public style) debentures. The coupon rate of 4.105% (\$4.9 million) is offset by short-term investments with an estimated yield of 1.6%, which will be available on a declining basis until the funding is fully utilized for capital projects. Payments on internal loans for additional capital projects are included in the budgeted expense (see Section 12 Overall Borrowing and Debt Position). The principal will be repaid using a separate internal reserve or sinking fund approach similar to the one described above.

10.1.2.7 ALL OTHER EXPENSES

This line represents 11% of operating costs and includes a broad range of supplies and other expenses not categorized elsewhere. The expense is net of recoveries including transfers from trust funds, contributions of ancillaries to occupancy costs, and internal services. It includes a provision for expected strategic initiatives facilitated by the University Fund.

10.1.3 OPERATING FUND APPROPRIATIONS

With the budgeted deficit of \$29.9 million, Operating Fund appropriations are expected to reduce to \$115.3 million, or 16.3% of operating revenue, by the end of 2019/20. According to the budget policy, envelope managers may carry forward unspent balances to future years (see Appendix 3 Operating Fund Unit Level Tables). These balances assume an increasing importance as costs increase faster than allocations. Although each envelope is required to present a balanced budget, an appropriation balance may be utilized to fund strategic initiatives including academic, research and capital; as well as initiatives that are one-time projects or cause temporary structural deficits until greater efficiencies are achieved. The appropriation balance is expected to fall to of 9.7% of operating revenues during the planning horizon.

10.1.4 ONE-TIME EXPENDITURES

Table 6: Operating Fund Ongoing and One-time Summary

(\$ thousands)							
	2018/19 Budget	2018/19 Projection	2018/19 Variance		2019/20 Budget	2020/21 Plan	2021/22 Plan
Ongoing:							
Allocated income	599,516	593,385	(6,131)	-1.0%	594,050	617,984	643,593
Other income	99,120	109,997	10,877	11.0%	110,707	108,641	106,055
Total revenues	698,636	703,382	4,746	0.7%	704,757	726,625	749,648
Expenses	665,764	663,012	2,753	0.4%	694,264	708,853	723,769
Excess of revenues over expenses	32,872	40,370	7,498	22.8%	10,493	17,772	25,879
% of revenue	4.7%	5.7%			1.5%	2.4%	3.5%
One-time:							
Allocated income	3,434	3,434	(0)	0.0%	3,167	-	-
Other income	246	1,767	1,521	618.3%	1,018	422	422
Total revenues	3,680	5,201	1,521	41.3%	4,185	422	422
Expenses	32,807	43,113	(10,306)	-31.4%	44,584	41,473	45,237
Excess of revenues over expenses	(29,127)	(37,912)	(8,785)	30.2%	(40,399)	(41,051)	(44,815)
Excess of revenues over expenses	3,745	2,458	(1,287)	-34.4%	(29,906)	(23,279)	(18,936)
Fund balance, beginning of year	110,679	142,698	32,019	28.9%	145,156	115,250	91,970
Fund balance, end of year	114,423	145,156	30,732	26.9%	115,250	91,970	73,034

The budget shows a structural surplus across the planning horizon. Increases in ongoing expenses are mainly either strategic investments like faculty renewal or unavoidable costs. One-time costs include:

- \$18.4 million renovation and expansion of facilities
- \$15.5 million for undetermined strategic investments from the University Fund likely to include:
 - Implementation of Internationalization strategy

- IT Commitments
 - Investment in rejuvenating core Research Platforms and commercialization
 - Incentives and impact minimization of internal and external policy changes
 - New opportunities for capital renewal and expansion
- \$2.2 million investment in research
 - \$2.2 million wireless network expansion and \$1.1 million software
 - \$1 million for entrance awards

10.1.5 OPERATING FUND BUDGET CONCLUSIONS

The 2019/20 Operating Fund is structurally balanced, with a deficit of \$29.9 million after net one-time expenditures of \$40.4 million, driven by the revised tuition framework of a 10% cut to domestic tuition fees, reduced Ministry support in recent years, increased international enrolment and increased competition for limited research dollars. The Operating Fund may need to support some of the shortfall related to existing contractual commitments for capital projects underway, which were meant to be funded by the MD or Graduate Expansion Grant recently cancelled by MTCU.

Despite \$22.3 million less domestic tuition revenue and cancellation of \$52.9 million in capital funds, the Operating Fund remains structurally balanced due mainly to increased international participation and slow but targeted faculty renewal. Significant funding pressures continue associated with wage inflation, elimination of mandatory retirement, technology/capital infrastructure and sustainability, and increasing needs for student services and support all limit the level of investments toward priorities. Faculties and support units will draw upon departmental appropriations or reserves to ensure key priorities can occur in the budget and planning years ahead. Further, many areas across the University are undertaking reviews or drawing on benchmarking information to focus on further process changes supporting transactional or non-strategic work attempting to maximize funds available to progress strategic initiatives.

Amidst ongoing pressures this budget does include plans for seed funding new academic initiatives and projects from the University Fund and research portfolio, and other Faculty investments in research excellence including creating new research centres and appointing new research chairs. Further, investments toward developing new collaborative spaces all contribute greatly needed capacity toward active learning principles and other technologically-enabled pedagogical approaches to further enrich McMaster's experiential learning opportunities. In addition, an emphasis on career pathways associated with programs will be made to better connect students' educational choices with career objectives, including new program launches and redesigned curricula. Marketing initiatives will be implemented to ensure these and other offerings at McMaster are effectively communicated.

Budget pressures continue into the planning years. Investments toward operational and efficiency reviews and retirement incentives to enable some faculty renewal are planned. Finally, budget plans continue to include broadening existing community initiatives and partnerships including a continued focus on healthy communities and living initiatives with the City of Hamilton and beyond.

10.2 RESEARCH FUND

Table 7: Research Fund Summary

(\$ thousands)						
	2018/19 Budget	2018/19 Projection	2018/19 Variance	2019/20 Budget	2020/21 Plan	2021/22 Plan
Revenues						
Research grants and contracts	209,000	195,000	(14,000)	197,000	199,000	201,000
Total revenues	209,000	195,000	(14,000)	197,000	199,000	201,000
Expenses						
Salaries, wages and benefits	117,000	110,000	7,000	111,000	112,000	113,000
All other expenses*	83,000	75,000	8,000	75,000	75,000	75,000
Transfers to (from) other funds	(13,638)	(16,434)	2,796	(14,346)	(14,026)	(12,907)
Total expenses	186,362	168,566	17,796	171,654	172,974	175,093
Excess of revenues over expenses	22,638	26,434	3,796	25,346	26,026	25,907
Fund balance, beginning of year	222,125	198,518	(23,607)	224,952	250,298	276,324
Fund balance, end of year	244,763	224,952	(19,811)	250,298	276,324	302,232

*Including transfers to capital

The 2018/19 Research Fund revenue projection is \$195 million, which is based on research revenue received, including revenue received for future periods, net of hospital research. The projection is \$14 million lower than the original budget due to variances in recoveries from funding organizations.

The budget for 2019/20 of \$197 million reflects modest growth in the research fund. The plan years of 2020/21 and 2021/22 also include modest growth in research receipts.

10.3 CAPITAL FUND

Table 8: Capital Fund Summary

(\$ thousands)						
	2018/19 Budget	2018/19 Projection	2018/19 Variance	2019/20 Budget	2020/21 Plan	2021/22 Plan
Revenues						
Operating grants	3,750	3,562	(188)	3,520	3,520	3,520
Other revenues	35,100	21,372	(13,728)	9,650	14,150	54,750
Total revenues	38,850	24,934	(13,916)	13,170	17,670	58,270
Expenses						
All other expenses, including capital	155,016	137,538	17,478	192,126	137,635	107,601
Transfers to (from) other funds	(31,770)	(34,907)	3,136	(35,012)	(31,684)	(30,718)
Debt and financing charges	(12,298)	(9,819)	(2,479)	(12,096)	(15,006)	(16,456)
Total expenses	110,948	92,812	18,135	145,018	90,945	60,427
Excess of revenues over expenses	(72,098)	(67,878)	4,219	(131,848)	(73,275)	(2,157)
Fund balance, beginning of year	112,789	88,446	(24,343)	20,568	(111,280)	(184,555)
Fund balance, end of year	40,691	20,568	(20,123)	(111,280)	(184,555)	(186,712)

Budget by Fund

Spending in the Capital Fund includes major building and renovation projects, transfers from the Operating Fund, and repayments of internal capital loans. The information in the consolidated budget table above reflects capital projects included in the University's Capital Master Plan (see also Section 6.3), as well as the prior year's budget updated with current spending.¹¹

Table 9 below summarizes the total expected capital funding and spending by project for fiscal 2018/19 to 2021/22. The updated capital projection (\$137.5 million) is lower than the original budget (\$155.0 million) due to slower than expected spending on some key projects. For 2019/20, spending on capital projects will increase to \$192.1 million, reflecting investment in three residence projects, significant construction in connection with the Athletics and Recreation expansion, and several ongoing projects (such as the DSB Expansion, Research Commercialization Space and deferred maintenance).

Table 9: Capital Spending by Project

(\$ thousands)

	2018/19 Projection	2019/20 Plan	2020/21 Plan	2021/22 Plan
Approved projects				
ABB Deep Retrofit - SIF Program	22,419	-	-	-
Adjacent Graduate Residence Parking Structure	-	9,900	-	-
Advanced Manufacturing Centre	2,500	6,560	-	-
Athletic and Recreation - Pulse and Student Space Expansion	2,800	29,500	30,110	-
Biomedical Engineering and Advanced Manufacturing (BEAM)	2,986	-	-	-
Campus Accessibility Action Plan	605	605	605	605
CFI 2014 / 2015	1,094	-	-	-
CFI 2017	6,012	-	-	-
Classroom Reconfiguration Plan	3,000	3,000	2,480	2,000
Deferred Maintenance Projects & Infrastructure Renewal	13,250	13,020	13,020	13,020
DSB Expansion	-	14,086	30,970	31,398
Energy Management Projects and Sustainability	8,653	-	-	-
Forge Expansion at MIP	1,800	-	-	-
Innovation Hub - The Clinic	-	2,250	-	-
McMaster Main Street Residence	1,645	-	(2,729)	-
Peter George Centre for Living and Learning	41,864	36,550	8,104	-
Research Capital Commercialization & Spin-Off Space	10,000	30,000	9,980	-
Residence Renewal Program	3,025	2,000	2,000	2,000
SANS for Nanostructured Materials	4,793	-	-	-
Temporary Lecture Hall	1,657	-	-	-
Other	6,736	400	400	400
Total approved projects	134,838	147,871	94,940	49,423
Estimate of planned projects - not yet approved	2,700	44,255	42,696	58,179
Total capital spending	137,538	192,126	137,635	107,601

¹¹ Capital expenditures used in operations and to support ancillary departments are budgeted through the Operating and Ancillary Funds within the same envelope system, and using the same priority-setting, monitoring and control process as operating expenses. Capital expenditures budgeted within the Operating and Ancillary Funds include equipment, renovations, faculty start-up costs, and deferred maintenance. Internally led projects that require financing borrow from McMaster's central bank approach at the weighted average cost of capital plus a stabilization factor, which is currently 5.75%.

The table above includes capital projects that are approved, as well as an estimate of projects currently in the planning phase. The unapproved projects are currently being reviewed by senior management. The provincial government's withdrawal of graduate and MD expansion capital funding of over \$5 million annually may impact the timing of planned projects as alternative sources of funding are identified. If these planned projects are pursued, a business case will be created including stress testing for varying income adjustments beyond the tuition and capital funding cuts. Approval will be subject to the appropriate governance process.

While not all external funding for projects has been received at the time of construction, all funding sources for a project are identified prior to the project's approval. Interim and long-term financing is provided by a University central bank. Additional external borrowing needs are examined annually, as outlined in Section 12 Overall Borrowing and Debt Position.

10.4 EXTERNAL ENDOWMENT

Table 10: External Endowment Summary

(\$ thousands)				
	2018/19	2019/20	2020/21	2021/22
	Projection	Budget	Plan	Plan
Revenues				
Other revenues	6,214	2,721	2,669	2,495
Investment income (loss)	21,750	28,838	29,322	29,795
Total revenues	27,964	31,559	31,991	32,290
Expenses				
All other expenses	2,640	3,745	5,717	6,511
Transfers to (from) other funds	19,876	19,619	18,245	18,386
Total expenses	22,516	23,364	23,962	24,897
Excess of revenues over expenses	5,448	8,195	8,029	7,393
Fund balance, beginning of year	483,335	488,783	496,978	505,007
Fund balance, end of year	488,783	496,978	505,007	512,400

The external endowment consists of accounts that hold donations or bequests received by the University that have conditions or legal requirements for use agreed upon by the donor and the University. Endowed donations are held in perpetuity and invested in the University's long-term investment pool.

The 2018/19 rate of return on endowed trust funds is projected to be 4.5% net of investment management fees. For planning years 2019/20 through 2021/22, a rate of 5.9% has been assumed. In 2018/19, endowed trust fund donations are projected at \$6.2 million compared to \$2.7 million in the 2019/20 budget.

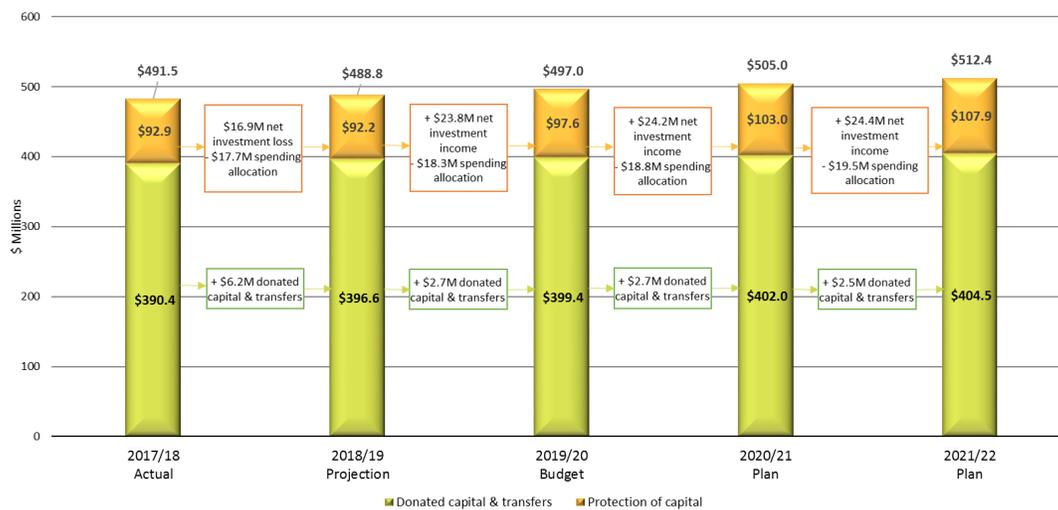
In order to protect the capital value of external endowments and ensure that spending allocations can increase over time for inflation, an endowment capital protection policy limits the amount of investment income allocated for spending and administration. The current limit is 5%¹² (4% for spending and 1% administration). The policy requires the reinvestment of excess income earned

¹² Calculated based on the monthly average market value of the capital balance of the trust fund for the last five years.

(interest, dividends, realized and unrealized gains, net of expenses) to protect the capital value of the endowment from inflation. In years where investment returns are less than 5.0% the policy allows temporary encroachment of this reinvested income. This situation is expected to occur for 2018/19.

At April 30, 2018, the University's external endowment was \$483.3 million, including a protection of capital amount of \$92.9 million. The following chart illustrates the anticipated change in the protection of capital balance and the total endowment over the next four years based on the above assumptions for endowed donations, rate of return, and spending.

Figure 16: External Endowment Fund Balance Trend



10.5 INTERNAL ENDOWMENT

Table 11: Internal Endowment Summary

	(\$ thousands)			
	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Revenues				
Other revenues	99	100	100	100
Investment income (loss)	6,560	8,696	8,852	9,010
Investment income transfer	(4,521)	(5,556)	(5,608)	(5,750)
Total revenues	2,138	3,240	3,344	3,360
Expenses				
All other expenses	-	53	108	165
Transfers to (from) other funds	534	540	550	560
Total expenses	534	593	658	725
Excess of revenues over expenses	1,604	2,647	2,686	2,635
Fund balance, beginning of year	145,777	147,381	150,028	152,714
Fund balance, end of year	147,381	150,028	152,714	155,349

Budget by Fund

The internal endowment includes unrestricted donations, bequests and other allocations that are set aside for future obligations and restricted by the Board of Governors. The funds are invested in the University's long-term investment pool. The largest endowment is the Dr. H. L. Hooker Endowment (approximately \$70 million), which is a bequest restricted for use to advance the University's mission. An annual allocation from the internal endowment is made to the Operating Fund and distributed to Faculties through the budget model. In 2019/20 the allocation amounts to \$5.6 million.

10.6 INTERNAL RESERVES

There are other critical internal reserves created to settle future obligations associated with current faculty, staff or other activities. Internal reserves include two categories of funding first Operating Fund reserves from Faculties and departments projected to be \$145.2 million in 2018//19 falling to \$115.2 million in 2019/20 and to \$73 million by 2021/22 as Faculties and departments draw on reserves to fund strategic initiatives despite the domestic tuition revenue losses. Faculties and departments are required to develop structurally balance budgets each year and additionally are expected to save reserves for new capital investments or renovations or other large strategic initiatives.

The second component of internal reserves relates to future obligation settlement needs projected as \$88.4 million in 2018/19 and planned to be \$150.7 million by 2021/22. The settlement related internal reserves appear as internal reserves on the University's statement of financial position and could be misinterpreted as funding available for other uses, however to do so would be detrimental to future University generations passing on unfunded obligations related to current operations. Some examples of these internal reserves include two debt retirement sinking funds, the Canadian Nuclear Safety Commission's required Nuclear Reactor decommissioning fund, and the special post-retirement benefit fund. Each of the aforementioned internal reserves are monitored annually for sufficiency of the reserve compared to the future liability or third party projected obligation. Balances of these settlement reserves compared to targeted funding are presented separately throughout the year to the Planning and Resources Committee of the Board of Governors. For example, the special post-retirement fund has less than 10% of the funding required to settle future payments related to existing faculty and staff in the plan.

Overall, internal reserves are a critical component of the University's financial health strategy to ensure funding is appropriately set aside today for future obligations arising from current faculty, staff and activities.

10.7 ANCILLARY FUND

Table 12: Ancillary Fund Summary

(\$ thousands)						
	2018/19 Budget	2018/19 Projection	2018/19 Variance	2019/20 Budget	2020/21 Plan	2021/22 Plan
Revenues						
Ancillary sales and services	82,678	81,565	(1,114)	89,378	91,039	91,039
Total revenues	82,678	81,565	(1,114)	89,378	91,039	91,039
Expenses						
Salaries, wages and benefits	29,603	29,981	(379)	32,442	32,243	32,243
All other expenses	32,656	31,778	878	32,815	33,029	33,029
Transfers to (from) other funds*	16,977	16,339	638	17,218	17,377	17,377
Debt and financing charges	4,613	5,079	(466)	7,661	8,003	8,003
Total expenses	83,849	83,178	671	90,135	90,652	90,652
Excess of revenues over expenses	(1,171)	(1,613)	(443)	(757)	387	387
Fund balance, beginning of year	8,679	10,971	2,291	9,358	8,601	8,601
Fund balance, end of year	7,509	9,358	1,849	8,601	8,987	8,987

*Including transfers to capital

Ancillary operations provide essential academic and student support services across the University. Ancillary units enhance the student experience and contribute funding to both direct student support and the operating budget to support the core University mission. Ancillaries must be self-sustaining, maintaining a surplus or break-even position after paying all direct costs including space, as well as contributing approximately 4.5% of sales to the Operating Fund. Projections by individual ancillary unit are available in Appendix 4. Each ancillary operation must save funding or finance (through the form of an internal loan) for its own capital additions and infrastructure renewals, thus a reserve or appropriations balance for the fund of up to 15% of revenues is possible in advance of key capital project decisions. Capital projects, once approved or committed to, are transferred into the project reserve and approved once sufficient funding for the project is collected or reasonably assured.

10.7.1 CAMPUS STORE

Learning in the classroom continues to evolve as new tools for teaching and assessment are introduced to the educational marketplace. The materials selected to facilitate this learning come in a variety of formats and each format supports a different learning style. The Campus Store works closely with faculty, providing students with a variety of course material options that support their educational experience. The Campus Store has the ability to deliver dynamic digital content as well as traditional physical textbooks. Materials include both paid and free content that is published by faculty members or sourced from major publishers and open educational resources providers.

With the rise in online learning and the introduction of dynamic content and ebooks, the unit sales of print materials continue to decline. The sale of course materials still generates enough revenue to offset expenses but the general book department within the Campus Store operates at a loss. The store continues to sell general reference materials, alumni and faculty publications, and general reading materials by offsetting the operating loss through the sale of crested merchandise and other

operations. The importance of having traditional book sections in a University store is high and the store has found a way to offset the cost of doing so through other sales activities.

In the budget and planning years ahead the Campus Store will be focused on the transformation of educational materials, outreach and community engagement, working with community partners to move current objectives forward, and exploring expansion of online sales strategies and other new business opportunities.

10.7.2 CENTER FOR CONTINUING EDUCATION (CCE)

Key strategic initiatives tied to the SMA include CCE's ongoing practice of innovative models of teaching and learning supported by the use of technology and its many programs that prepare graduates for a fast-paced changing work setting. CCE advances educational access through its many open enrolment programs and a second MyOWN Mac pathway that enables adult learners to progress from study within CCE to degree studies in sociology. It is also dedicated to enhancing the adult learner's experience through a Student Advisory Group and, as possible, implementing supports tied to student learning and career advancement. CCE is active in the research and scholarship sector as it involves adult, continuing, and online education. It has also made contributions in the community engagement sector. Engagement is likewise reflected in its present work with the Faculty of Social Sciences on the MyOWN Mac pathway in Sociology and the Peter Boris Centre for Addictions Research and Peter G. DeGroote Centre for Medicinal Cannabis Research on The Science of Cannabis program.

Salaries and benefits continue to be the most significant cost pressure for CCE, particularly given the number of highly skilled staff required to support online development and delivery. Also, CCE has increased the fees it pays its instructors which is an annual increased cost. This adjustment was necessary to attract and retain instructors and to be competitive with other continuing education units. When CCE partners with Faculties and institutes and uses faculty members as content developers and/or instructors, it pays these persons higher fees. Further, the changing nature of the marketplace, increased competition from diverse providers, and unknown variables such as CCE experienced this past year are all challenges.

CCE will roll out additional revenue strategies in the upcoming year. The first is a micro-learning strategy given the market trend for just in time knowledge and skills training. The strategy will enable the Centre to explore uptake before investing significant resources into the development that an academic certificate requires. Short courses and talks will encourage participants to learn more by enrolling in an existing certificate and generate new topics for exploration. Second, in addition to its reputation for the quality of its certificate and diploma programs, Continuing Education has a reputation for excellence in professional development. Taking this expertise and its experience in online education to adult learners across the country and to new English-speaking markets across the globe will enhance enrolments and revenues. Further, the management team is exploring how to bring international learners to Continuing Education for professional development in areas such as project management, data analytics, and other high demand areas.

10.7.3 HOSPITALITY SERVICES

Each Hospitality Services location plays a critical support role in McMaster's on-going pursuit of excellence and enhancing the student experience. Ensuring a focus on efficiency, flexibility and adaptability allows Hospitality Services to contribute to McMaster's Strategic Mandate and the core Operating Budget. The Hospitality Services five-year strategic plan was developed within the framework of the key business objectives of the department that align with *FWI* and the administration division supporting strategic plan. Hospitality Services has developed a strong direction for achieving financial stability, operational growth and improving on the student experience to ensure long-term relevance in supporting McMaster's overall strategy and vision. Technology, nutrition and internationalization of our menus will guide the department as we provide a more in depth food service aligned to the principles found in the Okanagan Charter.

McMaster University continues to operate a highly respected Hospitality Services department – a reputation built on quality and value. Providing quality and value while having low meal plan pricing relative to peers is a testament to the resourcefulness and the innovation of the department over time. However, it will be necessary for the department to continually assess both meal plan and retail pricing to maintain a balanced budget. Planned increases, considering student value first and foremost, will be critical to absorb the financial impacts in the areas of unionized labour contracts and market inflation, while continuing the current level of quality and reputation.

While the pressures of cost and pricing create budget challenges, Hospitality will diligently work to assess and validate its approaches to keep Hospitality Services at the forefront of their sector within the Canadian university marketplace and contribute positively to McMaster's overall mission and reputation. Actions for new value driven revenue streams to overcome financial challenges will include review of meal plan and retail pricing; increased Internationalized menu offerings that support our diverse student cultural needs; continued review/implementation of trending and innovative concepts; social media marketing; and, collaboration with internal partners to develop an integrated technology strategy. Operational efficiencies will be driven through a streamlined, compliant purchasing approach and a cost mitigation strategy that includes the review of Hospitality units that operate at a loss.

10.7.4 HOUSING AND CONFERENCE SERVICES (H&CS)

H&CS directly supports the University's goal of advancing human and societal wellbeing and the overriding vision of educating for capability. Specifically, H&CS provides a distinctive living and learning experience for 4,100 students focused on key educational priorities including community development, personal growth and wellness, academic excellence, and inclusion. The residence experience we offer students is a critical factor to assisting with our SMA metric of retaining students between Year 1 and Year 2.

H&CS concurrently drives a positive McMaster experience for guests, alumni, staff, faculty and student by providing accommodation and event coordination which meet the highest standards of service excellence. H&CS is proud to be a leading ancillary contributor to the financial health of the University and the core academic and research mission of McMaster.

The key financial pressures facing H&CS are capital renewal/capacity expansion and debt servicing. H&CS is advancing a 'One Stop Shop' ancillary service delivery model, improved access to campus

space to intensify the summer utilization of campus assets, and diversifying revenue streams by introducing year-round executive-style accommodations to serve the local and campus community.

10.7.5 MEDIA PRODUCTION SERVICES (MPS)

MPS's strategic initiatives are focused on revenue generation with a view to retiring historical MPS debt. As a result, MPS will continue to seek support to adopt a centralized print management strategy. A firm policy for centralized management will maximize savings and quality benefits to Faculty and departments. Print and digital formats are proving to be complementary and mutually supportive. MPS sees its future as a central hub where print and digital services interact. MPS will continue pursuing its web strategy: developing scalable, fully hosted, brand consistent but design flexible websites that are AODA compliant and incorporate responsive, user-friendly content management systems.

The MPS reorganization has equipped the business unit with the adaptability it needs to effectively navigate an industry that is rapidly changing. However, the lower demand for printing and increased competition continues to challenge MPS. The current optical mark recognition equipment is over 15 years old, at the end of its useful life and in need of replacement. Despite these challenges, MPS is on track to deliver a surplus for the sixth consecutive year.

The Digital Imaging Manager will play a key leadership role within MPS, acting as a catalyst for achieving critical initiatives for our department. This position will proactively seek out new revenue sources, support planning and review of new technologies, and continue to innovate and market new products and services. This will happen in the context of fostering alignment with the University's priorities and continuing to ensure operational and service excellence. Systems and procedures are being streamlined and new revenue streams as identified in our strategic plan are actively being sought and evaluated.

10.7.6 PARKING AND TRANSIT SERVICES

The department continues to work towards increasing capacity for monthly student parking hence improving the student experience. The wayfinding initiative along with improved parking technology will enhance the experience for the University community.

The increasing accumulated debt for underground parking facilities and the accompanying loss of space in prime parking lots as a result of construction projects continues to negatively impact the parking budget. New offsite development has increased the request for service presenting operational challenges due to limited staffing levels. New initiatives added to the managing portfolio for the department such as campus wayfinding also present added cost pressures to the budget.

Parking Services will continue to explore revenue generating and cost cutting opportunities in order to maintain a balanced budget. Opportunities to expand parking capacity where possible will also be explored. The department may reduce service for non-priority activities and defer investment in parking infrastructure should sufficient funding not be available.

10.8 SPECIFICALLY EXTERNALLY FUNDED

Table 13: Specifically Externally Funded Summary

(\$ thousands)

	2018/19 Budget	2018/19 Projection	2018/19 Variance	2019/20 Budget	2020/21 Plan	2021/22 Plan
Revenues						
Other revenues	32,694	34,595	1,901	32,987	32,477	32,477
Total revenues	32,694	34,595	1,901	32,987	32,477	32,477
Expenses						
Salaries, wages and benefits	23,884	24,489	(605)	23,715	23,135	23,135
All other expenses	10,342	12,256	1,914	10,352	9,599	9,599
Transfers to (from) other funds	(216)	(99)	(117)	(176)	-	-
Total expenses	34,009	36,646	(2,637)	33,891	32,734	32,734
Excess of revenues over expenses	(1,315)	(2,051)	(736)	(904)	(257)	(257)
Fund balance, beginning of year	6,244	8,762	2,518	6,711	5,807	5,807
Fund balance, end of year	4,929	6,711	1,782	5,807	5,550	5,550

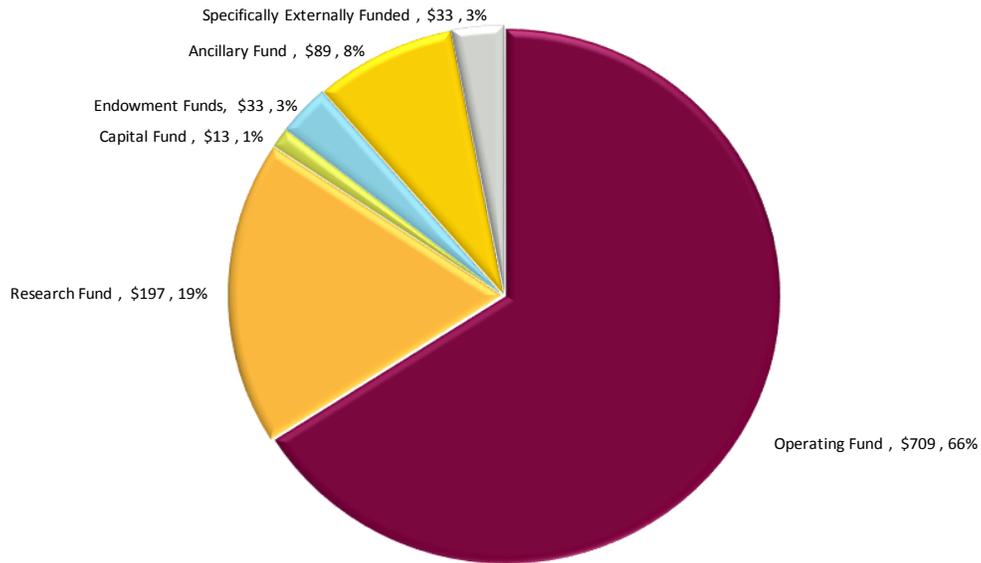
Externally restricted funds other than research, trust or capital are tracked in a separate fund. Programs managed in this fund involve external sponsors such as the Ministry of Health and Long-Term Care and the Ontario Online Initiative, and meet the following criteria:

- The funding is provided by an external entity
- There is an agreement with the sponsor to spend the funding for a specified purpose on specified items
- Unspent funding must be returned to the sponsor

Departments are responsible for administering this funding, ensuring that it is used for the intended purpose and not overdrawn. Specifically externally funded programs are included within budget submissions to Budget Committee.

11 CONSOLIDATED RESULTS

Figure 17: Consolidated 2019/20 Budget Revenue by Fund



As outlined in Section 8.3 Budget Design, the budget process results in a revenue and expense budget for each fund. The Annual Financial Report includes the audited financial statements that are prepared on a full accrual basis using the deferral method of accounting for revenue (see Appendix 6 Significant Accounting Policies for more details). Under this method, all funds are consolidated into a single column for the Statement of Operations, Statement of Financial Position and the Statement of Cash Flows. In order to complete the Consolidated Budget document on the same basis as the Annual Financial Report accounting adjustments are made to each fund.

Table 14: Reconciliation of Operating Fund Budget to Accrual-Based Budget

(\$ thousands)	2018/19	2019/20	2020/21	2021/22
	Projection	Budget	Plan	Plan
Excess/(deficiency) of Operating Fund revenues over expenses	2,458	(29,906)	(23,279)	(18,936)
+ Capital expenditures net of amortization	73,398	91,155	47,152	23,061
+ Investment income on internal endowments	1,604	2,647	2,686	2,636
+ Pension & non-pension adjustments	(7,600)	(8,106)	(8,617)	(9,138)
+ Change in other (non-internal endowment) investment returns, changes in other reserves net of Operating Fund income	45,382	2,226	48,994	59,838
+ Prior period adjustment/pension special payment	(6,777)	2,433	1,898	1,784
Total accrual adjustment	106,007	90,356	92,112	78,180
Excess of revenues over expenses	108,465	60,450	68,833	59,244

Table 14 shows the summary adjustments required to reconcile the Operating Fund's net income from the fund and cash accounting basis to the full accrual basis for all funds, the adjustments include:

- Capital expenditures treated as immediate cash basis expenses are added back and only the net amortization expense is deducted reflecting the useful life of the capital asset over time.
- Investment income earned or (lost) on internal endowments, net of funds not already transferred to the Operating Fund, are added back or (subtracted).
- Actuarial adjustments (excluding re-measurements) for pension and non-pension costs are recorded.
- Reclassifications to offset internal transactions between departments affecting revenues and expenditures are recorded.

11.1 STATEMENT OF OPERATIONS

Table 15: Consolidated Statement of Operations (Accrual Basis)

(\$ thousands)

	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Revenues				
Operating grants	272,482	273,528	273,199	273,008
Research grants and contracts	173,459	176,061	178,702	181,382
Tuition fees	341,272	338,962	363,173	388,611
Ancillary sales and services	78,654	80,227	82,032	83,878
Other revenues	186,029	189,749	201,134	205,157
Investment income (net)	55,420	62,452	64,479	66,435
Amortization of deferred capital contributions	45,812	45,743	44,594	43,737
Revenues from new capital projects	-	-	-	300
Additional revenue from internal loan repayment	9,092	9,525	18,111	18,913
Total revenues	1,162,220	1,176,247	1,225,424	1,261,422
Expenses				
Salaries and wages	530,731	562,575	585,078	608,481
Employee benefits	121,414	123,842	126,319	128,845
Supplies and services	287,537	294,007	299,887	305,885
Interest on long-term debt	13,239	14,739	16,237	16,194
Amortization of capital assets	82,349	88,181	96,000	101,588
Expenses from new capital projects	3,485	17,454	18,071	21,186
Contingent expenses	15,000	15,000	15,000	20,000
Total expenses	1,053,755	1,115,798	1,156,591	1,202,178
Excess of revenues over expenses	108,465	60,450	68,833	59,244

The consolidated statement of operations targets a 10% excess of revenues over expenses in order to fund the internal reserves for future obligations sufficiently. The excess is currently less than 10% of consolidated revenues in all years. In 2018/19 the lower results are a function of weekend interest rate returns. In 2019/20 and beyond the results are lower due to the tuition fee cut and the Faculties continuing to invest in strategic priorities drawing upon unit level reserves. In the budget and planning years, if the return on investment is 5.9% or greater than the internal reserves will be reasonably funded despite unit level spending in the Operating Fund.

11.2 STATEMENT OF FINANCIAL POSITION

Table 16: Consolidated Statement of Financial Position

(\$ thousands)				
	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Assets				
Cash	29,271	30,994	32,128	33,394
Short-term investments	146,355	154,972	160,638	166,969
Medium-term investments	364,423	295,458	255,469	272,639
Long-term investments	997,981	1,045,736	1,079,958	1,114,886
Capital assets	1,186,948	1,333,324	1,404,960	1,450,674
Other assets	155,568	158,680	161,853	165,090
Total assets	2,880,547	3,019,165	3,095,005	3,203,652
Liabilities and deferred contributions				
Current portion of long-term debt	630	654	678	703
Deferred contributions for future expenses	360,370	361,573	362,800	364,051
Deferred capital contributions	503,176	490,535	481,111	514,344
Long-term debt	253,133	327,479	326,801	326,099
Decommissioning obligation	14,132	15,221	16,393	17,655
Employee future benefits and pension	242,979	247,839	252,796	257,852
Other liabilities	176,371	179,898	183,496	187,166
Total liabilities and deferred contributions	1,550,792	1,623,198	1,624,074	1,667,868
Net assets				
Unrestricted	9,781	9,781	9,781	9,781
Internally restricted reserves	253,801	224,523	207,059	248,725
Internally restricted endowments	147,381	150,028	152,714	155,349
Externally restricted endowments	488,783	496,978	505,007	512,400
Net investment in plant, adjusted	430,008	514,657	596,370	609,529
Total net assets	1,329,755	1,395,966	1,470,931	1,535,784
Total liabilities and net assets	2,880,547	3,019,165	3,095,005	3,203,652

The statement of financial position is the University's consolidated balance sheet. The cash and short term investments reflect funds needed for current spending. Medium term investments are funds invested in longer durations approximating 36 to 48 months. The long term investments reflect funds placed in the unitized Investment Pool, which targets an annual 5.9% return. Long term investments hold both external and internal endowment funds, as well as a component of funds not needed in the short or medium term. Capital assets reflect infrastructure additions that meet the capitalization accounting policy (described further in Appendix 6). Other assets include grants and other accounts receivable, prepaid expenses, inventories and investments in McMaster Innovation Park, Adiga Life Sciences and the Halton McMaster Family Health Centre.

Deferred contributions for future expenses and capital reflect funding received for specific purposes that has not yet been expended or met the test to expense. This funding is reduced when the related expense occurs resulting in offsetting revenue or net neutral impact to the statement of operations. The long term debt obligation relates primarily to bonds raised in 2002 and 2015 for capital investments, both obligations have an internally restricted sinking fund reserve to settle the future

\$240 million in balloon payments, \$120 million due in 2052 and the other \$120 million due in 2065. The decommissioning liability is a figure determined by the Canadian Nuclear Safety Commission and an offsetting internally restricted reserve has been created to fund this obligation when it becomes due. The employee future benefits and pension liability is determined by the University's third party actuary for each future benefit and pension plan the University has with its faculty and staff. For costs associated with the variable pension expenses and future special post retirement benefit internally restricted reserves are used. Finally, other liabilities generally include accounts payable and accrued liabilities, as well as deferred revenue that will be recognized in a future period.

Finally, net assets comprise of almost \$10 million in unrestricted reserves and \$253.8 million in internally restricted reserves explained previously in section 10.6. The external and internal reserves are also explained in greater detail in sections 10.4 and 10.5 respectively. Finally, net investments in plant reflects accrual basis adjustments for investments made by the University in capital that is added to as new investments are made and reduced by each University invested assets annual useful life amortization expense.

11.3 STATEMENT OF CASH FLOWS

Table 17: Consolidated Statement of Cash Flows

	2018/19	2019/20	2020/21	2021/22
	Projection	Budget	Plan	Plan
Excess of revenues over expenses	108,465	60,450	68,833	59,244
Add/(deduct) non-cash items				
Change in deferred pension asset	-	-	-	-
Amortization of capital assets	82,349	88,181	96,000	101,588
Amortization of deferred capital contributions	(45,812)	(45,743)	(44,594)	(43,737)
Amortization of deferred contributions for future expenses	1,179	1,203	1,227	1,251
Change in decommissioning obligation	1,010	1,088	1,172	1,262
Miscellaneous non-cash changes in assets and liabilities	21,803	5,276	5,381	5,489
Add/(deduct) cash from operations, finance and investing				
Change in deferred capital contributions	45,056	33,102	35,170	76,970
Contributions to externally restricted endowments	5,448	8,195	8,029	7,392
Repayment of long-term debt (existing and proforma debt)	(608)	(630)	(654)	(678)
Other	5,836	(2,433)	(1,898)	(1,784)
New debt issuance	-	75,000	-	-
Acquisition of capital assets	(174,972)	(234,558)	(167,635)	(147,301)
Change in cash	(10,635)	(1,723)	(1,133)	(1,266)
Change in short-term investments	43,251	(8,617)	(5,666)	(6,332)
Change in long-term investments	80,827	(47,755)	(34,222)	(34,928)
Increase/(decrease) in medium-term investments	163,196	(68,965)	(39,990)	17,170
Medium-term investments, beginning of year	201,227	364,423	295,458	255,469
Medium-term investments	364,423	295,458	255,469	272,639

11.4 METRICS

11.4.1 HIGHLIGHTS

Table 18: Budget Financial Highlights

(\$ millions)	2018/19	2019/20	2020/21	2021/22
	Projection	Budget	Plan	Plan
Total net assets	1,329.8	1,396.0	1,470.9	1,535.8
Available expendable resources	587.3	568.7	562.6	616.0
Capital spending	169.0	229.4	158.9	137.4
Total revenues	1,162.2	1,176.2	1,225.4	1,261.4
Total expenses	1,053.8	1,115.8	1,156.6	1,202.2
Excess of revenues over expenses - consolidated	108.5	60.4	68.8	59.2
Excess/(deficiency) of revenues over expenses - Operating Fund	2.5	(29.9)	(23.3)	(18.9)

11.4.2 FINANCIAL HEALTH METRICS

Table 19: Financial Health Metrics

Metric	Ratio	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Performance	Net income/loss ratio	9.3%	5.1%	5.6%	4.7%
Performance	Net operating revenues ratio ¹	14.5%	9.4%	10.4%	9.9%
Liquidity	Primary reserve ratio (days) ²	204	186	179	186
Leverage	Interest burden ratio	1.4%	1.4%	1.5%	1.5%
Leverage	Viability ratio ³	2.2	1.7	1.6	1.8

¹Measures cash flow from operating activities as a proportion of revenues

²Measures the number of days University reserves can cover operating expenses

³Measures the proportion of long-term debt that could be settled using unrestricted assets

The ratios above are required by MTCU to be reported each year, and in the annual SMA report. No targets have been set by MTCU, however McMaster is satisfied that the resulting ratios are consistent with the University's own credit management ratios. These ratios are shown in the section below and include acceptable ranges as defined in the University's Debt Management Policy. These ratios are consistent with those monitored by the University's credit rating agencies.

11.4.3 DEBT MANAGEMENT RATIOS

Table 20: Debt Management Ratios

	2018/19 Projection	2019/20 Budget	2020/21 Plan	2021/22 Plan
Available expendable resources to debt (≥ 0.6 to > 1.0)	2.1	1.6	1.6	1.8
Interest coverage (> 2.75 to > 3.25)	12.0	8.0	8.4	8.2
Available expendable resources as a percentage of revenues ($> 15\%$)	50.5%	48.4%	45.9%	48.8%
Liquidity ratio ($> 1\%$)	2.0%	2.0%	2.0%	2.0%

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11.5 RISKS TO THE 2019/20 BUDGET

The key risks to the budget relate to achieving diversified international enrolment targets. Diversity of international enrolment will be important to minimize geopolitical risk related to potential adverse foreign government policies. Enrolment growth will eventually be limited by capacity, forcing a greater focus on the delivery of new revenues and operational process efficiencies.

Implementation of provincial performance- or outcomes-based funding introduces the risk associated with up to 60% of McMaster's funding linked to the achievement of 10 SMA targets, 9 set by MTCU and 1 University selected. The budget has absorbed the 10% domestic tuition cut in 2019/20 and the rate freeze in 2020/21, however there is no indication of changes to the tuition framework in 2021/22 and beyond and if held frozen the University will not have any source of inflationary funded related to domestic higher education delivery.

Risk of market volatility and capital losses could impact annual commitments to operations, including funding for Chairs, scholarships and bursaries. This risk is managed by diversification and experienced oversight, as well as maintenance of an internally restricted investment reserve established more formally following the financial crisis to cover annual spending commitments that might otherwise be hindered in a prolonged market loss situation. In addition to potential market losses, a decline in interest rates would affect pension plan liabilities and increase the amount of required payments. Projections and scenario modeling are used to monitor this risk and develop funding strategies using internally restricted benefit reserves to potentially supplement payment schedules resulting in a process of smoothed benefit rate budgeting for Faculties and departments enabling greater stability.

Additional systemic or uncontrollable risks include ensuring sufficiency of funding for investments in infrastructure and strategic priorities such as the research commercialization project involving the relocation of research spin-off entities to the McMaster Innovation Park by building a research hub in the City of Hamilton. Further still, the University has partnered with the private sector in an effort to minimize debt directly held by the University while still delivering on key capital projects of strategic importance to the University's mission. Risk of bankruptcy of public-private partners involves mitigation strategies including extensive due diligence initiatives, strategic negotiations allowing remedy within a defined period and the University's right to buy out the partnership or replace the partner failing reasonable remedy.

12 OVERALL BORROWING AND DEBT POSITION

Strategic initiatives and capital projects (both infrastructure and technology related) require a combination of financing solutions, including internal loans from the central bank, commitments against future revenue streams, gifts, and/or external or off-book financing.

External financing is used to fund the central bank and is considered a perpetual component of the University's capital structure. The University examines optimal debt positions for strategic and capital needs against established debt management guidelines and financial health metrics annually, results of which are outlined in a debt strategy report along with multi-year financial projections. McMaster uses debt retirement funds (or sinking funds) for the bonds outstanding.

Additional borrowing is identified in the 2019 Debt Strategy report suggesting \$75 million over 30-years, this debt projection is included in budget for conservatism. However, the University has taken a strategic approach to delay the recommendation for approval to proceed with this new debt until early 2020 when more may be known regarding the extent of MTCU funding cuts and other changes. The new debt is tied to providing additional central bank resources over the period whereby the Peter George Centre for Living and Learning and other projects are complete and new projects such as the McLean Centre for Learning and Discovery will be initiated. Internal loans associated with completed projects average a 30-year repayment schedule. A 30-year debt maturity creates staggering maturities for external debt and allows current strategic initiatives to proceed despite reduced provincial capital funding, while maintaining strong financial health metrics and our AA credit rating with DBRS and S&P.

13 CONCLUSIONS ON THE 2019/20 BUDGET

The 2019/20 Operating Fund is structurally balanced in all planning years, with department reserves, also referred to as appropriations, being drawn down to advance one-time strategic initiatives aligning to *FW* and SMA milestones and metrics, such as investments in academic, research, community and infrastructure support. On a consolidated basis, a surplus of \$60.5 million is budgeted after required generally accepted accounting principle (GAAP) accrual adjustments. Such as, adding back capital expenditures during the year and only recognizing one year of the capital projects' useful life as amortization expense. The consolidated results are sensitive to market volatility associated with investment returns. A plus or minus 1% variance results in a plus or minus \$5.9 million impact to the consolidated results. Returns are budgeted using the long term rate of return average of 5.9% for 2019/20 and beyond.

Budget submissions across all areas reflect a core focus toward research initiatives, advancing meaningful student experiences, and strengthening our connections to the community locally and beyond. McMaster is taking steps to continue these initiatives as planned despite the provincially mandated 10% cut to domestic tuition rates in 2019/20 and tuition freeze for 2020/21. The budget includes maximum funded domestic enrolment (up to a corridor funding midpoint) along with international student enrolment that combined translate into modest overall targeted growth. Included in the budget to support enrolment, the Faculties' budget plans, taken together, include a 6% overall increase in faculty complement. This is expected to allow the University to build on our research strength and maintain our position at the very top of international rankings of high-impact universities.

The overall budget is positive primarily based on planned international enrolment strategies considered achievable. Over the longer term, enrolment strategies will become constrained by campus capacity. As such, new revenue strategies are being considered along with other operational efficiency projects. New revenue strategies include a review of professional programs, an examination of the use of campus in the summer, exploration and implementation of a block-chain certification platform and micro-credentialing or just in time certifications promoting life-long learning through online mechanisms that do not tax the University's physical infrastructure.

Budget pressures and some uncertainty in connection with provincial funding, future pension costs along with related inflationary pressures, and continued potential market volatility suggests our continued financial health depends on concerted pan-university efforts. These pan-university efforts include an increased focus on efficiency projects involving process reviews and automation efforts associated with high volume routine transactional work. The University will place a greater and growing emphasis on benchmarking data to target areas in need of the greatest review and process change.

Upcoming changes to MTCU's funding approach, whereby up to 60% of the University's funding will become at-risk connected to the achievement of 10 SMA metrics, 9 selected by MTCU and 1 University selected, will not change the University's approach to budget allocations within the Operating Fund. McMaster's budget model is predominantly based on where students register and where students taught flowing funds on these basis' and allocated costs based on "use" drivers. The budget approach remains core to ensuring Faculties understanding their revenues and cost drivers and it increases accountability and transparency around how funds are allocated and expended across the University to support the mission. The budget process also enables full alignment of budgets and planning with priorities and the SMA, as such no changes to the budget model will be undertaken during MTCU's funding approach transition.

APPENDIX 1– OPERATING FUND PROJECTION VS. BUDGET

Table 21: Operating Fund 2018/19 Projection vs. Budget

(\$ thousands)	Operating Fund		2018/19 Variance	
	2018/19 Budget	2018/19 Projection	Favourable/ (Unfavourable)	
Sources of Funding:				
Provincial Grants	235,368	235,016	(352)	-0.1%
Tuition	334,153	327,272	(6,881)	-2.1%
Research Overhead Income	25,904	28,933	3,029	11.7%
Investment Income	12,901	12,901	(0)	0.0%
Other income	93,990	104,461	10,471	11.1%
Total sources of funding	702,316	708,583	6,267	0.9%
Expenditure:				
Salaries, wages and benefits	476,153	473,605	2,547	0.5%
Utilities and maintenance	38,749	35,469	3,280	8.5%
Equipment and renovations	50,392	58,286	(7,893)	-15.7%
Scholarships, bursaries and work study	37,252	39,303	(2,051)	-5.5%
Library acquisitions	12,829	12,650	179	1.4%
Debt and financing charges	18,423	22,623	(4,200)	-22.8%
All other expenses	64,773	64,189	584	0.9%
Total expenditures	698,571	706,125	(7,553)	-1.1%
Total surplus (deficit)	3,745	2,458	(1,287)	-34.4%
Fund balances, beginning of year	110,679	142,698	32,019	28.9%
Fund balances, end of year	114,423	145,156	30,732	26.9%

The Operating Fund is projected to end 2018/19 in a more favourable position than the original budget due to more favourable fund balances at the end of 2017/18 carrying over.

Provincial grants are unfavourable by \$0.4 million (-0.1%) due to removal of Midwifery grant funding from central provincial grant funding, for the Budget it was expected that Midwifery funding would come through the central provincial grants. This is partially offset by conversion of international PhD students to domestic, resulting in higher than budget Graduate Expansion grant.

Tuition is unfavourable by \$6.9 million (-2.1%) primarily due to lower international enrolment compared to planned target whereby the enrolment difference accounts for student redirected to McMaster's english language program for one year and whereby those students will be redirected into regular first year enrolment next year.

Research overhead income is favourable by \$3.0 million (11.7%) due to greater royalties and the new Incremental Projects Grant (IPG) component of the Research Support Fund, partially offset by lower research contract overhead.

Other income is favourable by \$10.4 million due to revenue sources not anticipated at the time of the original budget. In particular, additional revenues in Humanities' supplementary English language program mentioned above, as a result of the targeted increase in international enrolment. As well, other income is favourable due to the inclusion of the Midwifery funding mentioned above, as a direct Faculty revenue, as well as increased revenue from other supplementary programs and fees.

Salaries, wages and benefits are favourable by \$2.5 million (0.5%) due to unfilled positions and delayed hiring as temporary expense saving strategies.

Utilities and maintenance are favourable by \$3.3 million (8.5%) due to a \$2.89 million Ontario rebate for electricity consumers and because the University is now classified as a Residential Energy Consumer. Further still, utility rates were more favourable than budgeted.

Equipment and renovations are unfavourable by \$7.9 million (-15.9%) whereby savings from Utilities were reinvested in energy management plan projects and deferred maintenance priorities. Further driving the unfavourable variance are capital transfers for the McLean Centre project, Science core research platforms, the Nuclear Magnetic Resonance Facility and Microscopy.

Scholarships, bursaries and work-study expenditures are unfavourable by \$2.1 million (-5.5%) due to higher student enrolment.

Library acquisitions are favourable by \$0.2 million (1.4%) due to conservative assumptions on journal inflation made in the original budget.

All other expenses are favourable by \$0.6 million (0.9%) primarily due to lower than expected contingency spending on priorities.

The resulting \$1.3 million unfavourable in-year deficit variance plus the \$32 million favourable opening appropriations variance result in a projected closing balance in the Operating Fund of \$30.7 million (26.9%) greater than the original budget. These appropriations will be carried forward for expenditure in 2019/20 and future years and will help to mitigate the impact of the 2019/20 tuition cut and investments in capital.

APPENDIX 2 – BUDGET MODEL CALCULATIONS

McMaster University - New Budget Model - Faculties			University Fund		Prof Faculties		Other Faculties		VP Research Discretionary Fund					
Projected Budget Allocation					8.00%		8.00%		10.00%					
2018-19			Research Infrastructure Fund		3.00%		1.00%							
	prior to double stepdown allocation	Net double stepdown allocation	Business	Engineering	Health Sciences	Humanities	Science	Med Rad - Mohawk	Social Sciences	Arts & Science	Other (reconciling items)	University Fund	Research Infrastructure Fund	Total (after double stepdown to support unit allocations)
Revenue														
Undergraduate Tuition			49,438	91,402	34,367	15,980	58,888	2,272	33,667	1,832	-	-	-	287,846
UG Tuition Adjustment for tuition fee framework			(143)	(311)	61	67	207	(54)	109	10	-	-	-	-
Total UG SAG Obligation			16,113	12,593	11,720	2,843	5,206	-	2,097	(1)	9,233	-	-	-
Graduate Tuition			19,220	45,500	81,420	14,661	51,421	2,264	21,198	1,679	-	5	-	50,573
Operating Grant			717	2,364	5,005	403	1,936	-	725	116	-	7,485	-	235,368
Other Income			83,426	142,420	132,468	33,940	117,604	4,536	57,785	3,636	9,233	7,490	-	18,752
Gross Revenue			(7,030)	(15,202)	(43)	7,994	9,242	-	5,678	(639)	-	-	-	592,539
Undergraduate Cross Faculty Teaching Adjustment			76,395	127,218	132,425	41,934	126,846	4,536	63,463	2,997	9,233	7,490	-	0
Revenue for Contributions														592,539
University Fund Contribution			(6,112)	(10,177)	(10,594)	(3,355)	(10,148)	-	(5,077)	(240)	-	45,702	-	-
Research Infrastructure Fund Contribution			(2,292)	(3,817)	(1,324)	(419)	(1,265)	-	(635)	(90)	-	-	9,845	-
Indirect Cost of Research (excl. Royalties & CRC)			204	4,956	11,111	417	4,279	-	728	-	25	-	-	21,720
VP Research Discretionary (10% of ICR above)			(20)	(496)	(1,111)	(42)	(428)	-	(73)	-	2,170	-	-	-
Adjustments for ICR received by Journal (Contract & ERA)			(17)	(1,583)	(4,853)	(202)	(651)	-	(13)	-	-	-	-	(7,316)
Adjustments for Current Practices			(1,274)	(1,343)	(4,294)	(396)	(764)	(213)	(332)	-	5,000	-	-	(4,266)
Research Infrastructure Fund Distribution			93	2,249	5,042	189	1,942	-	330	-	-	-	(9,845)	-
Research Excellence Fund (from UF)			40	484	1,065	81	418	-	142	-	-	(2,250)	-	-
Revenue Prior to Shared Support Unit Allocations			67,017	116,892	127,488	38,207	120,226	4,324	58,484	2,667	16,427	50,943	-	602,675
Shared Support Unit Allocations - via double stepdown														
Occupancy Cost	42,072	(13,107)	(832)	(6,662)	(8,857)	(2,273)	(8,561)	-	(1,733)	(47)	-	-	-	(28,965)
Deferred Maintenance	9,893	(3,529)	(183)	(1,464)	(1,946)	(499)	(1,881)	-	(381)	(10)	-	-	-	(6,364)
Insurance	1,159	(475)	(20)	(161)	(199)	(55)	(207)	-	(42)	(1)	-	-	-	(684)
MIP Occupancy 1	2,677	(244)	-	(1,623)	(587)	(35)	-	-	(188)	-	-	-	-	(2,433)
MIP Occupancy 2	157	-	-	(157)	-	-	-	-	-	-	-	-	-	(157)
HR	6,728	(995)	(311)	(658)	(3,125)	(338)	(726)	-	(368)	(7)	-	-	-	(5,794)
HR Employee Programs	2,055	(534)	(107)	(234)	(524)	(164)	(337)	-	(155)	(1)	-	-	-	(1,522)
Financial Affairs/Admin/ Inst Support	7,301	(2,514)	(524)	(853)	(1,631)	(440)	(839)	-	(482)	(16)	-	-	-	(4,787)
Supplementary Pension	4,738	(239)	(391)	(727)	(1,740)	(394)	(795)	-	(450)	(3)	-	-	-	(4,499)
Pension Special	17,437	(4,533)	(905)	(1,982)	(4,447)	(1,389)	(2,856)	-	(1,316)	(9)	-	-	-	(12,904)
Presidential/Univ Sec	1,962	(762)	(131)	(214)	(409)	(110)	(210)	-	(121)	(4)	-	-	-	(1,200)
General University Expense	6,705	(2,825)	(425)	(692)	(1,322)	(357)	(680)	-	(391)	(13)	-	-	-	(3,880)
Bond Interest	7,380	(2,565)	(139)	(1,108)	(1,472)	(378)	(1,423)	-	(288)	(8)	-	-	-	(4,815)
UTS/ Technology Fund	15,072	2,519	(2,212)	(3,426)	(3,793)	(1,366)	(4,299)	-	(2,349)	(351)	-	-	-	(17,591)
UTS- ERP	4,517	(1,76)	(546)	(845)	(936)	(337)	(1,059)	-	(580)	(37)	-	-	-	(4,341)
UA	6,072	1,498	(941)	(1,704)	(1,878)	(552)	(1,636)	-	(820)	(40)	-	-	-	(7,570)
Office of the Provost	7,410	(2,833)	(501)	(816)	(1,560)	(421)	(803)	-	(461)	(15)	-	-	-	(4,577)
Research Support	9,377	5,137	(207)	(2,363)	(9,069)	(184)	(2,115)	-	(576)	-	-	-	-	(14,514)
Student Affairs	4,888	5,763	(1,488)	(2,183)	(1,657)	(872)	(2,819)	-	(1,549)	(104)	-	-	-	(10,651)
MI/ETL	1,663	672	(315)	(468)	(407)	(187)	(604)	-	(332)	(22)	-	-	-	(2,335)
Libraries	18,861	8,130	(3,466)	(5,212)	(5,580)	(2,132)	(6,067)	-	(3,694)	(240)	-	-	-	(26,991)
HS Library	3,063	1,779	(624)	(959)	(1,005)	(384)	(1,201)	-	(665)	(43)	-	-	-	(4,862)
Registrar	5,341	7,600	(1,673)	(2,494)	(1,991)	(1,066)	(3,590)	-	(1,983)	(144)	-	-	-	(12,941)
SGS	1,828	410	(374)	(550)	(658)	(149)	(334)	-	(173)	-	-	-	-	(2,238)
Museum of Art	505	491	(121)	(188)	(240)	(79)	(235)	-	(129)	(8)	-	-	-	(996)
UG Scholarship	5,512	633	(838)	(1,347)	(497)	(533)	(1,864)	-	(993)	(72)	-	-	-	(6,145)
UG Bursaries	3,500	(0)	(465)	(748)	(366)	(296)	(1,035)	-	(551)	(40)	-	-	-	(3,500)
Grad Scholarship	13,796	687	(2,418)	(3,557)	(4,261)	(961)	(2,163)	-	(1,122)	-	-	-	-	(14,483)
Branding and Marketing	1,000	13	(126)	(228)	(261)	(74)	(219)	-	(110)	(5)	-	-	-	(1,013)
Adjustments for Current Practices - Support Units					4,387	-	-	-	-	-	(4,387)	-	-	0
Total Shared Support Unit Allocations	212,690	0	(20,262)	(43,803)	(56,021)	(16,021)	(49,152)	-	(22,004)	(1,040)	(4,387)	-	-	(212,690)
Net Revenue			46,755	73,089	71,467	22,186	71,075	4,324	36,480	1,627	12,041	38,209	-	389,985
2013-14 Projected Hold Harmless Level (Adjusted)														
			26,873	50,633	69,330	23,913	51,433	4,603	27,929	1,091				
Variance			19,882	22,456	2,137	(1,727)	19,642	(279)	8,550	536				
UF Supplement			-	-	5,849	5,281	937	-	-	-	-	-	-	-
UF Supplement 2 - Grants top up			-	-	-	-	-	-	-	-	(12,067)	-	-	-
			-	-	-	-	-	-	-	-	(667)	-	-	-
Base Net Projected Budget 2018-19			46,755	73,089	77,962	27,467	72,012	4,324	36,480	1,627	12,041	38,209	-	389,985

Appendix 2 – Budget Model Calculations

McMaster University - New Budget Model - Faculties			University Fund		Prof. Faculties		Other Faculties		VP Research Discretionary Fund					
Projected Budget Allocation			8.00%		8.00%		8.00%		10.00%					
2019-20			3.00%		1.00%									
	Budgets prior to double stepdown allocation	Net double stepdown allocation	Business	Engineering	Health Sciences	Humanities	Science	Med Rad - Mohawk	Social Sciences	Arts & Science	Other (reconciling items)	University Fund	Research Infrastructure Fund	Total (after double stepdown to support unit allocations)
REVENUE														
Undergraduate Tuition			49,235	88,004	30,733	15,287	58,460	1,955	33,587	1,899	-	-	-	278,961
UG Tuition Adjustment for tuition fee framework			(257)	(954)	237	185	497	-	275	17	-	-	-	-
Total UG SAG Obligation			(2,017)	(7,844)	(151)	(31)	(183)	-	(65)	(2)	10,293	-	-	-
Graduate Tuition			17,769	10,783	11,334	2,590	4,505	-	2,006	-	-	-	-	48,987
Operating Grant			18,576	44,416	81,808	14,120	51,331	2,137	21,618	1,679	-	182	-	235,867
Other Income			888	2,223	5,036	515	1,934	-	766	105	-	7,407	-	18,874
Gross Revenue			84,195	136,627	128,997	32,666	116,544	4,092	58,188	3,498	10,293	7,589	-	582,689
Undergraduate Cross Faculty Teaching Adjustment			(6,490)	(13,292)	209	7,147	7,797	-	5,150	(520)	-	-	-	(0)
Revenue for Contributions			77,705	123,335	129,206	39,813	124,342	4,092	63,338	2,978	10,293	7,589	-	582,689
Internal International Tax			(201)	(279)	(3)	(31)	(187)	-	(98)	-	-	780	-	-
University Fund Contribution			(6,216)	(9,887)	(10,336)	(3,185)	(9,247)	-	(5,067)	(238)	-	44,857	-	-
Research Infrastructure Fund Contribution			(2,331)	(3,700)	(1,292)	(398)	(1,243)	-	(633)	(89)	-	-	9,687	-
Indirect Cost of Research (excluding Royalties & CRC)			223	4,654	10,174	419	4,262	-	763	-	29	-	-	20,524
VP Research Discretionary (10 % of ICR above)			(22)	(465)	(1,017)	(42)	(426)	-	(76)	-	2,048	-	-	-
Adjustments for ICR received by Journal (Contract & ERA)			(18)	(1,131)	(4,381)	(155)	(664)	-	(92)	-	-	-	-	(6,451)
Adjustments for Current Practices			-	-	(3,985)	(218)	184	(184)	218	-	-	-	-	(3,985)
Research Infrastructure Fund Distribution			105	2,200	4,809	198	2,015	-	361	-	-	-	(9,687)	-
Research Excellence Fund (from UF)			46	478	1,045	86	438	-	157	-	-	(2,250)	-	-
Revenue Prior to Shared Support Unit Allocations			69,289	115,225	124,218	36,446	118,793	3,908	58,869	2,650	12,372	50,976	-	592,746
Shared Support Unit Allocations - via double stepdown														
Occupancy Cost	43,703	(13,699)	(940)	(7,423)	(8,957)	(2,261)	(8,720)	-	(1,655)	(48)	-	-	-	(30,004)
Deferred Maintenance	10,593	(3,802)	(213)	(1,680)	(2,027)	(512)	(1,974)	-	(375)	(11)	-	-	-	(6,791)
Insurance	1,230	(508)	(23)	(182)	(205)	(56)	(214)	-	(41)	(1)	-	-	-	(722)
MIP Occupancy 1	2,673	(310)	-	(1,311)	(769)	(44)	-	-	(239)	-	-	-	-	(2,368)
MIP Occupancy 2	161	-	-	(161)	-	-	-	-	-	-	-	-	-	(161)
HR	6,926	(1,024)	(338)	(902)	(3,183)	(361)	(737)	-	(374)	(6)	-	-	-	(5,902)
HR Employee Programs	2,055	(534)	(107)	(234)	(524)	(164)	(337)	-	(155)	(1)	-	-	-	(1,521)
Financial Affairs/Admin/ Inst Support	7,557	(2,525)	(565)	(926)	(1,735)	(454)	(852)	-	(483)	(18)	-	-	-	(5,032)
Supplementary Pension	4,738	(279)	(408)	(734)	(1,710)	(387)	(789)	-	(430)	(3)	-	-	-	(4,459)
Pension Special	17,437	(4,533)	(905)	(1,982)	(4,447)	(1,389)	(2,856)	-	(1,316)	(9)	-	-	-	(12,904)
Presidential/Univ Sec	2,081	(900)	(144)	(236)	(442)	(116)	(217)	-	(123)	(6)	-	-	-	(1,251)
General University Expense	7,634	(3,144)	(504)	(826)	(1,548)	(405)	(762)	-	(431)	(18)	-	-	-	(4,490)
Bond Interest	9,922	(3,534)	(200)	(1,580)	(1,307)	(481)	(1,857)	-	(352)	(10)	-	-	-	(6,388)
UTS- Technology Fund	17,741	2,273	(2,499)	(3,953)	(4,323)	(1,530)	(4,843)	-	(2,692)	(174)	-	-	-	(20,014)
UTS- ERP	4,517	(179)	(542)	(857)	(937)	(331)	(1,050)	-	(583)	(8)	-	-	-	(4,338)
UA	6,336	1,542	(1,027)	(1,790)	(1,899)	(553)	(1,713)	-	(855)	(40)	-	-	-	(7,878)
Office of the Provost	7,725	(2,867)	(545)	(894)	(1,675)	(438)	(823)	-	(466)	(17)	-	-	-	(4,858)
Research Support	9,992	5,834	(230)	(2,739)	(9,731)	(347)	(2,139)	-	(640)	-	-	-	-	(15,826)
Student Affairs	5,361	6,197	(1,577)	(2,400)	(1,811)	(925)	(3,035)	-	(1,896)	(114)	-	-	-	(11,558)
MIIETL	1,779	714	(333)	(507)	(435)	(195)	(641)	-	(358)	(24)	-	-	-	(2,493)
Libraries	19,917	8,718	(3,646)	(5,603)	(5,925)	(2,222)	(7,027)	-	(3,955)	(257)	-	-	-	(28,635)
HS Library	3,921	1,878	(738)	(1,135)	(1,200)	(450)	(1,423)	-	(801)	(52)	-	-	-	(5,799)
Registrar	5,607	8,206	(1,770)	(2,694)	(2,084)	(1,119)	(3,835)	-	(2,154)	(157)	-	-	-	(13,813)
SGS	1,885	418	(378)	(575)	(711)	(146)	(323)	-	(170)	-	-	-	-	(2,303)
Museum of Art	623	518	(138)	(118)	(275)	(84)	(267)	-	(149)	(10)	-	-	-	(1,141)
UG Scholarship	5,512	702	(839)	(1,382)	(487)	(550)	(1,881)	-	(1,021)	(74)	-	-	-	(6,214)
UG Bursaries	3,500	(0)	(460)	(758)	(357)	(291)	(1,032)	-	(560)	(41)	-	-	-	(5,500)
Grad Scholarship	13,818	686	(2,393)	(3,627)	(4,439)	(925)	(2,045)	-	(1,075)	-	-	-	-	(14,504)
Branding and Marketing	1,006	55	(138)	(241)	(256)	(75)	(231)	-	(115)	(5)	-	-	-	(1,061)
Adjustments for Current Practices - Support Units			-	-	4,559	-	-	-	-	-	(4,559)	-	-	0
Total Shared Support Unit Allocations	225,949	(0)	(21,598)	(47,551)	(59,439)	(16,789)	(51,620)	-	(23,264)	(1,129)	(4,559)	-	-	(225,949)
Net Revenue			47,691	67,673	64,779	19,657	67,174	3,908	35,605	1,521	7,813	50,976	-	366,797
UF Supplement			-	-	-	3,500	-	-	-	-	-	(3,500)	-	-
UF Supplement 2 - Grants top up			-	-	892	-	-	-	-	-	-	(892)	-	-
Base Net Projected Budget 2019-20			47,691	67,673	65,671	23,157	67,174	3,908	35,605	1,521	7,813	46,584	-	366,797

McMaster University - New Budget Model - Faculties			Prof Faculties Other Faculties										VP Research Discretionary Fund		10.00%
Projected Budget Allocation			University Fund					Research Infrastructure Fund							
2020-21			8.00%					8.00%							
			3.00%					1.00%							
	Budgets prior to double stepdown allocation	Net double stepdown allocation	Business	Engineering	Health Sciences	Humanities	Science	Med Rad - Mohawk	Social Sciences	Arts & Science	Other (reconciling items)	University Fund	Research Infrastructure Fund	Total (after double stepdown to support unit allocations)	
Revenue															
Undergraduate Tuition			54,505	93,935	30,757	16,292	63,658	1,934	35,674	1,702	-	-	-	299,457	
UG Tuition Adjustment for tuition fee framework			(257)	(954)	237	185	497	-	275	-	-	-	-	-	
Total UG SAG Obligation			(2,000)	(7,895)	(153)	(51)	(181)	-	(64)	(2)	10,326	-	-	-	
Graduate Tuition			18,553	11,098	11,051	2,523	4,400	-	2,017	-	-	-	-	49,643	
Operating Grant			18,431	44,474	81,909	14,047	51,213	2,119	21,490	1,679	-	182	-	235,544	
Other income			888	2,223	5,036	515	1,934	-	766	105	-	4,454	-	15,921	
Gross Revenue			90,121	142,880	128,837	33,531	121,521	4,053	61,159	3,501	10,326	4,636	-	600,565	
Undergraduate Cross Faculty Teaching Adjustment			(6,564)	(13,781)	384	7,216	8,061	-	5,203	(519)	-	-	-	0	
Revenue for Contributions			83,557	129,099	129,220	40,747	129,582	4,053	66,362	2,982	10,326	4,636	-	600,565	
Internal International Tax			(751)	(993)	(7)	(121)	(646)	-	(381)	-	-	2,900	-	-	
University Fund Contribution			(6,685)	(10,328)	(10,338)	(3,260)	(10,367)	-	(5,309)	(239)	-	46,524	-	-	
Research Infrastructure Fund Contribution			(2,507)	(3,873)	(1,292)	(407)	(1,296)	-	(664)	(89)	-	-	10,128	-	
Indirect Cost of Research (excluding Royalties & CRC)			225	4,654	10,174	419	4,252	-	763	-	29	-	-	20,524	
VP Research Discretionary (10% of ICR above)			(22)	(465)	(1,017)	(42)	(426)	-	(76)	-	2,049	-	-	-	
Adjustments for ICR received by Journal (Contract & ERA)			(18)	(1,131)	(4,381)	(195)	(664)	-	(92)	-	-	-	-	(6,481)	
Adjustments for Current Practices			-	-	(3,927)	(218)	179	(179)	218	-	-	-	-	(3,927)	
Research Infrastructure Fund Distribution			110	2,300	5,028	207	2,106	-	377	-	-	(10,128)	-	-	
Research Excellence Fund (from UF)			46	478	1,045	86	438	-	157	-	-	(2,250)	-	-	
Revenue Prior to Shared Support Unit Allocations			73,954	119,741	124,504	37,215	123,169	3,873	61,355	2,654	12,405	51,810	-	610,681	
Shared Support Unit Allocations - via double stepdown															
Occupancy Cost	43,991	(13,802)	(945)	(7,469)	(9,012)	(2,275)	(8,774)	-	(1,665)	(48)	-	-	-	(30,188)	
Deferred Maintenance	10,595	(3,802)	(213)	(1,880)	(2,027)	(512)	(1,974)	-	(375)	(11)	-	-	-	(6,791)	
Insurance	1,290	(508)	(23)	(182)	(205)	(56)	(214)	-	(41)	(1)	-	-	-	(722)	
MIP Occupancy 1	2,675	(310)	-	(1,313)	(769)	(44)	-	-	(239)	-	-	-	-	(2,363)	
MIP Occupancy 2	161	-	-	(161)	-	-	-	-	-	-	-	-	-	(161)	
HR	6,926	(1,022)	(338)	(902)	(3,184)	(361)	(737)	-	(374)	(6)	-	-	-	(5,904)	
HR Employee Programs	2,055	(534)	(107)	(234)	(524)	(164)	(337)	-	(155)	(1)	-	-	-	(1,521)	
Financial Affairs/Admin/ Inst Support	7,557	(2,522)	(565)	(927)	(1,736)	(454)	(853)	-	(483)	(18)	-	-	-	(5,035)	
Supplementary Pension	4,738	(278)	(408)	(734)	(1,710)	(387)	(789)	-	(430)	(3)	-	-	-	(4,460)	
Pension Special	17,437	(4,533)	(905)	(1,982)	(4,447)	(1,389)	(2,856)	-	(1,316)	(9)	-	-	-	(12,904)	
Residential/Univ Sec	2,061	(799)	(144)	(236)	(442)	(116)	(217)	-	(123)	(4)	-	-	-	(1,282)	
General University Expense	7,634	(3,144)	(504)	(628)	(1,548)	(405)	(761)	-	(431)	(16)	-	-	-	(4,490)	
Bond Interest	10,089	(3,598)	(205)	(1,606)	(1,938)	(489)	(1,887)	-	(358)	(10)	-	-	-	(6,491)	
UTS- Technology Fund	18,241	2,270	(2,589)	(4,088)	(4,387)	(1,558)	(4,944)	-	(2,768)	(176)	-	-	-	(20,511)	
UTS- ERP	4,517	(178)	(548)	(865)	(928)	(330)	(1,046)	-	(586)	(37)	-	-	-	(4,339)	
UA	6,336	1,546	(1,069)	(1,820)	(1,847)	(538)	(1,714)	-	(855)	(39)	-	-	-	(7,881)	
Office of the Provost	7,725	(2,864)	(546)	(895)	(1,676)	(438)	(823)	-	(466)	(17)	-	-	-	(4,860)	
Research Support	9,992	5,854	(231)	(2,743)	(9,743)	(347)	(2,141)	-	(641)	-	-	-	-	(15,846)	
Student Affairs	5,361	6,224	(1,597)	(2,428)	(1,795)	(921)	(3,026)	-	(1,704)	(115)	-	-	-	(11,585)	
MILFL	1,779	717	(337)	(512)	(431)	(194)	(638)	-	(359)	(24)	-	-	-	(2,496)	
Libraries	20,317	8,764	(3,745)	(5,745)	(5,956)	(2,242)	(7,106)	-	(4,029)	(259)	-	-	-	(25,051)	
HS Library	4,021	1,887	(761)	(1,167)	(1,210)	(456)	(1,444)	-	(819)	(53)	-	-	-	(5,908)	
Registrar	5,607	8,254	(1,798)	(2,721)	(2,069)	(1,117)	(3,837)	-	(2,164)	(156)	-	-	-	(13,861)	
SGS	1,885	419	(380)	(588)	(702)	(144)	(315)	-	(175)	-	-	-	-	(2,304)	
Museum of Art	623	521	(140)	(221)	(273)	(84)	(267)	-	(150)	(10)	-	-	-	(1,144)	
UG Scholarship	5,512	702	(849)	(1,388)	(481)	(527)	(1,874)	-	(1,021)	(73)	-	-	-	(6,214)	
UG Bursaries	3,500	0	(466)	(762)	(353)	(289)	(1,029)	-	(561)	(40)	-	-	-	(3,500)	
Grad Scholarship	15,818	686	(2,405)	(3,707)	(4,384)	(908)	(1,995)	-	(1,106)	-	-	-	-	(14,504)	
Branding and Marketing	2,006	51	(143)	(244)	(248)	(72)	(230)	-	(115)	(5)	-	-	-	(1,057)	
Adjustments for Current Practices - Support Units			-	-	4,559	-	-	-	-	-	(4,559)	-	-	0	
Total Shared Support Unit Allocations	227,404	(0)	(21,955)	(48,144)	(59,465)	(16,815)	(51,829)	-	(23,508)	(1,129)	(4,559)	-	-	(227,404)	
Net Revenue			51,999	71,597	65,039	20,400	71,340	3,873	37,847	1,525	7,846	51,810	-	383,276	
UF Supplement			-	-	998	3,500	-	-	-	-	(3,500)	-	-	-	
UF Supplement 2 - Grants top up			-	-	-	-	-	-	-	-	(998)	-	-	-	
Base Net Projected Budget 2020-21			51,999	71,597	66,037	23,900	71,340	3,873	37,847	1,525	7,846	47,312	-	383,276	

McMaster University - New Budget Model - Faculties			Prof. Faculties		Other Faculties		VP Research Discretionary Fund							
Projected Budget Allocation			University Fund	8.00%	8.00%	VP Research Discretionary Fund					10.00%			
2021-22			Research Infrastructure Fund	3.00%	1.00%									
	Budgets prior to double stepdown allocation	Net double stepdown allocation	Business	Engineering	Health Sciences	Humanities	Science	Med Rad - Mohawk	Social Sciences	Arts & Science	Other (reconciling items)	University Fund	Research Infrastructure Fund	Total (after double stepdown to support unit allocations)
Revenue														
Undergraduate Tuition			59,344	100,877	31,122	17,311	69,169	1,963	39,879	1,764	-	-	-	321,430
UG Tuition Adjustment for tuition fee framework			(114)	(643)	176	118	290	-	166	7	-	-	-	-
Total UG SAG Obligation			(1,977)	(7,952)	(156)	(31)	(181)	-	(64)	(2)	10,363	-	-	-
Graduate Tuition			18,761	11,383	11,057	2,518	4,360	-	2,065	-	-	-	-	50,144
Operating Grant			18,214	44,587	82,012	13,995	51,211	2,116	21,364	1,679	-	181	-	235,360
Other Income			888	2,223	5,036	515	1,934	-	766	105	-	4,808	-	16,275
Gross Revenue			95,117	150,474	129,247	34,426	126,783	4,080	64,177	3,552	10,363	4,989	-	623,208
Undergraduate Cross Faculty Teaching Adjustment			(6,595)	(13,922)	385	7,307	8,122	-	5,250	(546)	-	-	-	0
Revenue for Contributions			88,522	136,552	129,632	41,733	134,905	4,080	69,426	3,006	10,363	4,989	-	623,208
Internal International Tax			(741)	(977)	(7)	(124)	(661)	-	(390)	-	-	2,900	-	-
University Fund Contribution			(7,082)	(10,924)	(10,371)	(3,339)	(10,792)	-	(5,554)	(240)	-	48,302	-	-
Research Infrastructure Fund Contribution			(2,656)	(4,097)	(1,296)	(417)	(1,349)	-	(694)	(90)	-	-	10,599	-
Indirect Cost of Research (excluding Royalties & CRC)			223	4,654	10,174	419	4,262	-	763	-	29	-	-	20,524
VP Research Discretionary (10% of ICR above)			(22)	(465)	(1,017)	(42)	(426)	-	(76)	-	2,049	-	-	-
Adjustments for ICR received by Journal (Contract & ERA)			(18)	(1,131)	(4,381)	(195)	(664)	-	(92)	-	-	-	-	(6,481)
Adjustments for Current Practices			-	-	(3,962)	(218)	180	(180)	-	-	-	-	-	(3,962)
Research Infrastructure Fund Distribution			115	2,407	5,262	216	2,204	-	395	-	-	-	(10,599)	-
Research Excellence Fund (from UF)			46	478	1,045	36	438	-	157	-	-	(2,250)	-	-
Revenue Prior to Shared Support Unit Allocations			78,387	126,498	125,077	38,119	128,097	3,900	64,152	2,675	12,442	53,941	-	633,288
Shared Support Unit Allocations - via double stepdown														
Occupancy Cost	43,991	(3,800)	(946)	(7,469)	(9,013)	(2,275)	(8,775)	-	(1,665)	(48)	-	-	-	(30,191)
Deferred Maintenance	10,593	(3,802)	(213)	(1,680)	(2,027)	(512)	(1,974)	-	(375)	(11)	-	-	-	(6,791)
Insurance	1,230	(508)	(23)	(182)	(205)	(56)	(214)	-	(41)	(1)	-	-	-	(722)
MIP Occupancy 1	2,673	(310)	-	(1,311)	(769)	(44)	-	(239)	-	-	-	-	-	(2,363)
MIP Occupancy 2	161	-	-	(161)	-	-	-	-	-	-	-	-	-	(161)
HR	5,926	(1,021)	(338)	(902)	(3,185)	(361)	(737)	-	(375)	(6)	-	-	-	(5,905)
HR Employee Programs	2,055	(534)	(107)	(234)	(524)	(164)	(337)	-	(155)	(1)	-	-	-	(1,521)
Financial Affairs/Admin/ Inst Support	7,557	(2,521)	(565)	(927)	(1,796)	(454)	(853)	-	(483)	(38)	-	-	-	(5,036)
Supplementary Pension	4,738	(278)	(408)	(734)	(1,710)	(387)	(789)	-	(430)	(3)	-	-	-	(4,460)
Pension Special	17,437	(4,533)	(905)	(1,982)	(4,447)	(1,389)	(2,856)	-	(1,316)	(9)	-	-	-	(12,904)
Presidential/Univ Sec	2,081	(799)	(144)	(236)	(442)	(116)	(217)	-	(123)	(4)	-	-	-	(1,282)
General University Expense	7,634	(3,144)	(504)	(826)	(1,548)	(405)	(761)	-	(431)	(16)	-	-	-	(4,490)
Bond Interest	10,089	(3,598)	(203)	(1,606)	(1,938)	(489)	(1,887)	-	(358)	(10)	-	-	-	(6,491)
UTS/ Technology Fund	18,941	2,251	(2,675)	(4,252)	(4,518)	(1,601)	(5,100)	-	(2,859)	(187)	-	-	-	(21,192)
UTS- ERP	4,517	(176)	(548)	(871)	(925)	(328)	(1,045)	-	(586)	(38)	-	-	-	(4,341)
UA	6,336	1,547	(1,102)	(1,840)	(1,794)	(528)	(1,719)	-	(861)	(38)	-	-	-	(7,883)
Office of the Provost	7,725	(2,864)	(546)	(895)	(1,676)	(438)	(823)	-	(466)	(17)	-	-	-	(4,861)
Research Support	9,992	5,857	(231)	(2,743)	(9,745)	(347)	(2,142)	-	(641)	-	-	-	-	(15,849)
Student Affairs	5,361	6,227	(1,596)	(2,445)	(1,793)	(915)	(3,020)	-	(1,703)	(116)	-	-	-	(11,588)
MIETL	1,779	717	(337)	(516)	(430)	(193)	(637)	-	(359)	(24)	-	-	-	(2,496)
Libraries	20,317	8,766	(3,743)	(5,786)	(5,937)	(2,229)	(7,095)	-	(4,027)	(265)	-	-	-	(29,083)
HS Library	4,021	1,888	(761)	(1,176)	(1,206)	(483)	(1,442)	-	(818)	(54)	-	-	-	(5,309)
Registrar	5,607	8,256	(1,799)	(2,733)	(2,069)	(1,111)	(3,833)	-	(2,157)	(159)	-	-	-	(13,862)
SCS	1,885	419	(378)	(600)	(697)	(142)	(309)	-	(178)	-	-	-	-	(2,304)
Museum of Art	623	522	(140)	(223)	(272)	(84)	(267)	-	(150)	(10)	-	-	-	(1,145)
UG Scholarship	5,512	702	(849)	(1,392)	(486)	(524)	(1,870)	-	(1,018)	(75)	-	-	-	(6,214)
UG Bursaries	3,500	-	(466)	(764)	(355)	(288)	(1,027)	-	(559)	(41)	-	-	-	(3,500)
Grad Scholars/tp	13,818	686	(2,389)	(3,783)	(4,352)	(899)	(1,956)	-	(1,125)	-	-	-	-	(14,504)
Branding and Marketing	1,006	51	(148)	(247)	(243)	(71)	(231)	-	(116)	(5)	-	-	-	(1,037)
Adjustments for Current Practices - Support Units			-	-	4,559	-	-	-	-	-	(4,559)	-	-	0
Total Shared Support Unit Allocations	228,104	0	(22,061)	(48,517)	(59,481)	(16,800)	(51,916)	-	(23,612)	(1,157)	(4,559)	-	-	(228,104)
Net Revenue			56,326	77,980	65,596	21,319	76,181	3,900	40,540	1,518	7,883	53,941	-	405,184
UF Supplement			-	-	1,105	3,500	-	-	-	-	-	(3,500)	-	-
UF Supplement 2 - Grants top up												(1,105)	-	-
Base Net Projected Budget 2021-22			56,326	77,980	66,701	24,819	76,181	3,900	40,540	1,518	7,883	49,337	-	405,184

APPENDIX 3 – OPERATING FUND UNIT LEVEL TABLES

Table 22: Operating Fund 2018/19 Projection by Unit

	Sources of Funding					Salaries & Benefits			Non-salary Expenses				Total Expenses	Annual Surplus (Deficit)
	Framework Allocation	University Fund Allocation	Research Overhead Income	Other Income	Total Income	Salaries & Wages	Benefits & PDA	Total	Scholarships	Library Acquisitions	All Other Expenses	Total		
1. Faculties														
Business	46,231	772	4	5,024	52,031	27,440	6,499	33,939	410	-	17,518	17,928	51,867	165
Engineering	70,176	999	1,653	3,215	76,043	47,109	11,448	58,557	1,627	-	14,516	16,142	74,700	1,343
Health Sciences	75,780	1,044	6,364	38,564	121,752	85,213	21,302	106,516	2,599	5	10,393	12,997	119,513	2,239
Humanities	27,010	2,333	194	8,818	38,355	26,752	6,765	33,517	114	-	1,973	2,086	35,604	2,751
Science	71,637	4,310	754	1,936	78,637	45,953	12,454	58,407	248	-	14,535	14,783	73,190	5,447
Medical Radiation - Mohawk share	4,112	-	-	-	4,112	-	-	-	-	-	4,113	4,113	4,113	(1)
Social Sciences	38,013	1,682	30	587	40,312	26,399	7,045	33,444	125	-	3,317	3,441	36,885	3,427
Arts & Science	1,681	(943)	-	8	746	1,511	102	1,612	1	-	118	119	1,731	(986)
Sub-total	334,640	10,198	8,999	58,151	411,988	260,377	65,615	325,992	5,123	5	66,482	71,610	397,602	14,385
2. Academic Priorities														
University Fund	27,929	(11,936)	-	50	16,043	-	-	-	-	-	16,778	16,778	16,778	(735)
Revenue Projection Contingency	4,563	-	-	-	4,563	-	-	-	-	-	-	-	-	4,563
Ongoing Priorities Contingency	(3,096)	-	-	-	(3,096)	2,339	-	2,339	-	-	(2,148)	(2,148)	191	(3,287)
One-time Priorities Contingency	(1,712)	-	-	-	(1,712)	-	-	-	-	-	-	-	-	(1,712)
Sub-total	27,684	(11,936)	-	50	15,798	2,339	-	2,339	-	-	14,630	14,630	16,970	(1,172)
TOTAL ACADEMIC	362,324	(1,738)	8,999	58,201	427,785	262,717	65,615	328,332	5,123	5	81,112	86,240	414,572	13,213
3. Academic Support														
Provost's Office	7,490	-	-	621	8,111	5,231	1,389	6,619	33	-	3,144	3,177	9,796	(1,685)
Museum of Art	505	-	-	182	687	647	217	864	-	-	(205)	(205)	659	28
MacPherson Institute	1,663	1,738	-	24	3,425	2,780	769	3,549	-	-	504	504	4,053	(628)
University Library	18,861	-	-	213	19,074	6,476	1,889	8,365	3	9,952	942	10,897	19,262	(187)
Health Sciences Library	3,083	-	15	97	3,195	1,567	466	2,033	-	2,694	(1,138)	1,555	3,588	(393)
Registrar	5,170	-	-	2,500	7,670	5,627	1,620	7,248	-	-	784	784	8,032	(362)
Sub-total	36,772	1,738	15	3,637	42,162	22,327	6,350	28,677	36	12,645	4,031	16,712	45,389	(3,228)
4. Research Support														
Research	7,659	-	4,571	8,570	20,801	11,432	3,377	14,809	94	0	7,134	7,228	22,036	(1,236)
VP Research Discretionary Fund	1,928	-	-	-	1,928	-	-	-	-	(0)	1,858	1,858	1,858	70
Research Loans	-	-	-	0	0	-	-	-	-	-	(89)	(89)	(89)	89
Sub-total	9,587	-	4,571	8,570	22,729	11,432	3,377	14,809	94	0	8,903	8,996	23,805	(1,077)
5. Student Support														
Graduate Scholarships	13,796	-	-	-	13,796	1,030	136	1,166	13,706	-	(0)	13,706	14,872	(1,076)
School of Graduate Studies	1,828	-	-	0	1,828	1,249	356	1,606	134	-	433	567	2,173	(345)
Student Affairs	4,888	-	-	23,770	28,658	14,294	3,350	17,644	384	-	11,514	11,898	29,542	(884)
DBAC Building Financing	-	-	-	-	-	-	-	-	-	-	291	291	291	(291)
DBAC Deferred Maintenance	-	-	-	-	-	-	-	-	-	-	(160)	(160)	(160)	160
Undergraduate Scholarships	21,596	-	-	285	21,881	1,725	-	1,725	19,826	-	180	20,006	21,731	150
Sub-total	42,108	-	-	24,055	66,163	18,299	3,842	22,141	34,051	-	12,257	46,308	68,449	(2,286)
6. Facilities Support														
Facilities Services	15,485	-	-	587	16,072	12,215	3,657	15,872	-	-	770	770	16,642	(571)
HSC Maintenance	4,002	-	-	40	4,042	-	-	-	-	-	4,042	4,042	4,042	(0)
Utilities	23,150	-	-	2,011	25,161	1,450	522	1,972	-	-	26,195	26,195	28,168	(3,007)
Security	1,976	-	-	103	2,079	1,866	504	2,370	-	-	20	20	2,390	(311)
Deferred Maintenance	10,227	-	-	-	10,227	-	-	-	-	-	10,227	10,227	10,227	(0)
Bond Interest	10,089	-	-	-	10,089	-	-	-	-	-	10,089	10,089	10,089	-
Renovation contingency	974	-	-	-	974	-	-	-	-	-	974	974	974	0
Sub-total	65,903	-	-	2,741	68,644	15,532	4,683	20,214	-	-	52,318	52,318	72,532	(3,888)
7. Institutional Support														
Administration	15,090	-	-	1,639	16,729	11,434	3,285	14,719	-	-	4,860	4,860	19,579	(2,849)
UTS Asset Management	1,200	-	-	-	1,200	57	20	77	-	-	1,639	1,639	1,716	(516)
UTS/Technology Fund	17,730	-	-	128	17,858	8,950	2,728	11,677	-	-	6,731	6,731	18,408	(550)
University Secretariat	902	-	-	-	902	583	177	760	-	-	176	176	936	(34)
President's Office	1,155	-	-	-	1,155	367	109	477	-	-	596	596	1,073	82
University Advancement	5,512	-	-	128	5,640	6,072	1,855	7,927	-	-	(2,208)	(2,208)	5,719	(79)
General University	9,401	-	-	2,044	11,445	871	150	1,021	-	-	10,511	10,511	11,532	(86)
Sub-total	50,990	-	-	3,940	54,930	28,334	8,323	36,657	-	-	22,306	22,306	58,962	(4,032)
8. Institutional Priority allocations														
Technology Renewal	4,517	-	-	-	4,517	-	-	-	-	-	-	-	-	4,517
Marketing & Branding	2,443	-	-	-	2,443	463	137	600	-	-	2,611	2,611	3,211	(768)
Pension	22,175	-	-	-	22,175	-	-	-	-	-	-	-	-	22,175
Strategic Priorities	-	-	-	-	-	-	-	-	-	-	(7)	(7)	(7)	7
Sub-total	29,135	-	-	-	29,135	463	22,312	22,775	-	-	2,604	2,604	25,279	3,756
Surplus/(Deficit)	596,819	-	13,585	101,143	711,547	359,104	114,502	473,605	39,303	12,650	183,530	235,484	709,089	2,458
<i>Under/(over)allocated</i>	-	-	-	(2,964)	(2,964)	-	-	-	-	-	(2,964)	(2,964)	(2,964)	-
Total Surplus/(Deficit)	596,819	-	13,585	98,179	708,583	359,104	114,502	473,605	39,303	12,650	180,566	232,519	706,125	2,458

Table 23: Operating Fund 2019/20 Budget by Unit

(S thousands)	Sources of Funding					Salaries & Benefits			Non-salary Expenses				Total Expenses	Annual Surplus (Deficit)	
	Framework Allocation	University Fund Allocation	Research Overhead Income	Other Income	Total Income	Salaries & Wages	Benefits & PDA	Total	Scholarships	Library Acquisitions	All Other Expenses	Total			
1. Faculties															
Business	47,691	470	-	5,129	53,290	29,469	7,900	37,369	855	-	14,641	15,496	52,865	424	
Engineering	67,673	1,028	1,260	3,709	73,670	50,415	13,384	63,799	1,922	-	14,716	16,638	80,437	(6,767)	
Health Sciences	65,671	1,467	5,937	36,930	110,005	86,917	22,739	109,656	2,534	1	6,404	8,940	118,596	(8,591)	
Humanities	23,157	2,707	115	10,556	36,534	26,815	7,097	33,912	436	-	1,693	2,130	36,042	493	
Science	67,174	1,570	725	1,918	71,386	51,123	14,572	65,694	318	-	12,484	12,802	78,496	(7,110)	
Medical Radiation - Mohawk share	3,908	-	-	-	3,908	-	-	-	-	-	3,908	3,908	3,908	-	
Social Sciences	35,605	1,624	90	624	37,943	27,709	8,253	35,962	40	-	2,385	2,425	38,387	(443)	
Arts & Science	1,521	57	-	1,578	-	1,469	96	1,565	1	-	57	57	1,622	(44)	
Sub-total	312,400	8,923	8,126	58,865	388,315	273,917	74,040	347,957	6,106	1	56,288	62,395	410,352	(22,038)	
2. Academic Priorities															
University Fund	36,584	(10,661)	-	-	25,923	-	-	-	-	-	43,317	43,317	43,317	(17,394)	
Revenue Projection Contingency	4,305	-	-	-	4,305	-	-	-	-	-	-	-	-	4,305	
Ongoing Priorities Contingency	29	-	-	(0)	29	(3,407)	-	(3,407)	-	-	(1,594)	(1,594)	(5,001)	5,030	
One-time Priorities Contingency	618	-	-	-	618	-	-	-	-	-	-	-	-	618	
Sub-total	41,536	(10,661)	-	(0)	30,875	(3,407)	-	(3,407)	-	-	41,724	41,724	38,317	(7,442)	
TOTAL ACADEMIC	353,936	(1,738)	8,126	58,865	419,189	270,510	74,040	344,550	6,106	1	98,012	104,119	448,669	(29,479)	
3. Academic Support															
Provost's Office	7,616	-	-	770	8,386	5,630	1,260	6,890	33	-	3,027	3,060	9,950	(1,564)	
Museum of Art	623	-	-	169	792	648	235	883	-	-	(171)	(171)	712	80	
MacPherson Institute	1,779	1,738	-	24	3,541	2,788	787	3,575	-	-	578	578	4,153	(612)	
University Library	20,082	-	-	207	20,289	6,995	2,178	9,173	3	10,452	988	11,444	20,616	(327)	
Health Sciences Library	4,277	-	15	97	4,389	1,675	482	2,157	-	2,796	(915)	1,881	4,039	350	
Registrar	5,429	-	-	2,540	7,969	5,874	1,795	7,670	-	-	832	832	8,502	(532)	
Sub-total	39,806	1,738	15	3,807	45,366	23,611	6,738	30,348	36	13,248	4,339	17,623	47,971	(2,605)	
4. Research Support															
Research	9,156	-	3,981	9,478	22,614	11,997	3,645	15,643	94	0	6,885	6,978	22,621	(7)	
VP Research Discretionary Fund	2,049	-	-	-	2,049	-	-	-	-	-	1,908	1,908	1,908	141	
Research Loans	-	-	-	-	-	-	-	-	-	-	(89)	(89)	(89)	89	
Sub-total	11,205	-	3,981	9,478	24,663	11,997	3,645	15,643	94	0	8,794	8,798	24,441	222	
5. Student Support															
Graduate Scholarships	13,818	-	-	-	13,818	1,041	146	1,187	13,500	-	-	13,500	14,687	(869)	
School of Graduate Studies	1,885	-	-	-	1,885	1,243	378	1,622	135	-	525	659	2,281	(396)	
Student Affairs	5,911	-	-	23,612	29,523	15,223	3,807	19,030	384	-	9,969	10,353	29,384	139	
DBAC Building Financing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DBAC Deferred Maintenance	-	-	-	-	-	-	-	-	-	-	(160)	(160)	(160)	160	
Undergraduate Scholarships	20,305	-	-	285	20,590	1,725	-	1,725	18,485	-	380	18,865	20,590	-	
Sub-total	41,919	-	-	23,896	65,815	19,233	4,331	23,564	32,503	-	10,714	43,217	66,781	(966)	
6. Facilities Support															
Facilities Services	15,486	-	-	587	16,073	11,959	3,785	15,743	-	-	289	289	16,032	41	
HSC Maintenance	4,087	-	-	40	4,127	-	-	-	-	-	4,042	4,042	4,042	85	
Utilities	23,781	-	-	1,886	25,667	1,500	565	2,065	-	-	22,670	22,670	24,736	932	
Security	2,049	-	-	103	2,152	2,081	526	2,607	-	-	(195)	(195)	2,413	(261)	
Deferred Maintenance	10,930	-	-	-	10,930	-	-	-	-	-	10,930	10,930	10,930	-	
Bond Interest	10,089	-	-	-	10,089	-	-	-	-	-	10,089	10,089	10,089	-	
Renovation contingency	974	-	-	-	974	-	-	-	-	-	974	974	974	0	
Sub-total	67,396	-	-	2,616	70,012	15,540	4,876	20,416	-	-	48,799	48,799	69,215	797	
7. Institutional Support															
Administration	15,509	-	-	1,708	17,217	12,017	3,728	15,745	-	-	2,201	2,201	17,946	(729)	
UTS Asset Management	1,500	-	-	-	1,500	67	23	90	-	-	1,498	1,498	1,588	(88)	
UTS/Technology Fund	20,127	-	-	128	20,255	8,932	2,856	11,788	-	-	9,194	9,194	20,982	(727)	
University Secretariat	912	-	-	-	912	587	188	776	-	-	122	122	898	14	
President's Office	1,169	-	-	-	1,169	380	119	498	-	-	657	657	1,155	14	
University Advancement	5,760	-	-	128	5,888	7,185	2,156	9,341	-	-	(3,093)	(3,093)	6,249	(360)	
General University	8,864	-	-	2,065	10,929	908	166	1,074	-	-	9,769	9,769	10,843	86	
Sub-total	53,841	-	-	4,029	57,870	30,077	9,236	39,313	-	-	20,348	20,348	59,661	(1,791)	
8. Institutional Priority allocations															
Technology Renewal	4,517	-	-	-	4,517	-	-	-	-	-	-	-	-	4,517	
Marketing & Branding	2,422	-	-	-	2,422	663	204	867	-	-	2,156	2,156	3,022	(600)	
Pension	22,175	-	-	-	22,175	-	-	22,175	-	-	-	-	22,175	-	
Strategic Priorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sub-total	29,114	-	-	-	29,114	663	22,379	23,042	-	-	2,156	2,156	25,197	3,917	
Surplus/(Deficit)	597,217	-	12,122	102,691	712,030	371,631	125,244	496,875	38,739	13,249	193,072	245,061	741,936	(29,906)	
<i>Under/(over)allocated</i>	0	0	(3,088)	(3,088)	-	-	-	-	-	-	(3,088)	(3,088)	(3,088)	0	
Total Surplus/(Deficit)	597,217	0	12,122	99,603	708,942	371,631	125,244	496,875	38,739	13,249	189,984	241,973	738,848	(29,906)	

Appendix 3 – Operating Fund Unit Level Tables

Table 24: Operating Fund 2020/21 Plan by Unit

(\$ thousands)	Sources of Funding					Salaries & Benefits			Non-salary Expenses				Total Expenses	Annual Surplus (Deficit)
	Framework Allocation	University Fund Allocation	Research Overhead Income	Other Income	Total Income	Salaries & Wages	Benefits & PDA	Total	Scholarships	Library Acquisitions	All Other Expenses	Total		
1. Faculties														
Business	51,999	-	-	5,129	57,128	30,747	8,304	39,051	855	-	16,355	17,210	56,260	867
Engineering	71,597	870	1,260	3,313	77,040	53,376	14,511	67,887	1,958	-	14,215	16,173	84,060	(7,020)
Health Sciences	66,037	713	5,771	31,282	103,803	88,792	23,077	111,868	2,324	1	4,765	7,090	118,958	(15,156)
Humanities	23,900	2,239	20	11,580	37,739	27,785	7,384	35,170	482	-	2,061	2,543	37,713	25
Science	71,340	307	707	1,955	74,309	52,861	14,987	67,848	305	-	7,448	7,753	75,601	(1,292)
Medical Radiation - Mohawk share	3,873	-	-	-	3,873	-	-	-	-	-	3,873	3,873	3,873	-
Social Sciences	37,847	814	90	606	39,356	28,623	8,469	37,092	40	-	2,624	2,664	39,756	(400)
Arts & Science	1,525	57	-	1,582	-	1,527	91	1,619	1	-	54	54	1,673	(91)
Sub-total	328,118	5,000	7,848	53,863	394,829	283,711	76,823	360,535	5,965	1	51,395	57,361	417,895	(23,066)
2. Academic Priorities														
University Fund	37,312	(6,738)	-	-	30,574	-	-	-	-	-	35,574	35,574	35,574	(5,000)
Revenue Projection Contingency	7,305	-	-	-	7,305	-	-	-	-	-	-	-	-	7,305
Ongoing Priorities Contingency	29	-	-	-	29	(3,406)	-	(3,406)	-	-	(1,594)	(1,594)	(5,000)	5,029
One-time Priorities Contingency	5,881	-	-	-	5,881	-	-	-	-	-	4,787	4,787	4,787	1,094
Sub-total	50,527	(6,738)	-	-	43,789	(3,406)	-	(3,406)	-	-	38,767	38,767	35,361	8,428
TOTAL ACADEMIC	378,645	(1,738)	7,848	53,863	438,618	280,305	76,823	357,128	5,965	1	90,162	96,128	453,256	(14,638)
3. Academic Support														
Provost's Office	7,616	-	-	720	8,336	5,628	1,269	6,897	33	-	3,055	3,088	9,985	(1,649)
Museum of Art	623	-	-	190	813	750	243	994	-	-	(188)	(188)	806	7
MacPherson Institute	1,779	1,738	-	24	3,541	2,732	770	3,502	-	-	628	628	4,130	(589)
University Library	20,317	-	-	209	20,526	7,195	2,250	9,446	3	10,801	992	11,796	21,242	(716)
Health Sciences Library	4,021	-	5	97	4,123	1,721	487	2,208	-	2,912	(819)	2,093	4,301	(179)
Registrar	5,429	-	-	2,595	8,024	5,912	1,817	7,729	-	-	729	729	8,459	(435)
Sub-total	39,785	1,738	5	3,834	45,362	23,939	6,836	30,776	36	13,713	4,397	18,146	48,922	(3,560)
4. Research Support														
Research	8,156	-	3,981	9,853	21,990	12,392	3,800	16,192	94	0	7,095	7,129	23,321	(1,331)
VP Research Discretionary Fund	2,049	-	-	-	2,049	-	-	-	-	-	1,611	1,611	1,611	438
Research Loans	-	-	-	-	-	-	-	-	-	-	(89)	(89)	(89)	89
Sub-total	10,205	-	3,981	9,853	24,039	12,392	3,800	16,192	94	0	8,557	8,651	24,843	(804)
5. Student Support														
Graduate Scholarships	13,818	-	-	-	13,818	1,056	151	1,208	13,500	-	-	13,500	14,708	(890)
School of Graduate Studies	1,885	-	-	-	1,885	1,246	388	1,635	135	-	528	662	2,297	(412)
Student Affairs	5,911	-	-	25,744	31,655	15,906	3,969	19,875	384	-	12,407	12,791	32,666	(1,010)
DBAC Building Financing	-	-	-	-	-	-	-	-	-	-	1,658	1,658	1,658	(1,658)
DBAC Deferred Maintenance	-	-	-	-	-	-	-	-	-	-	(300)	(300)	(300)	300
Undergraduate Scholarships	19,338	-	-	285	19,623	1,725	-	1,725	17,558	-	340	17,898	19,623	-
Sub-total	40,952	-	-	26,029	66,981	19,934	4,508	24,442	31,576	-	14,633	46,209	70,651	(3,670)
6. Facilities Support														
Facilities Services	15,644	-	-	587	16,231	12,125	3,873	15,998	-	-	512	512	16,510	(279)
HSC Maintenance	4,002	-	-	40	4,042	-	-	-	-	-	4,042	4,042	4,042	(0)
Utilities	23,911	-	-	1,945	25,856	1,505	568	2,073	-	-	24,521	24,521	26,593	(737)
Security	2,049	-	-	103	2,152	2,088	519	2,606	-	-	(305)	(305)	2,301	(149)
Deferred Maintenance	10,930	-	-	-	10,930	-	-	-	-	-	10,930	10,930	10,930	-
Bond Interest	10,089	-	-	-	10,089	-	-	-	-	-	10,089	10,089	10,089	-
Renovation contingency	974	-	-	-	974	-	-	-	-	-	974	974	974	0
Sub-total	67,599	-	-	2,675	70,274	15,717	4,960	20,677	-	-	50,763	50,763	71,440	(1,166)
7. Institutional Support														
Administration	15,509	-	-	1,768	17,277	12,084	3,835	15,918	-	-	1,995	1,995	17,914	(637)
UTS Asset Management	1,500	-	-	-	1,500	11	5	16	-	-	1,824	1,824	1,840	(340)
UTS/Technology Fund	19,386	-	-	128	19,514	9,050	2,941	11,991	-	-	9,284	9,284	21,275	(1,761)
University Secretariat	912	-	-	-	912	595	190	785	-	-	123	123	908	4
President's Office	1,169	-	-	-	1,169	390	122	512	-	-	643	643	1,155	14
University Advancement	5,760	-	-	128	5,888	7,308	2,209	9,517	-	-	(3,125)	(3,125)	6,392	(503)
General University	8,864	-	-	2,085	10,949	932	171	1,103	-	-	10,077	10,077	11,180	(231)
Sub-total	53,100	-	-	4,109	57,209	30,369	9,474	39,843	-	-	20,821	20,821	60,664	(3,455)
8. Institutional Priority allocations														
Technology Renewal	4,517	-	-	-	4,517	-	-	-	-	-	-	-	-	4,517
Marketing & Branding	1,006	-	-	-	1,006	513	159	672	-	-	837	837	1,509	(503)
Pension	22,175	-	-	-	22,175	-	22,175	22,175	-	-	-	-	22,175	-
Strategic Priorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total	27,698	-	-	-	27,698	513	22,334	22,847	-	-	837	837	23,684	4,014
Surplus/(Deficit)	617,984	-	11,834	100,364	730,182	383,170	128,735	511,905	37,671	13,714	190,170	241,556	753,461	(23,279)
<i>Under/(over)allocated</i>	-	-	-	(3,135)	(3,135)	-	-	-	-	-	(3,135)	(3,135)	(3,135)	(3,135)
Total Surplus/(Deficit)	617,984	-	11,834	97,229	727,047	383,170	128,735	511,905	37,671	13,714	187,036	238,421	750,326	(23,279)

Appendix 3 – Operating Fund Unit Level Tables

Table 25: Operating Fund 2021/22 Plan by Unit

(S thousands)	Sources of Funding					Salaries & Benefits			Non-salary Expenses				Total Expenses	Annual Surplus (Deficit)
	Framework Allocation	University Fund Allocation	Research Overhead Income	Other Income	Total Income	Salaries & Wages	Benefits & PDA	Total	Scholarships	Library Acquisitions	All Other Expenses	Total		
1. Faculties														
Business	56,326	-	-	5,129	61,455	31,857	8,705	40,563	855	-	16,382	17,237	57,800	3,654
Engineering	77,980	898	1,260	3,269	83,407	55,257	15,153	70,410	1,958	-	14,486	16,443	86,854	(3,447)
Health Sciences	66,701	65	5,775	27,108	99,649	90,838	23,769	114,607	2,325	1	3,963	6,289	120,895	(21,247)
Humanities	24,819	1,673	20	12,706	39,218	28,314	7,546	35,860	503	-	2,039	2,542	38,402	816
Science	76,181	110	707	1,957	78,955	54,615	15,516	70,130	305	-	6,641	6,946	77,077	1,878
Medical Radiation - Mohawk share	3,900	-	-	-	3,900	-	-	-	-	-	3,900	3,900	3,900	-
Social Sciences	40,540	648	90	531	41,808	29,825	8,884	38,709	40	-	2,554	2,594	41,303	505
Arts & Science	1,518	57	-	-	1,575	1,552	96	1,648	1	-	54	54	1,702	(127)
Sub-total	347,965	3,450	7,852	50,698	409,966	292,257	79,669	371,927	5,987	1	50,018	56,006	427,933	(17,967)
2. Academic Priorities														
University Fund	39,337	(5,188)	-	-	34,149	-	-	-	-	-	39,149	39,149	39,149	(5,000)
Revenue Projection Contingency	10,305	-	-	-	10,305	-	-	-	-	-	-	-	-	10,305
Ongoing Priorities Contingency	29	-	-	-	29	(3,406)	-	(3,406)	-	-	(1,594)	(1,594)	(5,000)	5,029
One-time Priorities Contingency	8,756	-	-	-	8,756	-	-	-	-	-	8,756	8,756	8,756	-
Sub-total	58,427	(5,188)	-	-	53,239	(3,406)	-	(3,406)	-	-	46,311	46,311	42,905	10,334
TOTAL ACADEMIC	406,392	(1,738)	7,852	50,698	463,204	288,851	79,669	368,520	5,987	1	96,329	102,317	470,837	(7,633)
3. Academic Support														
Provost's Office	7,616	-	-	670	8,286	5,643	1,278	6,921	33	-	3,046	3,079	10,000	(1,714)
Museum of Art	623	-	-	190	813	773	254	1,028	(202)	-	(202)	(202)	825	(12)
MacPherson Institute	1,779	1,738	-	24	3,541	2,711	771	3,482	-	-	619	619	4,100	(559)
University Library	20,317	-	-	210	20,527	7,428	2,350	9,778	3	11,201	987	12,191	21,969	(1,441)
Health Sciences Library	4,021	-	-	97	4,118	1,745	495	2,240	-	3,038	(771)	2,267	4,507	(390)
Registrar	5,429	-	-	2,650	8,079	6,002	1,864	7,866	-	-	727	727	8,593	(515)
Sub-total	39,785	1,738	-	3,841	45,364	24,304	7,011	31,315	36	14,239	4,405	18,680	49,995	(6,631)
4. Research Support														
Research	8,156	-	3,981	10,194	22,331	12,479	3,888	16,367	94	0	7,468	7,562	23,929	(1,598)
VP Research Discretionary Fund	2,049	-	-	-	2,049	-	-	-	-	-	1,060	1,060	1,060	989
Research Loans	-	-	-	-	-	-	-	-	-	-	(89)	(89)	(89)	89
Sub-total	10,205	-	3,981	10,194	24,380	12,479	3,888	16,367	94	0	8,439	8,533	24,899	(520)
5. Student Support														
Graduate Scholarships	13,818	-	-	-	13,818	1,073	159	1,232	13,500	-	-	13,500	14,732	(914)
School of Graduate Studies	1,885	-	-	-	1,885	1,250	391	1,642	135	-	528	662	2,304	(419)
Student Affairs	5,361	-	-	26,268	31,629	16,431	4,167	20,598	384	-	12,547	12,931	33,529	(1,901)
DBAC Building Financing	-	-	-	-	-	-	-	-	-	-	2,144	2,144	2,144	(2,144)
DBAC Deferred Maintenance	-	-	-	-	-	-	-	-	-	-	(420)	(420)	(420)	420
Undergraduate Scholarships	19,375	-	-	285	19,660	1,725	-	1,725	17,635	-	300	17,935	19,660	-
Sub-total	40,439	-	-	26,552	66,991	20,479	4,718	25,197	31,653	-	15,098	46,751	71,948	(4,957)
6. Facilities Support														
Facilities Services	15,644	-	-	587	16,231	12,242	3,983	16,225	-	-	536	536	16,761	(530)
HSC Maintenance	4,002	-	-	40	4,042	-	-	-	-	-	4,042	4,042	4,042	(0)
Utilities	23,911	-	-	1,945	25,856	1,509	580	2,090	-	-	24,771	24,771	26,861	(1,004)
Security	1,949	-	-	103	2,052	2,078	543	2,622	-	-	(313)	(313)	2,308	(256)
Deferred Maintenance	10,930	-	-	-	10,930	-	-	-	-	-	10,930	10,930	10,930	-
Bond Interest	10,089	-	-	-	10,089	-	-	-	-	-	10,089	10,089	10,089	-
Renovation contingency	974	-	-	-	974	-	-	-	-	-	974	974	974	0
Sub-total	67,499	-	-	2,675	70,174	15,829	5,107	20,936	-	-	51,029	51,029	71,965	(1,791)
7. Institutional Support														
Administration	15,509	-	-	1,811	17,320	12,159	3,902	16,062	-	-	1,912	1,912	17,973	(654)
UTS Asset Management	1,500	-	-	-	1,500	-	-	-	-	-	1,753	1,753	1,753	(253)
UTS/Technology Fund	17,861	-	-	128	17,989	9,335	3,068	12,403	-	-	7,831	7,831	20,234	(2,245)
University Secretariat	912	-	-	912	1,824	613	198	811	-	-	117	117	928	(16)
President's Office	1,169	-	-	-	1,169	402	127	528	-	-	627	627	1,155	14
University Advancement	5,760	-	-	128	5,888	7,245	2,227	9,472	-	-	(3,188)	(3,188)	6,284	(395)
General University	8,864	-	-	2,106	10,970	958	179	1,136	-	-	10,206	10,206	11,342	(372)
Sub-total	51,575	-	-	4,173	55,748	30,712	9,700	40,412	-	-	19,257	19,257	59,669	(3,921)
8. Institutional Priority allocations														
Technology Renewal	4,517	-	-	-	4,517	-	-	-	-	-	-	-	-	4,517
Marketing & Branding	1,006	-	-	-	1,006	530	166	696	-	-	310	310	1,006	0
Pension	22,175	-	-	-	22,175	-	22,175	22,175	-	-	-	-	22,175	-
Strategic Priorities	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total	27,698	-	-	-	27,698	530	22,341	22,871	-	-	310	310	23,181	4,517
Surplus/(Deficit)	643,593	-	11,833	98,133	753,559	393,183	132,435	525,618	37,770	14,240	194,867	246,877	772,495	(18,936)
<i>Under/(over)allocated</i>	-	-	-	(3,488)	(3,488)	-	-	-	-	-	(3,488)	(3,488)	(3,488)	-
Total Surplus/(Deficit)	643,593	-	11,833	94,645	750,071	393,183	132,435	525,618	37,770	14,240	191,379	243,388	769,007	(18,936)

Table 26: Operating Fund Annual Net Change by Unit

(\$ thousands)	2018/19		2019/20	2020/21	2021/22
	Budget	Projection	Budget	Plan	Plan
1. Faculties					
Business	3,878	165	424	867	3,654
Engineering	(1,966)	1,343	(6,767)	(7,020)	(3,447)
Health Sciences	(858)	2,239	(8,591)	(15,156)	(21,247)
Humanities	1,542	2,751	493	25	816
Science	1,750	5,447	(7,110)	(1,292)	1,878
Medical Radiation - Mohawk share	-	(1)	-	-	-
Social Sciences	1,959	3,427	(443)	(400)	505
Arts & Science	144	(986)	(44)	(91)	(127)
Sub-total	6,449	14,385	(22,038)	(23,066)	(17,967)
2. Academic Priorities					
University Fund	(2,357)	(735)	(17,394)	(5,000)	(5,000)
Revenue Projection Contingency	4,840	4,563	4,305	7,305	10,305
Ongoing Priorities Contingency	(252)	(3,287)	5,030	5,029	5,029
One-time Priorities Contingency	-	(1,712)	618	1,094	-
Sub-total	2,231	(1,172)	(7,442)	8,428	10,334
TOTAL ACADEMIC	8,680	13,213	(29,479)	(14,638)	(7,633)
3. Academic Support					
Office of the Provost	(1,202)	(1,685)	(1,564)	(1,649)	(1,714)
Museum of Art	2	28	80	7	(12)
MacPherson Institute	(666)	(628)	(612)	(589)	(559)
University Library	(546)	(187)	(327)	(716)	(1,441)
Health Sciences Library	(340)	(393)	350	(179)	(390)
Registrar	(396)	(362)	(532)	(435)	(515)
Sub-total	(3,147)	(3,228)	(2,605)	(3,560)	(4,631)
4. Research Support					
Research	(259)	(1,236)	(7)	(1,331)	(1,598)
VP Research Discretionary Fund	122	70	141	438	989
Research Loans	89	89	89	89	89
Sub-total	(48)	(1,077)	222	(804)	(520)
5. Student Support					
Graduate Scholarships	(1,147)	(1,076)	(869)	(890)	(914)
School of Graduate Studies	(129)	(345)	(396)	(412)	(419)
Student Affairs	(354)	(884)	139	(1,010)	(1,901)
DBAC Building Financing	758	(291)	-	(1,658)	(2,144)
DBAC Deferred Maintenance	160	160	160	300	420
Undergraduate Scholarships	1	150	0	-	-
Sub-total	(712)	(2,286)	(966)	(3,670)	(4,957)
6. Facilities Support					
Facilities Services	153	(571)	41	(279)	(530)
HSC Maintenance	(0)	(0)	85	(0)	(0)
Utilities	(364)	(3,007)	932	(737)	(1,004)
Security	(224)	(311)	(261)	(149)	(256)
Deferred Maintenance	0	(0)	-	-	-
Bond Interest	-	(0)	0	-	-
Renovation contingency	0	0	0	0	0
Sub-total	(436)	(3,888)	797	(1,166)	(1,791)
7. Institutional Support					
Administration	(3,972)	(2,849)	(729)	(637)	(654)
UTS/Technology Fund	(387)	(550)	(727)	(1,761)	(2,245)
UTS Asset Management	5	(516)	(88)	(340)	(253)
University Secretariat	(0)	(34)	14	4	(16)
Presidential Budget	(0)	82	14	14	14
University Advancement	(358)	(79)	(360)	(503)	(395)
General University	17	(86)	86	(231)	(372)
Sub-total	(4,696)	(4,032)	(1,791)	(3,455)	(3,921)
8. Institutional Priority allocations					
Technology Renewal	4,517	4,517	4,517	4,517	4,517
Marketing & Branding	(413)	(768)	(600)	(503)	0
Pension	-	-	-	-	-
Strategic Priorities	-	7	-	-	-
Sub-total	4,104	3,756	3,917	4,014	4,517
Surplus/(Deficit)	3,745	2,458	(29,906)	(23,279)	(18,936)
<i>Under/(over)allocated</i>	0	(0)	0	-	-
Total Surplus/(Deficit)	3,745	2,458	(29,906)	(23,279)	(18,936)

Table 27: Operating Fund 2018/19 Financial Position and Variance by Unit

(\$ thousands)	2018/19 Budget				2018/19 Projection				Favourable (Unfavourable) Variance						
	Appropriations April 30, 2018	On-going	One-time	Total	Appropriations April 30, 2019	Appropriations April 30, 2018	On-going	One-time	Total	Appropriations April 30, 2019	Appropriations April 30, 2018	On-going	One-time	Total	Appropriations April 30, 2019
	1. Faculties	2,481	7,268	(3,390)	3,878	6,359	3,534	7,541	(7,376)	165	3,699	1,053	273	(3,986)	(3,713)
Business	21,239	3,424	(5,390)	(1,966)	19,272	21,333	4,670	(3,327)	1,343	22,661	79	1,246	2,064	3,309	3,388
Engineering	31,111	(1,458)	599	(858)	30,253	40,418	2,701	(462)	2,239	42,657	9,306	4,159	(1,061)	3,998	12,404
Health Sciences	(253)	855	687	1,542	1,288	(1,104)	403	2,348	2,751	1,647	(851)	(452)	1,661	1,209	358
Humanities	12,495	6,790	(5,040)	1,750	14,245	13,295	8,604	(3,157)	5,447	18,742	800	1,814	1,883	3,697	4,497
Science	1	-	-	-	1	1	(1)	-	(1)	0	0	(1)	-	(1)	(1)
Medical Radiation - Mohawk share	267	577	1,382	1,959	2,227	1,164	997	2,430	3,427	4,590	896	419	1,048	1,467	2,364
Social Sciences	2,397	87	57	144	2,541	2,502	31	(1,017)	(986)	1,516	105	(56)	(1,074)	(1,130)	(1,025)
Arts & Science	69,737	17,544	(11,095)	6,449	76,186	81,127	24,945	(10,560)	14,385	95,512	11,390	7,401	535	7,936	19,326
Sub-total															
2. Academic Priorities	41,290	3,026	(5,383)	(2,357)	38,933	41,408	12,020	(12,756)	(735)	40,673	118	8,995	(7,373)	1,622	1,740
University Fund	-	4,840	-	4,840	4,840	-	4,563	-	4,563	-	(277)	-	-	(277)	(277)
Revenue Projection Contingency	732	(252)	-	(252)	480	3,328	(162)	(3,125)	(3,287)	40	2,596	90	(3,125)	(3,035)	(439)
Ongoing Priorities Contingency	-	10,000	(10,000)	-	-	-	10,000	(11,712)	(1,712)	(1,712)	-	-	(1,712)	(1,712)	(1,712)
One-time Priorities Contingency	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total	42,022	17,614	(15,383)	2,231	44,252	44,736	26,421	(27,593)	(1,172)	43,564	2,714	8,807	(12,210)	(3,402)	(688)
TOTAL ACADEMIC	111,759	35,157	(26,478)	8,680	120,438	125,862	51,366	(38,153)	13,213	139,076	14,104	16,208	(11,675)	4,534	18,637
3. Academic Support	7,253	(487)	(715)	(1,202)	6,051	9,360	(1,415)	(270)	(1,685)	7,675	2,107	(928)	445	(483)	1,624
Office of the Provost	(0)	2	-	2	1	(29)	58	(30)	28	(1)	(29)	56	(30)	26	(3)
Museum of Art	2,069	(551)	(115)	(666)	1,403	2,926	(591)	(37)	(628)	2,298	857	(40)	78	38	896
MacPherson Institute	473	(496)	(50)	(546)	(73)	379	(231)	44	(187)	192	(93)	265	93	358	265
University Library	106	(340)	-	(340)	(233)	37	(393)	-	(393)	(356)	(69)	(53)	-	(53)	(123)
Health Sciences Library	704	(55)	(340)	(396)	309	1,366	(313)	(49)	(362)	1,004	662	(258)	291	33	695
Registrar	10,605	(1,927)	(1,220)	(3,147)	7,458	14,040	(2,885)	(342)	(3,228)	10,812	3,435	(958)	878	(81)	3,354
Sub-total															
4. Research Support	797	(259)	-	(259)	538	2,112	(1,252)	17	(1,236)	877	1,316	(994)	17	(977)	338
Research	(39)	122	-	122	82	2	191	(121)	70	73	42	70	(121)	(51)	(9)
VP Research Discretionary Fund	(743)	89	-	89	(654)	(743)	89	-	89	(654)	0	0	-	0	0
Research Loans	14	(48)	-	(48)	(34)	1,372	(972)	(104)	(1,077)	295	1,358	(924)	(104)	(1,028)	329
Sub-total															
5. Student Support	1,164	(1,147)	-	(1,147)	17	1,479	(1,076)	-	(1,076)	403	315	71	-	71	386
Graduate Scholarships	164	1	(130)	(129)	35	301	(345)	-	(345)	(43)	137	(346)	130	(216)	(79)
School of Graduate Studies	(1,467)	(339)	(15)	(354)	(1,820)	2,835	(1,199)	315	(884)	1,951	4,302	(861)	330	(531)	3,771
Student Affairs	234	758	-	758	992	291	(291)	-	(291)	(0)	57	(1,049)	-	(1,049)	(992)
DBAC Building Financing	2,281	160	-	160	2,441	2,381	160	-	160	2,541	100	(0)	-	(0)	100
DBAC Deferred Maintenance	(12)	(849)	850	1	(12)	103	(1,412)	1,562	150	253	116	(563)	712	149	265
Undergraduate Scholarships	2,365	(1,417)	705	(712)	1,653	7,391	(4,163)	1,877	(2,286)	5,105	5,026	(2,747)	1,172	(1,575)	3,452
Sub-total															
6. Facilities Support	366	236	(83)	153	519	985	(534)	(36)	(571)	414	618	(770)	46	(724)	(105)
Facilities Services	(0)	(0)	-	(0)	(0)	(85)	(275)	275	(0)	(85)	(85)	(275)	275	(0)	(85)
HSC Maintenance	(147)	(364)	-	(364)	(511)	4,364	(577)	(2,430)	(3,007)	1,357	4,510	(212)	(2,430)	(2,642)	1,868
Utilities	781	(184)	(40)	(224)	557	863	(361)	50	(311)	552	82	(177)	90	(87)	(5)
Security	(0)	0	0	0	(0)	(0)	(0)	0	(0)	(0)	0	(0)	(0)	(0)	0
Deferred Maintenance	(0)	-	-	-	(0)	(1)	(0)	0	(0)	(1)	(0)	(0)	0	(0)	(0)
Bond Interest	0	0	0	0	0	952	0	-	0	952	952	0	-	0	952
Renovation contingency	1,001	(313)	(123)	(436)	565	6,077	(1,747)	(2,141)	(3,888)	3,189	6,077	(1,434)	(2,019)	(3,453)	2,624
Sub-total															
7. Institutional Support	6,272	(268)	(3,705)	(3,972)	2,300	5,811	(314)	(2,535)	(2,849)	2,962	(461)	(46)	1,169	1,123	662
Administration	1,428	(1,280)	893	(387)	1,041	1,274	(2,077)	1,526	(550)	724	(154)	(796)	633	(163)	(317)
UTS/Technology Fund	12	5	0	5	17	(10)	(1,016)	500	(516)	(526)	(21)	(1,021)	500	(521)	(542)
UTS Asset Management	219	(0)	-	(0)	218	248	43	(77)	(34)	213	29	43	(77)	(34)	(5)
University Secretariat	1,840	(0)	-	(0)	1,840	2,144	82	-	82	2,226	303	82	-	82	385
Presidential Budget	551	(358)	-	(358)	193	1,338	(79)	-	(79)	1,259	787	280	-	280	1,066
University Advancement	0	(783)	800	17	17	87	(1,623)	1,537	(86)	86	(840)	737	(103)	(103)	(17)
General University	10,322	(2,685)	(2,011)	(4,696)	5,626	10,891	(4,984)	952	(4,032)	6,859	569	(2,299)	2,963	664	1,233
Sub-total															
8. Institutional Priority allocations	(25,800)	-	4,517	4,517	(21,283)	(25,800)	-	4,517	4,517	(21,283)	-	-	-	-	-
Technology Renewal	414	(413)	-	(413)	1	1,872	(768)	(0)	(768)	1,103	1,458	(356)	(0)	(356)	1,102
Marketing & Branding	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pension	(0)	-	-	-	(0)	(7)	7	-	7	0	(7)	7	-	7	0
Strategic Priorities	(25,800)	(413)	4,517	4,104	(21,282)	(23,936)	(761)	4,517	3,756	(20,180)	1,450	(348)	(0)	(348)	1,102
Sub-total															
Surplus/(Deficit)	110,679	28,355	(24,610)	3,745	114,423	142,698	35,853	(33,395)	2,458	145,155,809	32,019	7,498	(8,785)	(1,287)	30,732
<i>Under/overallocated</i>	0	4,517	(4,517)	0	0	(0)	4,517	(4,517)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Total Surplus/(Deficit)	110,679	32,872	(29,127)	3,745	114,423	142,698	40,370	(37,912)	2,458	145,156	32,019	7,498	(8,785)	(1,287)	30,732

Table 28: Operating Fund Budget and Plan Financial Position by Unit

	2019/20 Budget				2020/21 Plan				2021/22 Plan				
	Appropriations	On-going	One-time	Total	Appropriations	On-going	One-time	Total	Appropriations	On-going	One-time	Total	Appropriations
	April 30, 2019				April 30, 2020				April 30, 2021				April 30, 2022
(5 thousands)													
1. Faculties													
Business	3,699	4,954	(4,530)	424	4,123	7,867	(7,000)	867	4,990	10,654	(7,000)	3,654	8,645
Engineering	22,661	(2,939)	(3,828)	(6,767)	15,894	(4,378)	(2,643)	(7,020)	8,873	(1,072)	(2,375)	(3,447)	5,426
Health Sciences	42,657	(9,370)	779	(8,591)	34,066	(15,595)	440	(15,156)	18,910	(21,312)	65	(21,247)	(2,336)
Humanities	1,647	(2,214)	2,707	493	2,140	(2,213)	2,239	25	2,165	(857)	1,673	816	2,981
Science	18,742	(3,023)	(4,087)	(7,110)	11,632	(677)	(615)	(1,292)	10,340	1,803	75	1,878	12,218
Medical Radiation - Mohawk share	0	-	-	-	0	-	-	-	0	-	-	-	0
Social Sciences	4,590	(2,068)	1,624	(443)	4,147	(1,214)	814	(400)	3,747	(142)	648	505	4,253
Arts & Science	1,516	(101)	57	(44)	1,472	(148)	57	(91)	1,381	(184)	57	(127)	1,254
Sub-total	95,512	(14,760)	(7,277)	(22,038)	73,474	(16,358)	(6,708)	(23,066)	50,408	(11,110)	(6,857)	(17,967)	32,441
2. Academic Priorities													
University Fund	40,673	10,406	(27,800)	(7,127)	23,278	21,000	(26,000)	(5,000)	18,278	23,000	(28,000)	(5,000)	13,278
Revenue Projection Contingency	4,563	4,305	-	4,305	8,868	7,305	-	7,305	16,173	10,305	-	10,305	26,478
Ongoing Priorities Contingency	40	5,030	-	5,030	5,070	5,029	-	5,029	10,099	5,029	-	5,029	15,128
One-time Priorities Contingency	(1,712)	10,000	(9,382)	618	(1,094)	10,000	(8,906)	1,094	-	10,000	(10,000)	-	-
Sub-total	43,564	29,740	(37,182)	(7,442)	36,122	43,334	(34,906)	8,428	44,550	48,334	(38,000)	10,334	54,884
TOTAL ACADEMIC	139,076	14,980	(44,459)	(29,479)	109,596	26,976	(41,614)	(14,638)	94,958	37,224	(44,857)	(7,633)	87,326
3. Academic Support													
Office of the Provost	7,675	(1,365)	(198)	(1,564)	6,111	(1,507)	(141)	(1,649)	4,462	(1,704)	(10)	(1,714)	2,748
Museum of Art	(1)	80	-	80	79	7	-	7	86	(12)	-	(12)	74
MacPherson Institute	2,298	(520)	(92)	(612)	1,686	(491)	(98)	(589)	1,098	(462)	(97)	(559)	538
University Library	192	(505)	178	(327)	(135)	(716)	-	(716)	(851)	(1,441)	-	(1,441)	(2,293)
Health Sciences Library	(356)	(6)	356	350	(6)	(179)	-	(179)	(184)	(390)	-	(390)	(574)
Registrar	1,004	(334)	(198)	(532)	472	(333)	(103)	(436)	36	(515)	-	(515)	(478)
Sub-total	10,812	(2,651)	46	(2,605)	8,207	(3,218)	(342)	(3,560)	4,647	(4,524)	(108)	(4,632)	15
4. Research Support													
Research	877	(972)	965	(7)	870	(1,291)	(40)	(1,331)	(462)	(1,598)	-	(1,598)	(2,060)
VP Research Discretionary Fund	73	141	-	141	213	438	-	438	652	989	-	989	1,641
Research Loans	(654)	89	-	89	(566)	89	-	89	(477)	89	-	89	(388)
Sub-total	295	(743)	965	222	517	(764)	(40)	(804)	(287)	(520)	-	(520)	(807)
5. Student Support													
Graduate Scholarships	403	(869)	-	(869)	(466)	(890)	-	(890)	(1,356)	(914)	-	(914)	(2,270)
School of Graduate Studies	(43)	(396)	-	(396)	(439)	(412)	-	(412)	(851)	(419)	-	(419)	(1,270)
Student Affairs	1,951	(1,622)	1,761	139	2,090	(1,810)	800	(1,010)	1,079	(2,051)	150	(1,901)	(821)
DBAC Building Financing	(0)	-	-	-	(0)	(1,658)	-	(1,658)	(1,658)	(2,144)	-	(2,144)	(3,802)
DBAC Deferred Maintenance	2,541	160	-	160	2,701	300	-	300	3,001	420	-	420	3,421
Undergraduate Scholarships	253	(1,000)	1,000	0	253	-	-	-	253	-	-	-	253
Sub-total	5,105	(3,727)	2,761	(966)	4,139	(4,470)	800	(3,670)	469	(5,107)	150	(4,957)	(4,489)
6. Facilities Support													
Facilities Services	414	41	-	41	455	(279)	-	(279)	176	(530)	-	(530)	(354)
HSC Maintenance	(85)	(0)	85	85	(0)	(0)	-	(0)	(0)	(0)	-	(0)	(1)
Utilities	1,357	932	-	932	2,289	(737)	-	(737)	1,552	(1,004)	-	(1,004)	548
Security	552	(256)	(5)	(261)	291	(249)	100	(149)	142	(256)	-	(256)	(115)
Deferred Maintenance	(0)	-	-	-	(0)	-	-	-	-	-	-	-	(0)
Bond Interest	(1)	0	0	0	(1)	-	-	-	-	-	-	-	(1)
Renovation contingency	952	0	-	0	952	0	-	0	952	0	-	0	952
Sub-total	3,189	717	80	797	3,986	(1,266)	100	(1,166)	2,820	(1,791)	-	(1,791)	1,030
7. Institutional Support													
Administration	2,962	85	(814)	(729)	2,233	253	(891)	(637)	1,596	(154)	(500)	(654)	942
UTS/Technology Fund	724	(1,760)	1,034	(727)	(3)	(2,697)	936	(1,761)	(1,765)	(2,745)	500	(2,245)	(4,010)
UTS Asset Management	(526)	(88)	-	(88)	(614)	(340)	-	(340)	(954)	(253)	-	(253)	(1,207)
University Secretariat	213	25	(11)	14	227	4	-	4	231	(16)	-	(16)	215
Presidential Budget	2,226	14	-	14	2,240	14	-	14	2,254	14	-	14	2,268
University Advancement	1,259	(360)	-	(360)	899	(503)	-	(503)	395	(395)	-	(395)	(0)
General University	0	86	-	86	86	(231)	-	(231)	(145)	(372)	-	(372)	(517)
Sub-total	6,859	(1,999)	208	(1,791)	5,067	(3,500)	45	(3,455)	1,612	(3,921)	0	(3,921)	(2,309)
8. Institutional Priority allocations													
Technology Renewal	(21,283)	-	4,517	4,517	(16,766)	-	4,517	4,517	(12,249)	-	4,517	4,517	(7,732)
Marketing & Branding	1,103	(600)	-	(600)	503	(503)	-	(503)	0	0	-	0	0
Pension	-	-	-	-	-	-	-	-	-	-	-	-	-
Strategic Priorities	0	-	-	-	0	-	-	-	0	-	-	-	0
Sub-total	(20,180)	(600)	4,517	3,917	(16,263)	(503)	4,517	4,014	(12,249)	0	4,517	4,517	(7,732)
Surplus/(Deficit)	145,156	5,976	(35,882)	(29,906)	115,250	13,255	(36,534)	(23,279)	91,970	21,362	(40,298)	(18,936)	73,034
<i>Under/over/allocated</i>	(0)	4,517	(4,517)	0	(0)	4,517	(4,517)	-	(0)	4,517	(4,517)	-	(0)
Total Surplus/(Deficit)	145,156	10,493	(40,399)	(29,906)	115,250	17,772	(41,051)	(23,279)	91,970	25,879	(44,815)	(18,936)	73,034

APPENDIX 4 – ANCILLARY FUND UNIT LEVEL TABLES

(\$ thousands)	Campus Store		Media Production		Parking		CCE		Hospitality		Housing & Conference		Total	
	2018/19 Projection	2019/20 Budget												
Sources of funding														
Sales	15,121	14,753	388	380	5,856	5,955	6,685	7,070	25,684	28,456	27,830	32,765	81,565	89,378
Internal revenue	(70)	(72)	3,900	4,100	16	15	720	720	1,632	1,665	(65)	(66)	6,134	6,361
Total sources of funding	15,051	14,681	4,288	4,480	5,872	5,969	7,405	7,790	27,316	30,121	27,765	32,698	87,698	95,740
Expenditure														
Salaries, wages and benefits	2,524	2,743	1,528	1,749	1,110	1,212	5,183	5,311	12,212	12,853	7,425	8,574	29,981	32,442
Cost of sales	10,878	10,345	1,353	1,447	-	-	-	-	9,202	10,251	0	-	21,432	22,043
Internal rent	497	465	142	138	30	30	479	479	1,085	1,086	3,421	3,438	5,654	5,636
Utilities and maintenance	15	15	34	34	322	184	11	11	703	721	3,188	3,696	4,273	4,661
Debt and financing charges	-	28	-	14	1,891	1,657	-	-	135	135	3,053	5,827	5,079	7,661
Equipment and renovations	220	230	700	725	1,485	810	244	253	1,327	2,157	6,187	6,442	10,163	10,617
All other expenses	345	345	135	167	1,571	1,513	1,953	1,850	2,510	2,712	3,010	3,408	9,525	9,995
Total expenditures	14,478	14,172	3,892	4,274	6,410	5,406	7,870	7,903	27,174	29,914	26,284	31,385	86,108	93,055
Surplus (deficit) from operations	573	509	396	206	(537)	563	(465)	(113)	142	207	1,482	1,313	1,591	2,684
Contribution to Operating Fund	(207)	(216)	(132)	(171)	(236)	(262)	(315)	(323)	(1,139)	(1,244)	(1,175)	(1,225)	(3,204)	(3,441)
Surplus (deficit)	367	294	264	35	(774)	301	(781)	(437)	(997)	(1,037)	307	88	(1,613)	(757)
Reserve														
Beginning Balance	(926)	(560)	(1,010)	(746)	1,828	1,054	3,201	2,420	5,232	4,235	2,647	2,954	10,971	9,358
Reserve Adjustment	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surplus (deficit)	367	294	264	35	(774)	301	(781)	(437)	(997)	(1,037)	307	88	(1,613)	(757)
Closing Balance	(560)	(266)	(746)	(711)	1,054	1,355	2,420	1,984	4,235	3,198	2,954	3,041	9,358	8,601

APPENDIX 5 – SUMMARY BY FUND

Table 29: Consolidated 2018/19 Projection by Fund

(\$ thousands)

	Operating Fund	Research Fund	Capital Fund	External Endowment	Internal Endowment	Ancillary Fund	Externally Funded	Total	GAAP Adjustment	Full Accrual Basis
Revenues										
Operating grants	235,016	-	3,562	-	-	-	-	238,578	33,904	272,482
Research grants and contracts	-	195,000	-	-	-	-	-	195,000	(21,541)	173,459
Tuition fees	327,272	-	-	-	-	-	-	327,272	14,000	341,272
Ancillary sales and services	-	-	-	-	-	81,565	-	81,565	(2,911)	78,654
Other revenues	133,394	-	21,372	6,214	99	-	34,595	195,674	(553)	195,121
Amortization of deferred capital contributions	-	-	-	-	-	-	-	-	45,812	45,812
Investment income (loss)	8,380	-	-	21,750	6,560	-	-	36,690	18,730	55,420
Investment income transfer	4,521	-	-	-	(4,521)	-	-	-	-	-
Total revenues	708,583	195,000	24,934	27,964	2,138	81,565	34,595	1,074,779	87,441	1,162,220
Expenses										
Salaries, wages and benefits	473,605	110,000	-	-	-	29,981	24,489	638,075	14,070	652,145
All other expenses	195,206	75,000	137,538	2,640	-	31,778	12,256	454,419	(148,397)	306,022
Amortization expense	-	-	-	-	-	-	-	-	82,349	82,349
Transfers to (from) other funds	14,690	(16,434)	(34,907)	19,876	534	16,339	(99)	(0)	0	-
Debt and financing charges	22,623	-	(9,819)	-	-	5,079	-	17,883	(4,644)	13,239
Total expenses	706,125	168,566	92,812	22,516	534	83,178	36,646	1,110,377	(56,622)	1,053,755
Excess of revenues over expenses	2,458	26,434	(67,878)	5,448	1,604	(1,613)	(2,051)	(35,599)	144,064	108,465

Table 30: Consolidated 2019/20 Budget by Fund

(\$ thousands)

	Operating Fund	Research Fund	Capital Fund	External Endowment	Internal Endowment	Ancillary Fund	Externally Funded	Total	GAAP Adjustment	Full Accrual Basis
Revenues										
Operating grants	235,868	-	3,520	-	-	-	-	239,388	34,140	273,528
Research grants and contracts	-	197,000	-	-	-	-	-	197,000	(20,939)	176,061
Tuition fees	326,962	-	-	-	-	-	-	326,962	12,000	338,962
Ancillary sales and services	-	-	-	-	-	89,378	-	89,378	(9,151)	80,227
Other revenues	133,478	-	9,650	2,721	100	-	32,987	178,936	20,338	199,274
Amortization of deferred capital contributions	-	-	-	-	-	-	-	-	45,743	45,743
Investment income (loss)	7,078	-	-	28,838	8,696	-	-	44,612	17,840	62,452
Investment income transfer	5,556	-	-	-	(5,556)	-	-	-	-	-
Total revenues	708,942	197,000	13,170	31,559	3,240	89,378	32,987	1,076,276	99,971	1,176,247
Expenses										
Salaries, wages and benefits	496,875	111,000	-	-	-	32,442	23,715	664,032	22,385	686,417
All other expenses	211,595	75,000	192,126	3,745	53	32,815	10,352	525,686	(199,225)	326,461
Amortization expense	-	-	-	-	-	-	-	-	88,181	88,181
Transfers to (from) other funds	12,158	(14,346)	(35,012)	19,619	540	17,218	(176)	-	-	-
Debt and financing charges	18,220	-	(12,096)	-	-	7,661	-	13,785	954	14,739
Total expenses	738,848	171,654	145,018	23,364	593	90,135	33,891	1,203,503	(87,705)	1,115,798
Excess of revenues over expenses	(29,906)	25,346	(131,848)	8,195	2,647	(757)	(904)	(127,227)	187,676	60,449

Table 31: Consolidated 2020/21 Plan by Fund

(\$ thousands)

	Operating Fund	Research Fund	Capital Fund	External Endowment	Internal Endowment	Ancillary Fund	Externally Funded	Total	GAAP Adjustment	Full Accrual Basis
Revenues										
Operating grants	235,544	-	3,520	-	-	-	-	239,064	34,135	273,199
Research grants and contracts	-	199,000	-	-	-	-	-	199,000	(20,298)	178,702
Tuition fees	351,173	-	-	-	-	-	-	351,173	12,000	363,173
Ancillary sales and services	-	-	-	-	-	91,039	-	91,039	(9,007)	82,032
Other revenues	130,863	-	14,150	2,669	100	-	32,477	180,259	38,986	219,245
Amortization of deferred capital contributions	-	-	-	-	-	-	-	-	44,594	44,594
Investment income (loss)	3,859	-	-	29,322	8,852	-	-	42,033	22,446	64,479
Investment income transfer	5,608	-	-	-	(5,608)	-	-	-	-	-
Total revenues	727,047	199,000	17,670	31,991	3,344	91,039	32,477	1,102,568	122,856	1,225,424
Expenses										
Salaries, wages and benefits	511,905	112,000	-	-	-	32,243	23,135	679,283	32,114	711,397
All other expenses	207,477	75,000	137,635	5,717	108	33,029	9,599	468,565	(135,607)	332,958
Amortization expense	-	-	-	-	-	-	-	-	96,000	96,000
Transfers to (from) other funds	9,539	(14,026)	(31,684)	18,245	550	17,377	-	-	-	-
Debt and financing charges	21,405	-	(15,006)	-	-	8,003	-	14,402	1,835	16,237
Total expenses	750,326	172,974	90,945	23,962	658	90,652	32,734	1,162,251	(5,659)	1,156,592
Excess of revenues over expenses	(23,279)	26,026	(73,275)	8,029	2,686	387	(257)	(59,683)	128,515	68,832

Table 32: Consolidated 2021/22 Plan by Fund

(\$ thousands)

	Operating Fund	Research Fund	Capital Fund	External Endowment	Internal Endowment	Ancillary Fund	Externally Funded	Total	GAAP Adjustment	Full Accrual Basis
Revenues										
Operating grants	235,360	-	3,520	-	-	-	-	238,880	34,128	273,008
Research grants and contracts	-	201,000	-	-	-	-	-	201,000	(19,618)	181,382
Tuition fees	376,611	-	-	-	-	-	-	376,611	12,000	388,611
Ancillary sales and services	-	-	-	-	-	93,632	-	93,632	(9,754)	83,878
Other revenues	128,633	-	54,750	2,495	100	-	32,401	218,379	5,991	224,370
Amortization of deferred capital contributions	-	-	-	-	-	-	-	-	43,737	43,737
Investment income (loss)	3,717	-	-	29,795	9,010	-	-	42,522	23,913	66,435
Investment income transfer	5,750	-	-	-	(5,750)	-	-	-	-	-
Total revenues	750,071	201,000	58,270	32,290	3,360	93,632	32,401	1,171,024	90,397	1,261,421
Expenses										
Salaries, wages and benefits	525,618	113,000	-	-	-	32,970	23,227	694,815	42,511	737,326
All other expenses	214,008	75,000	107,601	6,511	165	33,298	9,547	446,130	(140,245)	305,885
Amortization expense	-	-	-	-	-	-	-	-	142,774	142,774
Transfers to (from) other funds	7,975	(12,907)	(30,718)	18,386	560	16,704	-	-	-	-
Debt and financing charges	21,405	-	(16,456)	-	-	8,304	-	13,253	2,941	16,194
Total expenses	769,007	175,093	60,427	24,897	725	91,275	32,774	1,154,198	47,981	1,202,179
Excess of revenues over expenses	(18,936)	25,907	(2,157)	7,393	2,635	2,357	(373)	16,826	42,416	59,242

APPENDIX 6 – SIGNIFICANT ACCOUNTING POLICIES

The University's audited financial statements are prepared in accordance with Canadian accounting standards for not-for-profit organizations in Part III of the Chartered Professional Accountant (CPA) Canada Handbook. A summary of the significant accounting policies follows:

1) Revenue recognition: The University follows the deferral method of accounting for contributions which include donations and government grants. The principles under this method are summarized as follows:

- Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.
- Contributions externally restricted for purposes, such as research grants and non-endowed donations, are deferred and recognized as revenue in the year in which the related expenses are recognized.
- Contributions externally restricted for capital asset purchases are deferred and amortized to operations on the same basis as the related capital asset.
- External endowment contributions and investment income preserved under the endowment capital protection policy are recognized as a direct increase in endowment net assets.

2) Capital assets and amortization: Capital assets are recorded at cost, or if donated, at fair value on the date of receipt. Amortization is recorded on the straight-line basis over the expected life of the asset.

Collections and works of art: The McMaster Museum of Art has significant collections of works of art and coins. Donations of works of art are recorded in operations in the year of acquisition.

3) Pensions and other employee future benefits: The University maintains defined benefit registered and non-registered pension plans, a retirement incentive program and group registered retirement savings plans. Non-pension post-retirement and post-employment benefits plans are also provided. Accruals for these costs are recorded over the periods of service. An actuarial accounting valuation is performed annually at the University's year-end to update the liabilities related to the pension and non-pension obligations. The valuation uses management's estimates of investment yields, salary escalation, health care trend rates and other factors. The assumptions are consistent with those used for the tri-annual registered pension plan valuations.

- Re-measurement and other items are recognized as a direct increase (decrease) to net assets and are not reclassified to the statement of operations in subsequent periods. Re-measurement and other items comprise the aggregate of: the difference between the actual return on plan assets and the return calculated using the discount rate used to determine the defined benefit obligation; the actuarial gains and losses; the effect of any valuation allowance in the case of a net defined benefit asset; past service costs; and any gains and losses arising from settlements and curtailments.
- The employer's share of group RRSP contributions is charged to operations in the year made.

4) Investments: Short-term investments are recorded at cost plus accrued income which together approximates fair value. Long-term investments are carried at fair values. Changes in fair value are included in investment income.

APPENDIX 7 – OPERATING FUND ENVELOPE GROUPINGS

Major areas and depts included in envelopes:

Activity Units

DeGroote School of Business

Accounting and Financial Management
 Executive Education
 Finance and Business Economics
 Health Policy and Management
 Human Resources and Management
 Information Systems
 Marketing
 Operations Management
 Strategic Management
 Research Centres
 Digital Research Centre
 Gould Trading Floor
 Health Leadership Academy
 Investment Decision Centre
 Management of Innovation and Technology

Faculty of Engineering

Chemical Engineering
 Civil Engineering
 Computing and Software
 Electrical and Computer Engineering
 Engineering Physics
 Materials Science and Engineering
 Mechanical Engineering
 School of Biomedical Engineering
 W. Booth School of Engineering Practice and Technology
 Research Centres
 ArcelorMittal Dofasco Centre for Engineering and Public Policy
 Centre for Effective Design of Structures
 Centre for Emerging Device Technologies
 Centre for Engineering Design
 Centre for Research in Micro- and Nano-systems
 Computing Infrastructure Research Centre
 McMaster Centre for Software Certification
 McMaster Institute for Energy Studies
 McMaster Manufacturing Research Institute
 McMaster Steel Research Centre
 Xerox Centre for Engineering Entrepreneurship and Innovation

Faculty of Health Sciences

Anaesthesia
 Biochemistry & Biomedical Sciences
 Health Research Methods, Evidence, and Impact
 Health Policy
 Family Medicine
 Michael G. DeGroote School of Medicine
 Midwifery
 Obstetrics and Gynecology
 Oncology
 Pathology and Molecular Medicine
 Pediatrics
 Psychiatry and Behavioural Neurosciences
 Radiology
 Surgery
 School of Nursing
 School of Rehabilitation Science

Faculty of Humanities

Classics
 Communication Studies and Multimedia
 English and Cultural Studies
 French
 Gender Studies and Feminist Research
 History
 Linguistics and Languages
 Peace Studies
 Philosophy
 School of the Arts
 Research Centres
 Bertrand Russell Research Centre
 Centre for Advanced Research in Experimental and Applied Linguistics

Faculty of Science

Biology
 Chemistry and Chemical Biology
 Geography and Earth Sciences
 Kinesiology
 Mathematics and Statistics
 Physics and Astronomy
 Psychology, Neuroscience and Behaviour
 Research Centres
 Biointerfaces Institute
 McMaster Centre for Climate Change
 McMaster Institute for Music and the Mind
 Origins Institute

Faculty of Social Sciences

Anthropology
 Economics
 Health, Aging and Society
 Indigenous Studies
 Labour Studies
 Political Science
 Religious Studies
 Social Work
 Sociology
 Research Centres
 Gilbrea Centre for Studies in Aging
 Institute on Globalization and the Human Condition
 Public Economics Data Analysis Laboratory

Arts & Science Program

Support Units

Academic Support

Provost and Vice-President (Academic) Office
 Equity and Inclusion Office
 Health Policy and Management
 Health Sciences Library
 Institutional Research and Analysis
 International Affairs
 Museum of Art
 Paul R. MacPherson Institute for Leadership, Innovation and
 Excellence in Teaching
 Registrar's Office
 University Library

Research Support

Research
 Vice-President (Research) Office
 Biosafety Committee
 Health Physics
 McMaster Industry Liaison Office
 Nuclear Reactor
 Research Ethics
 Research Finance
 Research High Performance Computing
 Research Office for Administration, Development and Support
 Research Centres
 Accelerator Lab
 Brockhouse Institute for Material Research
 Interface: McMaster Institute for Multi-Hazard Systemic Risk Studies
 McMaster Indigenous Research Institute
 McMaster Institute for Healthier Environments
 McMaster Institute for Research on Aging
 McMaster Institute for Transportation and Logistics
 Statistics Canada Research Data Centre at McMaster
 Vice-President (Research) Discretionary Fund

Student Support

School of Graduate Studies
 Student Affairs
 Athletics and Recreation
 Career Planning and Employment
 Indigenous Student Services
 International Student Services
 Ombuds
 Student Accessibility Services
 Student Development
 Student Success Centre
 Student Wellness Centre
 Graduate Scholarships
 Undergraduate Scholarships

Facilities Support

Facility Services
 Security
 Utilities

Institutional Support

Administration
 Vice-President (Administration) Office
 Financial Affairs
 Human Resources
 Internal Audit
 Advancement
 Advancement Services
 Alumni Advancement
 Communications and Public Affairs
 Development
 Stewardship and Donor Relations
 Vice-President (Advancement) Office
 General University
 Office of the President
 University Secretariat
 University Technology Services

Institutional Priorities

Marketing and Branding
 Pension
 Strategic Priorities
 Technology Renewal

APPENDIX 8 – ACRONYMS

AFMC	Association of Faculties of Medicine Canada
AODA	Accessibility for Ontarions with Disabilities Act
AVIN	Autonomous Vehicle Innovation Network
CAP	Career Access Program
CCE	Center for Continuing Education
CEFRL	Common European Framework of Reference for Languages
CIMVHR	Canadian Institute for Military and Verteran Health Research
COG	Core Operating Grant
COU	Council for Ontario Universities
CPA	Chartered Professional Accountant
CRC	Canada Research Chair
CRKN	Canadian Research Knowledge Network
DB	Defined Benefit
DBRS	Dominion Bond Rating Service
DSB	Degroote School of Business
FWI	Forward with Integrity
GAAP	Generally accepted accounting principle
GCSP	Grand Challenge Scholars Program
H&CS	Housing and Conference Services
HR	Human Resources
HSL	Health Sciences Library
IEPI	Institute on Ethics for Policy and Innovation
IPG	Incremental Projects Grant
ISS	Indigenous Student Services
ISW	Instructional Skills Workshops
IT	Information Technology
MARC	McMaster Automotive Resource Centre
MBA	Master of Business Administration
MD	Medical Doctorate
MIRI	McMaster Indigenous Research Institute
MPS	Media Production Services
MTCU	Ministry of Training, Colleges and Universities
MUMC	McMaster Univeristy Medical Centre
NAE	National Academy of Engineering
OAPPA	Ontario Association of Physical Plant Administrators
OGS	Ontario Graduate Scholarship
OSAP	Ontario Student Access Program
PBGF	Pension Benefits Guarantee Fund
PfAD	Provision for adverse deviation
PGCLL	Peter George Centre for Living and Learning
PRB	Post-retirement benefit
QS	Quacquarelli Symonds
RO	Office of the Registrar
RRSP	Registered Retirement Savings Plan
RSF	Research Support Fund
S&P	Standard & Poors
SAG	Student Access Guarantee
SMA	Strategic Manadate Agreement
SPICES	Student Proposals for Intellectual Community and Engages Scholarship
SRP	Strategic Research Plan
TRC	Truth and Reconciliation Commission of Canada
UA	University Advancement
UTS	University Technology Services
VPR	Vice-President Research
WGU	Weighted Grant Units

PACBIC

The President's Advisory Committee
on Building an Inclusive Community
**welcomes diversity and
opposes hatred and bigotry.**

pacbic.mcmaster.ca



President's Advisory Committee
on Building an Inclusive Community



ANNUAL REPORT TO THE MCMASTER COMMUNITY
2018



PRESIDENT'S ADVISORY COMMITTEE ON BUILDING AN INCLUSIVE COMMUNITY (PACBIC)

PACBIC was established in 2002 in response to the third goal of McMaster's strategic plan, *Refining Directions*: 'to build an inclusive community with a shared purpose'¹. The University's commitment to inclusion was amplified in the principles set out by President Patrick Deane in 2011 in *Forward with Integrity: A Letter to the McMaster Community*², and then reiterated in the emphasis on 'building an inclusive community, promoting equity and fairness, and celebrating our rich diversity' in *Forward with Integrity: The Next Phase* (2015)³. In 2018, McMaster's inaugural Associate Vice-President, Equity and Inclusion engaged the campus community in a process to develop an institution-wide equity, diversity, and inclusion strategy, to transform the University's commitments into action.

PACBIC contributes to these institutional objectives through its advisory capacity. It acts as a forum for all members of the University's constituent groups to discuss and generate ideas for diversifying the campus community, redressing institutional inequities, which correspond to systemic barriers in our wider society, and fostering a culture of inclusiveness. PACBIC provides advice to the President and directs its questions and recommendations to relevant offices, groups and individuals on campus who have the authority and resources to implement change, adjust practices and advise on the processes involved. By documenting its ongoing work in this Report (which spans December 1, 2017 to December 31, 2018), PACBIC hopes to engage everyone in the campus community in working toward the inclusive and just institutional practices to which the University aspires. This year, McMaster University was recognized for the first time as one of Canada's Best Diversity Employers (2019)⁴ as well as ranking #1 in Canada and #2 in the world for national and global impact⁵. PACBIC's ongoing work to address issues of equity, diversity and inclusion has been, is, and will increasingly be, integral to such recognition of and reputation for excellence.

PACBIC WORK IN PROGRESS

ADVANCING INCLUSION ACROSS THE UNIVERSITY AND INTO THE FUTURE

This past year, PACBIC continued to support dozens of projects, events and initiatives to build an inclusive community (Appendix A). As is the case in past years, PACBIC members also served on policy and hiring committees, as well as consulted, organized and provided workshops and service supports in response to incidents of hate affecting the McMaster community, on campus and off campus. PACBIC has been specifically devoted to ensuring that our advocacy and transformative community building maintained an inclusive focus, while we transitioned into a new organizational structure with the addition of the new

¹ <https://www.mcmaster.ca/policy/General/HR/Statement-Inclusivity.pdf>

² <https://president.mcmaster.ca/wp-content/uploads/2016/10/forwardwithintegrity.pdf>

³ https://president.mcmaster.ca/wp-content/uploads/2016/05/FWI_The_Next_Phase_15Oct2015-1.pdf

⁴ <https://content.eluta.ca/top-employer-mcmaster>

⁵ <https://dailynews.mcmaster.ca/articles/mcmaster-places-second-in-world-for-impact/>

(PACBIC recommended) Associate Vice-President, Equity and Inclusion, Dr. Arig al Shaibah. PACBIC spent time thinking through and consulting on a broad, University-level strategy for equity, diversity and inclusion (EDI), revising the PACBIC Terms of Reference (Appendix B) to consider our roles, agency, mandate and structure in ways that embody, convey and communicate our commitment to social justice and EDI at McMaster.

PACBIC reinforced, among our members, workings group conveners, and leaders, that our most transformational work takes place at the nexus of community-based and institutional spaces and relationships (Figure 1), and that our organizing and operating structure reflect a commitment to responsiveness and accountability to the McMaster community (Figure 2).

Figure 1

PACBIC: Advancing Equity, Diversity, Inclusion (EDI)
Working at and through the Nexus of Community-based and Institutional Spaces

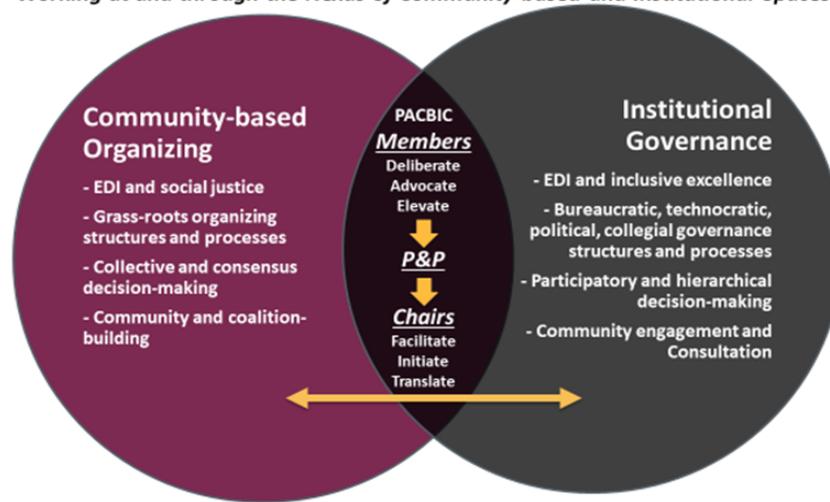
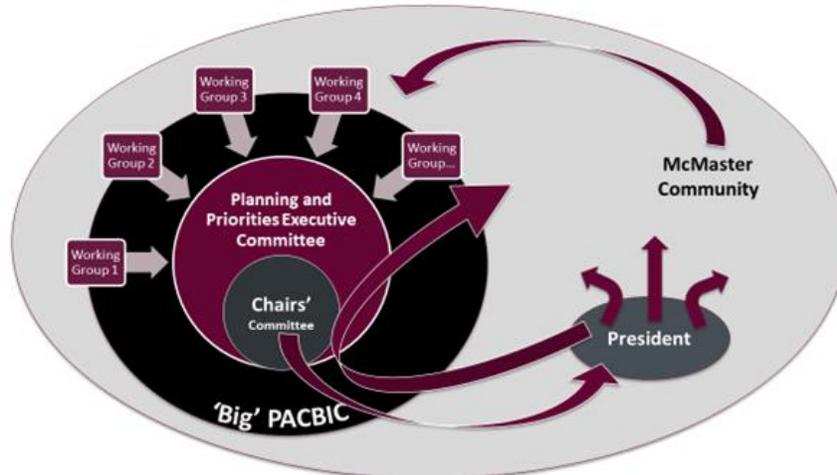


Figure 2

PACBIC Organizing and Operating Structure
Members and Working Groups



Enhancing equity and inclusion on these various dimensions of experience on campus requires change in university policies, practices and conversations – endeavors that typically involve the work of the many offices, groups and individuals with whom PACBIC collaborates and consults and vice versa. Highlighted below are some of the areas in which PACBIC and its many partners have worked over the past year.

PACBIC WORKING GROUP REFLECTIONS AND RECOMMENDATIONS

ADA/MEDS: A COLLABORATIVE FOCUS ON ACCESSIBILITY AND DISABILITY INCLUSION

Reflections on the Year:

Accessibility work on campus has made a number of noteworthy achievements over the past year. Perhaps most significantly, the format and purpose of the PACBIC Annual Report was adopted and modified to produce the first annual [Accessibility and Disability Inclusion Update](#) as part of our official accessibility communications plan, in partnership with the Equity and Inclusion Office. This update included over 40 submissions from across campus.

The ADA/MEDS budget from 2018 was used to support the completion of several partially-funded student partnership projects, including: [The OPEN ACCESSibility illustrated story of disability advocacy @ McMaster](#), and the User Testing for Web Accessibility project and report.

ADA/MEDS also directly partnered with a Student Scholar through the MacPherson Institute to further refine our Accessibility Award and Disability Studies curriculum. These will become part of a campus-wide

accessibility plan that is under development. The working group will regroup in 2019 to consider how to position the ADA/MEDS mandate in relation to EDI advancements on campus.

Recommendations Moving Forward:

The ADA/MEDS Working Group looks forward to seeing the following initiatives assumed under the banner of and resourced through the Accessibility Strategy, advanced by the McMaster Accessibility Council, and which will be a companion document to the new institutional EDI Strategy and Action Plan, drafted by the Associate Vice-President, Equity and Inclusion:

- Enhanced accessibility awareness-raising events (annual celebrations of International Day of Persons with Disabilities, Disability Pride events);
- New awards program to encourage and recognize leadership on accessibility initiatives;
- Improved accessibility training programs and support for curriculum re-design; and,
- Greater access to and availability of critical disability studies course offerings.

R3: RACE, RACISM AND RACIALIZATION

Reflections on the Year:

The Race, Racism and Racialization Working Group (R3) is currently comprised of faculty, staff, students and community members who are committed to working on various projects and issues regarding race, racism and racialization within the McMaster community and abroad. Thanks to the ongoing efforts of past R3 members and community advocates, this year saw the launch of Hamilton's Anti-Racism Resource Centre (HARRC).

R3, with support from the Office of the President, was able to continue the *Let's Talk About Race* series, which was launched the year before. These discussion groups typically take place during the last Wednesday or Thursday of the month whereby a facilitator(s) is invited to discuss a topic related to race, racism and racialization and the talks are geared towards BIPOC (Black, Indigenous and People of Colour). The 2018-2019 facilitators have been: Dr. Malinda Smith (February 2019), Dr. Faiza Hirji (January 2019), Dr. Ameil J. Joseph (November 2018), Rodrigo Narro Perez and Khadijeh Rakie (October 2018), Rodrigo Narro Perez (September 2018), Jordan Lentinello (April 2018), Dr. Daniel Coleman (March 2018), Rowa Mohamed (February 2018). These talks are both well-attended and very well-received.

R3 was pleased to learn that the Equity and Inclusion Office, with support from the President's Office, will be augmenting the budget for Black History Month to sustain robust programming year over year. This year's Black History Month (BHM) Coordinator, Jordan Lentinello, centred the theme for the month on community building and celebration of Black excellence. Various social media channels were used to communicate with the community about all the events being hosted at McMaster, as well as events in the Hamilton community. Over two dozen events were included in the Black History at McMaster calendar.

R3 acknowledges work has been undertaken to promote diverse membership on all search committees, including representation from a critical mass of individuals across the four designated equity groups (Indigenous/First Nations, Métis and Inuit persons, members of racialized communities, persons with disabilities and women). However, many community members continue to report that EDI principles and best practices regarding diverse representation on committees are not being consistently applied. Furthermore, community members commented on the dearth of Indigenous and racialized identities among new faculty, staff and administrative hires in the last year.

The R3 Working Group has heard feedback from many campus community members that campus events (i.e., talks, forums, guest speakers) frequently do not feature a breadth of racially and ethnically diverse presenters among their invited guests, even when the topic of discussion is related to marginalized communities of colour. Consequently, one of R3's projects during 2018 was the creation of a document "*How to Make Events Inclusive*". This guiding document is meant to be used by students, staff and faculty who organize events on campus – it will be finalized in the Winter of 2019, for distribution soon thereafter. Over fifteen R3 members provided feedback in the creation of the document.

R3 also sponsored a fourth-year thesis project, to investigate experiences of race relations at McMaster. The results of this research indicated two major results: the first, that racialized individuals continue to experience racism and discrimination on campus; and second, that there is a need to further research this topic on campus.

R3 was also informed that a graduate student was hired to work on the creation of an undergraduate course that will be the foundation of the Africa and African Diaspora Studies (AADS) minor, however, we remain concerned for the viability of the minor given the lack of financial support and an advisor to coordinate course offerings and student registration for the minor.

The R3 has noted that recent studies^{6,7} and articles⁸ cite the lack of Canadian race data and research on racialization and racism as barriers to enhancing inclusive excellence in academia, as well as efficacy of the

⁶ <https://uofaawa.wordpress.com/awa-diversity-gap-campaign/the-diversity-gap-at-canadian-universities-in-2018/>

⁷ <https://uofaawa.wordpress.com/awa-diversity-gap-campaign/the-diversity-gap-in-university-leadership-2018/>

⁸ <https://www.theglobeandmail.com/canada/article-how-canadas-racial-data-gaps-can-be-hazardous-to-your-health-and/>

judicial and the healthcare systems. Given McMaster's disciplinary and interdisciplinary strengths, its ownership of the archives of Caribbean-Canadians Miss Lou and Austin Clark, and Hamilton's location in Canada from a geographic, political and historical perspective, the R3 proposes that the University has an opportunity to be a thought leader to influence transformational sectoral and social change, in the context of race, racialization, and racism scholarship. In addition to the need to strengthen the AADS, to support this vision, the R3 discussed the opportunity to also explore a Latin American and Hispanic Studies minor, as there are currently enough courses throughout all faculties to support such a minor, and there appears to be interest at the institutional level to engage Latin American and Hispanic scholars and scholarship. All of these efforts, if leveraged properly, could attract exceptional global scholars and students interested in pursuing research in this niche, and at the same time could bolster McMaster's internationalization goals.

Lastly, R3 members have been reflecting that work on race, racialization and racism in the academy has not benefited from institutional, governmental or sector structures or policies constructed to mobilize and account for progress in this area. New EDI imperatives at McMaster and across tri-agencies (federal research funding agencies, SSHRC, NSERC, CIHR) will be helpful, as will be the National Strategy on Anti-Racism – we are hopeful these will not remain symbolic gestures.

Recommendations Moving Forward:

The R3 is keen to explore and support ways to ensure that race, racism and racialization issues are adequately addressed and integrated more formally at McMaster.

The R3 Working Group recommends:

1. Aligned with McMaster's EDI and Internationalization strategies: further support for the existing Africa and African Diaspora Studies (AADS) minor, specifically through the hiring of faculty in this area; exploration of the creation of a Latin American and Hispanic Studies minor; consideration of hiring both faculty experts in these area studies, as well as faculty with intersecting research interests and strengths to support these areas studies from an interdisciplinary perspective.
2. Continued work to ensure that search committees apply an EDI lens to all aspects of the hiring process, with attention to the composition of the committee, training the committee, and ensuring a broadly diverse applicant pool.
3. Continued work to undertake new or ongoing longitudinal research projects to further the study of race, racialization and racism, in ways that not only advance breadth of scholarship in the field, but also in ways to advance the institution's articulated EDI goals and priorities.

INTER-FAITH ISSUES WORKING GROUP

Reflections on the Year:

The Inter-Faith Issues Working group (IFWG) has continued to work to re-envision University Chaplaincy to include, and provide transparent attention to, multiple faith/spiritual and Indigenous communities. Chaplaincy is not limited to Christian or religious groups. Recognizing and developing a way for multiple groups to be included in Chaplaincy accreditation, as well as for establishing a Religious, Indigenous, Spiritual Care (RISC) team, will require attention to a protocol of inclusivity, and the provision of spiritual care that is non-judgmental and holistic in its considerations. The IFWG, with the Student Affairs Office, has helped to develop three ad hoc committees - Administrative, Steering and Advisory committees, working in conjunction with one another - for Religious, Indigenous, Spiritual Care (RISC). The Committees aim to establish a protocol that is representative of diverse religious/spiritual and Indigenous backgrounds on campus and that honours the values of inclusivity that the University aspires to uphold. Specific attention also has been focused on the development of a multi-cultural/multi-faith/spiritual/prayer/meditation space and continuing conversations around the availability and accessibility of kosher and halal foods on campus.

Recommendations Moving Forward:

The Inter-Faith Working Group:

- Will continue to explore the feasibility of a proposed Religious, Indigenous, Spiritual Care (RISC) Centre that, in addition to the existing Christian Chaplaincy, may encompass a spiritual/religious care model for multiple faith/spiritual-based communities, thereby recognizing the diverse nature of McMaster's student body.
- Requests additional resources be allocated from the PACBIC budget to allow for the implementation of initiatives identified through the RISC Protocol Committees.

FIRST NATIONS, MÉTIS AND INUIT WORKING GROUP

Reflections on the Year:

The FNMI Working Group supported several important events with respect to First Nations, Métis and Inuit priorities at McMaster. The working group supported the McMaster Indigenous Health Conference, an entirely student-led conference in its third year of hosting. This conference has gained an impressive following in recent time at McMaster and within local Indigenous communities, featuring Indigenous health scholars and community-based traditional health practitioners. FNMI also provided input into McMaster's Smudging Protocol, which was supported by the Equity and Inclusion Office. Finally, FNMI provided consultation and support to the Anti-Violence Network's annual National Day of Remembrance and Action on Violence Against Women held on December 6th, 2018.

Recommendations Moving Forward:

In 2014, the FNMI Working Group recommended the following:

"In the year ahead, PACBIC and the FNMI Working Group will contribute to the development of a campus-wide approach to verification of ancestry – the second objective emerging from the President's meeting in March. Developing a single, central process of verifying FNMI students' ancestry will ensure that all McMaster programs operate (when determining eligibility for, for example, scholarships and admission to programs with designated spaces for indigenous learners) with criteria that are the same and that derive from definitions of indigeneity that recognize their complexity and respect their meanings among FNMI communities."

Since this time, the Indigenous Students Health Sciences Office has developed the *Facilitated Indigenous Admissions Program (FIAP)* for the Faculty of Health Sciences. Given the increase in Indigenous-focused scholarships and existing Indigenous student academic pathways at McMaster and other Canadian universities, the FNMI Working Group will work with and in community to explore how verification of ancestry processes are undertaken at other universities using FIAP as a guide.

GENDER AND SEXUALITY

Reflections on the Year:

In the Fall of 2018, PACBIC's Violence Against Women/Gender Based Violence Working Groups and the LGBTQ+ Working Groups merged for continued collaboration. This newly-formed Working Group will discuss and address issues of relevance to equity-seeking groups working for greater justice related to gender and sexuality, including women and LGBTQ2SI+ community members.

The Gender and Sexuality Working Group has noted the need for more timely communications to the McMaster community following campus incidents of vandalism and/or postering that negatively impact marginalized communities.

Recommendations Moving Forward:

The Gender and Sexual Working Group recommends:

- Continued engagement of the AVP, Equity and Inclusion and the Chairs Committee of the PACBIC, by the McMaster University's Communications and Public Affairs (CAPA) Office, to develop statements following bias incidents which are impactful on marginalized campus communities, as well as appropriate follow-up communication on progress of investigations into reported incidents.

ACKNOWLEDGMENTS

To the entire PACBIC membership, and the many individuals and offices that contributed to PACBIC's work in the past year, we are deeply appreciative for your commitment and support.

To the PACBIC members who take on Working Group Convener and Executive/Chair roles, we are very thankful to your leadership.

To the staff of the Equity and Inclusion Office, thank you for the expertise that is offered to the working groups, and the administrative resources and institutional knowledge with which you support PACBIC's activities.

To past members who have moved on to other roles and activities, including: Lillian Obeng, Suzanne Mills, Jordan Lentinello, Padmaja Sreeram and Daniel Coleman. We cannot thank them enough for their contributions and support.

APPENDIX A

PACBIC SPONSORED AND/OR SUPPORTED EVENTS

'THE COLOUR OF MEDICINE', BLACK ASPIRING PHYSICIANS OF MCMASTER (BAP-MAC) CONFERENCE, OCT. 29, 2018.

McMaster University, Health Sciences Centre (HSC) Room 1A4

Their goal as an organization is to build Black health leaders by empowering and connecting Black youth to opportunities designed to cultivate the skills and competencies needed to thrive as physicians. They run an annual mentorship program, host events which encourage reflection and foresight, and collaborate with members of the community to create opportunities for Black youth in pursuit of medicine and allied health professions. Over the last year, they shared their vision with the Ontario Trillium Foundation and successfully secured a grant under the Youth Opportunities Fund. At 'The Colour of Medicine' Conference they hope to share their plans with members of the McMaster and Hamilton community. The Conference is also a networking opportunity for students, physicians and community organizations.

MOC WALK- COOPERATIVE OF INDIGENOUS STUDIES STUDENTS & ALUMNI (C.I.S.S.A.) & HAMILTON NATICE WOMEN'S CENTRE, OCTOBER 21, 2018.

The Moc Walk is a collaboration between C.I.S.S.A. and the Hamilton Native Women's Centre. Spurred by the closure of a key transitional housing centre for Indigenous women in Hamilton, the Moc Walk was created to develop financial and community supports for Indigenous women completing their secondary and post-secondary studies.

MOMENTUM: DISABILITY JUSTICE (UN)CONFERENCE, CO-SPONSORED AND SUPPORTED BY the HAMILTON CENTRE FOR CIVIC INCLUSION LAIDLAW FOUNDATION, AND the EQUITY AND INCLUSION OFFICE, MCMASTER UNIVERSITY, DEC. 1 2017.

This Disability Justice “unconference” honoured the International Day of People with Disabilities by providing space for activists, community members, academics, and service providers from across the province to gather for discussion.

Hosted by disability activists living, learning, working, and playing in Hamilton: Sarah Jama, Shanthiya Baheerathan, Kate Brown, Eminent Tefera, Alise DeBie.

MCMASTER INDIGENOUS HEALTH CONFERENCE, DAVID BRALEY HEALTH SCIENCES CENTRE, JAN. 13, 2018.

The main objective of the event was to engage in discourse on topics such as Indigenous health and to promote change towards people who have been marginalized and exploited. This year's topic was on Indigenous women and their struggles; in particular, the event provides a necessary outlet that allows people to break their silence and to highlight overshadowed topics. The conference advocates for systemic change by empowering Indigenous individuals to create change within their communities with a focus on health.

GLOBAL CITIZENSHIP COLLECTIVE'S ISLAMOPHOBIA EVENT CO-SPONSORED BY OPIRG MCMASTER, MCMASTER MUSLIMS FOR PEACE AND JUSTICE, AND THE MUSLIM STUDENT ASSOCIATION, MCMASTER UNIVERSITY STUDENT CENTRE, JAN. 18 2018.

The Global Citizenship Collective's core belief is to make contributions towards both the local and global community. Historically, the Collective has had conferences around a diverse set of issues including Refugee Rights, Indigenous Health, and Fringe Activism.

Global Citizenship Collective, McMaster Muslims for Peace and Justice and Muslim Student Association presented "Tackling Islamophobia today" to talk about different resources and opportunities to get involved on campus.

THE HONOURABLE LINCOLN ALEXANDER DAY CELEBRATION - THE LINCOLN ALEXANDER CENTRE, JAN. 21, 2018.

The community was invited to the Lincoln Alexander Centre in January to celebrate the Honourable Lincoln Alexander Day. A showcase of memorabilia was coordinated as was a musical tribute, poetry reading, greetings and speeches from city officials and the screening of A Linc In Time. The event was presented by Caribbean Tales International Film Festival in collaboration with the Lincoln Alexander Centre, Louise Noel-Ambrose of EvenToBe, granddaughter Erika Alexander and community organizations and agencies.

BLACK HISTORY MONTH, FEBRUARY 2018 (9 EVENTS)

Black History Month featured a number of on and off campus events including the African Inventors Museum, MacExpo (an event to meet all African and African diaspora student groups on campus), speed networking with members of the African Caribbean Faculty Association at McMaster, and more.

INTERFAITH SHABBAT DINNER, CELEBRATION HALL, MCMASTER UNIVERSITY, FEB. 2, 2018.

McMaster's Jewish community on campus hosted the Annual Interfaith Shabbat dinner sponsored by McMaster Hillel. Shabbat is a time of peace, relaxation, dialogue and discussion. Many gathered to enjoy dinner, learn about Judaism, and contribute to interfaith dialogue.

JACKSON RISING: THE STRUGGLE FOR ECONOMIC DEMOCRACY AND BLACK SELF-DETERMINATION IN JACKSON, MISSISSIPPI, HOSTED BY OPIRG MCMASTER, UNIVERSITY HEALTH SCIENCES CENTRE, ROOM 1A6, 7PM, MAR. 1, 2018.

Co-Sponsored by OPIRG McMaster, President's Advisory Committee on Building an Inclusive Community, CUPE 3906, and the Institute on Globalization and the Human Condition, Jackson Rising is a chronicle of one of the most dynamic experiments in radical social transformation in the United States. Jackson Rising documents the history of this movement, its ongoing organizing and institution building, and its political implications for social movements throughout the United States, the global South, and the world. Dr. Ajamu Nangwaya, lecturer of Rastafari and Cultural Studies at the University of the West Indies and co-editor with Kali Akuno of the book "Jackson Rising" was joined by local Hamilton activists, Kojo Damptey and Sahra Soudi. This discussion inspired dialogue in a safe space on solidarity, community organizing, and social movements.

PANGAEA SHOWCASE 2018, PANGAEA MCMASTER, MCMASTER INNOVATION PARK, MAR. 11, 2018.

Pangaea is McMaster University's largest annual multicultural showcase, attracting over 600 students, staff and community partners each year. It is a one-day event that celebrates the cultural diversity of McMaster University and promotes harmony and unity within the Hamilton communities. Over 20 McMaster student groups participate each year and showcase their ethnicity through food, displays, and performances. Visitors can experience different cultures by visiting the pavilions and enjoying the musical or dramatic performances that clubs have prepared. The goal is to celebrate and bring awareness to cultural diversity in the McMaster and Hamilton communities.

JUSTICE FOR SOLI, 11:30-2:30 IN LRW 1055, MAR. 28, 2018.

On December 15th, 2016 Soleiman Faqiri was killed in prison. Soleiman was suffering from Schizophrenia, something that was raised with the staff at the Central East Correctional Facility. During an altercation involving 20-30 guards, Soleiman had his hands and feet tied together as over 50 blows were dealt to him. Soleiman died as a result of this blatant and unjustified use of force by the guards. Yusuf, brother of Soleiman, joined members of McMaster University as the family continues to seek answers, justice, and accountability for those responsible in Soleiman's death.

LET'S TALK ABOUT RACE BEGINNING SEPTEMBER 2018, MUSC 225, CONTINUING ON TO THE LAST WEDNESDAY OF EACH MONTH.

Racialized students, staff and faculty are invited to drop in to talk about racism and discrimination and to share resources and ideas. Co-sponsored with the Equity and Inclusion Office, PACBIC's Race, Racism and Racialization (R3) Working Group provided leadership. The event was made possible with financial support from the President and Vice-Chancellor's Fund.

SOUP AND SELAH, EVERY WEDNESDAY, CHAPLAINCY CENTRE, MCMASTER UNIVERSITY.

All were welcome to join in MUSC Room 206/207 every Wednesday at 12:30 p.m. for some nutritious soup and a chance to 'pause' and relax in the middle of another busy week. The soup each week is made from scratch and is Vegan, Gluten-free and delicious! Each week we invite a student to provide our 'selah' (thought for the day that is shared) at the beginning of each Soup and Selah.

5TH ANNUAL MCMASTER HEALTH ADVOCACY SYMPOSIUM, DAVID BRALEY HEALTH SCIENCES CENTRE, SEPT. 22, 2018.

This student-led, day-long event brings together current and future interdisciplinary experts to stimulate dialogue about health advocacy in a unique and inspiring environment. Topics explored included leadership, advocacy and activism around poverty, the health of Indigenous peoples, housing and homelessness, health policy, prison health, disability or chronic illness, global mental health, and refugee health.

2018 ANNUAL CULTURAL GATHERING, MISCA, JHE & BSB FIELD, MCMASTER UNIVERSITY, SEPT. 27, 2018

A celebration of Indigenous culture including a Pow Wow, Inuit and Métis performers, traditional food tasting, silent auctions and Indigenous vendors. Hosted by the McMaster Indigenous Student Community Alliance, with sponsorship from MSU Diversity Services, McMaster University's Indigenous Studies Program, PACBIC and OPIRG McMaster.

2018 CIARS DECOLONIZING CONFERENCE, THE CENTRE FOR INTEGRATIVE ANTI-RACISM STUDIES, THE ONTARIO INSTITUTE FOR STUDIES IN EDUCATION, THE UNIVERSITY OF TORONTO, NOV. 8-10, 2018.

The 2018 CIARS Decolonizing Conference is a 3-day affair. On each day there were keynotes and featured plenary sessions as well as presentations, panels, workshops, and exhibits based on conference submissions. PACBIC sponsored a MISCA member to attend and participate in the 2018 conference with the purpose of supporting event planning on decolonization at McMaster.

REFLECTIONS ON SOCIAL CHANGE: ADVOCACY, ACTIVISM AND AGENCY, 2PM, CHAMBERS (GILMOUR HALL 111), MCMASTER UNIVERSITY, NOV. 9, 2018,

The event included an honest and engaging conversation about advancing equity-focused and anti-racist organizational change work. Dr. Arig al Shaibah, McMaster's new Associate Vice President, Equity and Inclusion, facilitated a dialogue with the Honourable Wanda Thomas Bernard, Senator, about how she came to her worldview about social change, her approach to change-making advocacy and activism, her perspective on personal agency, and what it takes to sustain hope remain renewed and nourished in the face of resistance and backlash in these times.

DECEMBER 6, 2018 NATIONAL DAY OF REMEMBRANCE AND ACTION ON VIOLENCE AGAINST WOMEN: MISSING AND MURDERED INDIGENOUS WOMEN, DEC. 6, 2018.

On December 6th all were invited to the commemoration of the National Day of Remembrance and Action on Violence Against Women: Missing and Murdered Indigenous Women hosted by the Anti-Violence Network, PACBIC and the Indigenous Studies Program in collaboration with the Women + Gender Equity Network (WGEN).

APPENDIX B

PACBIC TERMS OF REFERENCE

Mandate

The President's Advisory Committee on Building an Inclusive Community (PACBIC) will:

- Identify issues of equity, diversity and inclusion (EDI) affecting equity-seeking communities (including but not limited to First Nations, Métis and Inuit peoples, members of racialized communities/communities of colour, newcomers and refugees, members of diverse faith communities, persons with disabilities, gender-diverse and sexually marginalized communities, and women), and discuss, develop and advance strategies to remove barriers to and enhance EDI;
- Communicate plans and priorities through annual reports to the University community;
- Submit annual reports and make recommendations for action to the President, the University Planning Committee (UPC) and other relevant University bodies in order to channel advice through the University structure and thus continue to build a University culture that advances EDI;
- Review and provide feedback to the President on institutional progress involving the planning, development, implementation and evaluation of University strategies, policies and programs to support the advancement of EDI priorities and goals;
- Organize and support forums for discussion, reflection and learning on issues of inclusion, equity and community-building in a manner that is in keeping with and empowered by institutional values and commitments to creating spaces for respectful and responsible dialogue and debate.

Organization

Chairs Committee

PACBIC is co-chaired by the Associate Vice-President, Equity and Inclusion, as an ex-officio voting member, and a faculty member. The co-chairs work in collaboration with a vice-chair (staff) and vice-chair (student). These four comprise a Chairs committee.

Education, Outreach and Support Staff of the Equity and Inclusion Office

Equity and Inclusion Office (EIO) staff members are assigned to provide expertise as well as programming and administrative support to each Working Group. EIO staff are non-voting members of PACBIC designated by the AVP, Equity and Inclusion.

Priorities & Planning Executive Committee

A Priorities & Planning (P&P) executive committee of PACBIC will include: the co-chairs, the vice chairs, and working group convenors. EIO staff assigned to Working Groups attend meetings of the P&P as resource persons.

Criteria for Membership

Members will have a demonstrated commitment to EDI and understanding of barriers faced by members of equity-seeking groups, preferably through direct lived, professional or academic experience in these areas. Such commitment and experience may be in areas such as labour and employment matters, educational equity, inclusive pedagogy, emancipatory approaches to research and knowledge building, social justice and human rights advocacy and activism, or previous experience working on related University committees.

Working Groups

Working Groups are convened to focus on particular themes or issues that will vary over time. Each Working Group has a convener or co-conveners selected by the co-chairs and vice-chairs, in consultation with the Working Groups and outgoing convenors, as applicable.

The Provost's Office provides an annual budget of \$25,000 to support working groups' initiatives and PACBIC-related events (listed in Appendix C). Currently active working groups include:

- **Accessibility, Disability & Ableism (ADA) + Madness/Distress, Eugenics, Discrimination & Saneism (MEDS)**
Co-Conveners: Alise deBie & Anne Pottier, Associate University Librarian, Library Services/Facilities and Chair, McMaster Accessibility Council
Resource Person: Kate Brown, Accessibility Project Co-Ordinator, Equity and Inclusion Office (EIO)
- **First Nations, Métis and Inuit Priorities**
Conveners: Dr. Vanessa Watts, Academic Director, Indigenous Studies Program & Jordan Carrier,
Resource Person: N/A
- **Inter-Faith Issues**
Convener: Andrew (Andy) Crowell, Ecumenical Chaplain
Resource Person: Vilma Rossi, Senior Manager, Education, Outreach and Support Program, EIO
- **Priorities & Planning**
Convener: Dr. Ameil Joseph, Faculty member, School of Social Work
Resource Person: Vilma Rossi, Senior Manager, Education, Outreach and Support Program, EIO
- **Race, Racialization & Racism**
Co-Conveners: Rodrigo Narro Perez, Graduate Student, Dr. Juliet Daniel, Faculty member, Department of Biology
Resource Person: Khadijeh Rakie, Equity and Inclusion Educator, EIO
- **Gender and Sexuality**
Co-Conveners: Dr. Amber Dean, Faculty member, English & Cultural Studies
Resource Persons: Meaghan Ross, Sexual Violence Response Coordinator, EIO

APPENDIX C

LIST OF PACBIC MEMBERS, 2018-2019

Executive Members	Position
Arig al Shaibah	Co-Chair
Ameil Joseph	Co-Chair
Grace Pollock	Vice-Chair (Staff)
Mijia Murong (MSU Diversity Services)	Vice-Chair (Students)
Anne Pottier	ADA/MEDS Co-Convener
Alise DeBie	ADA/MEDS Co-Convener
Vanessa Watts	FNMIP Co-Convener
Jordan Carrier	FNMIP Co-Convener
Amber Dean	Gender and Sexuality Co-Convener
Miranda Clayton (MSU Pride Students Community Centre)	Gender and Sexuality Co-Convener
Jocelyn Heaton (MSU Women & Gender Equity Network)	Gender and Sexuality Co-Convener
Andy Crowell	IFWG Convener
Juliet Daniel/ Daniel Coleman	R3 Co-Convener/R3 Faculty Support
Rodrigo Narro Perez	R3 Co-Convener
Organizational Voting Members	Contact
Athletics & Recreation	Karen Arnott
Canadian Union of Public Employees	Sarah Wahab/Joel Guillemette
Human Resources Services - Employment Equity Specialist	May-Marie Duwai-Sowa
Human Resources Services	Wanda McKenna (AVP & Chief Human Resources Officer)
Indigenous Students Health Sciences	Danielle Soucy/Jordan Carrier/Catherine Booker
Maccess - McMaster Student Union	Hilary Zorgdrager
MacPherson Institute for Leadership, Innovation and Excellence in Teaching	Eliot Storm
McMaster Hillel	Judith Dworkin
McMaster Muslim Students Association	Ola Mubarak/Mahmood Haddara
McMaster Students Union (President)	Ikram Farah
McMaster University Academic Librarians' Association	Lynne Serviss
McMaster University Faculty Association	Tina Fetner
Office of Community Engagement	Sashaina Singh
Ontario Public Interest Research Group	Shelley Porteous
Pride Community Centre - MSU	Miranda Clayton
Student Accessibility Services	Tim Nolan
Student Wellness Centre	Rosanne Kent
UNIFOR 5555	Jim McAndrew
Women + Gender Equity Network - MSU	Jocelyn Heaton

Individual Voting Members	Membership Type
Albina Veltman	Faculty
Bernice Downey	Faculty
Arlene Fajutrao Dosen	Staff
Chika Agbassi	Staff
Chris Roberts	Staff
Joanne Buckley	Staff
John Williams	Staff
Karen Sutton	Staff
Sally Chen	Staff
Sarah Cairns	Staff
Tanya Rumble	Staff
Brad Keslick	Student
Dawn Unwin	Student
Esra Bengizi	Student
Julia Getchell	Student
Kalyna Horocholyn	Student
Sujane Kandasamy	Student
Thuan (Paul) Tieu	Student
Yimeng Wang	Student
Ex-Officio Non-voting member	Contact
Ombuds Office	Carolyn Brendon
Resource People	Contact
EIO - Education, Outreach and Support Program (Staff)	Equity and Inclusion Office (EIO)

LIST OF PACBIC MEMBERS, 2017-2018

Executive Members	Position
Ameil Joseph	Chair
Lilian Obeng	Vice-Chair (Students)
Grace Pollock	Vice-Chair (Staff)
Daniel Coleman	RRR Convener
Andy Crowell (Chaplaincy Centre)	I Convener
Juliet Daniel (African Caribbean Faculty Association of McMaster)	RRR Convener
Alise de Bie (Hamilton Mad Students Collective)	MEDS Convener
Aditya Harchand (Coordinator, MSU Queer Students Community Centre)	LGBTQ+ Convener
Jordan Lentinello	RRR Convener
Suzanne Mills	LGBTQ+ Convener
Anne Pottier (McMaster Accessibility Council)	ADA Convener
Vanessa Watts (Indigenous Studies Program)	FNMI Convener
Organizational Members	Contact

Aboriginal Students Health Sciences	Danielle Soucy/Jordan Carrier
Athletics & Recreation	Glen Grunwald
Canadian Union of Public Employees	Sarah Wahab/Joel Guillemette
Employment Equity (Human Resources Services)	May-Marie Duwai-Sowa
Human Resources Services	Wanda McKenna
MSU Maccess	Lauren McClinton
McMaster Graduate Students Association	Robert Alexander Ballagh (Alex)
McMaster Hillel	Judith Dworkin
MacPherson Institute	Greg van Gastel
McMaster Muslim Students Association	Mahmood Haddara
McMaster Students Union	Chukky Ibe
McMaster Students Union Diversity Services	Alexii Hernandez
McMaster University Academic Librarians' Association	Lynne Serviss
McMaster University Faculty Association	Kim Jones
Ontario Public Interest Research Group	Shelley Porteous
Student Accessibility Services	Tim Nolan
Student Wellness Centre	Rosanne Kent
UNIFOR 5555	Jim McAndrew
Women + Gender Equity Network	Padmaja Sreeram
Individual Members	Membership Type
Joanne Buckley	Staff
Eulene Victoria Bomberry	Student
Bernice Downey	Faculty
Arlene Fajutrao Dosen	Staff
Amna Farooqi	Student
Julia Getchell	Student
Kalyna Horocholyn	Student
Brad Keslick	Student
Jennifer Long	Faculty
Rachèle Marshall	Staff
Merima Menzildzic	Student
Rodrigo Narro Perez	Student
Chris Roberts	Staff
Jordana Satok	Student
Karen Sutton	Staff
Thuan (Paul) Tieu	Student
Nicole Virgin	Staff
Albina Veltman	Faculty
Alex Wilson	Student
Non-Voting Members	Contact
Equity and Inclusion Office	Vilma Rossi
Ombuds Office	Carolyn Brendon

Undergraduate Council and/or Graduate Council will review this report to determine if it will make additional recommendations.

2016-2018 IQAP CYCLICAL PROGRAM REVIEWS

The following programs were reviewed during 2016-17:

Undergraduate Programs

Biochemistry

Biology

The following programs were reviewed during 2017-18:

Undergraduate Programs

Mathematics and Statistics

Medical Radiation Sciences

Graduate Programs

Biology MSc/PhD

Chemical Engineering M.A.Sc./Ph.D.

Globalization M.A.

Health Management M.H.M.

Materials Science Engineering M.A.Sc./M.Sc./Ph.D.

Psychology M.Sc./Ph.D.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Biochemistry (Undergraduate Program)

Date of Review: April 4 - 5, 2017

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the **Biochemistry** undergraduate program delivered by Biochemistry and Biomedical Sciences. This report identifies the significant strengths of the programs, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Cyclical Program Review of the Undergraduate Biochemistry Program

In accordance with the Institutional Quality Assurance Process (IQAP), the Biochemistry program submitted a self-study in February 2017 to the Associate Vice-President, Faculty to initiate the cyclical program review of its undergraduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers, both from Ontario and one internal reviewer were endorsed by the Dean, Faculty of Science, and selected by the Associate Vice-President, Faculty. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on April 4 - 5, 2017. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost, Faculty, Dean of Science and Chair of the department and meetings with groups of current undergraduate students, full-time faculty and support staff.

The Chair of the program and the Dean of the Faculty of Humanities submitted responses to the Reviewers' Report (August 2017, June 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

In their report (May 2017), the Review team noted that the Biochemistry program is incredibly strong and provides students with an engaging and current curriculum with emphasis on all critical areas ranging from memorization of fundamental key concepts, development of critical thinking, exposure to “real world” lab experience, and development of “soft skills” including effective teamwork, public speaking, and reading primary literature. Many students in this program participate in laboratory research and a real strength of the program is the true excellence of the faculty and facilities they have access to.

The reviewers’ further noted that the program’s success is reflected by the fact that the students in the program are both largely happy and extremely loyal to the school. Many of the students choose to stay at McMaster for their graduate degrees and approximately 40% of the graduate students in Biochemistry were undergraduates from this program. This is a strong endorsement showing that both students and faculty are generally happy with the program.

Further highlights identified in the report include:

- On average, each year, 50-90 students have participated in research projects due to the increased interest and demand from students to obtain first-hand research experience. In order to facilitate and meet the increased demand, we opened up our restrictions to only being permitted to do research with a faculty member to any faculty member at the university who would supervise a project suitable for a degree in Biochemistry. And in spite of the opening of a new program in Biomedical Discovery and Commercialization which requires a thesis placement, we continue to accommodate large numbers of students in our research courses.
- The core biochemistry program is strong and emphasizes transferable skills and active learning
- The reviewers identified the teaching professors and support staff as a key strength to the program.

Areas of Improvement

In their report, the Review Team identified some recommendations for areas of improvement as outlined below.

- Increasing the number of course offerings in areas of interest to students, which will also facilitate scheduling for co-op students which always proves to be a challenge due to the distribution of the co-op terms. For this reason, we have included student representation on our undergraduate curriculum committee for the first time this year, and will continue with this very positive addition to the committee.
- Students expressed mixed/negative feelings about the launch of the Biomedical Discovery and Commercialization program three years ago. Some of the issues are no doubt growing pains and we have always been mindful of the divergence and perceived competition. These will be identified and resolved over time and with careful handling. Our goal is to have two unique programs but with equity wherever feasible.
- The reviewers suggested that we use focus groups in light of recent changes in the department and the introduction of the new Biomedical Discovery and Commercialization program. While we formerly conducted round table sessions at the end of each academic year, attendance was very low, and these sessions were abandoned, we propose that scheduling such groups in January will improve attendance and feedback.
- Career mentoring was formerly included in Biochemistry 2L06 upon its first few offerings, however, the course has changed with the introduction of a new instructor. This can be reintroduced to the course or another suitable area in our programming.

The Dean of the Faculty of Science, in consultation with the Chair of the program shall be responsible for monitoring the recommendations implementation plan. The details of the progress made will be presented in the progress report and filed in the Vice-Provost, Faculty's office.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
1. Top-to-bottom review of the program and curriculum in light of changes that have occurred over the past eight years	In light of changes in our faculty complement, and in line with discussions at the department educational retreat in November 2016, and the feedback from the IQAP review, we propose to develop suites of courses that would flow from level II through to IV that would align with our faculty expertise. Program learning objectives (PLOs) and course learning objectives (CLOs) will be integrated in course outlines across the curriculum in a format similar to the Faculty of Engineering and the School of Business with assistance and direction from the MacPherson Institute	Michelle MacDonald, Associate Chair, Undergraduate Studies Undergraduate Curriculum Committee Vivian Leong, Undergraduate Instructional Assistant	General overview and plan of curriculum changes to be completed by September 2018 for implementation. PLOs and CLOs to be integrated in course outlines by September 2018.
2. Expand course offerings	As above, in Recommendation #1, in light of discussions at the educational retreat in November 2016, and the feedback from the IQAP review, we propose to develop suites of courses that are of interest to students and in the areas of expertise of our faculty members	Michelle MacDonald, Associate Chair, Undergraduate Studies Undergraduate Curriculum Committee	Mount 1-2 additional courses on dean's permission for 2018-19 Propose 2-3 additional courses for 2019-20 during the next calendar cycle
3. Define how the older Biochemistry program fits in with the new BCD undergraduate program and work towards improving harmonization	We will continue to work closely with the BDC program administration to ensure consistency and equality to the extent that it is possible. We will ensure that there are unique and distinct aspects to each program through the re-introduction of annual focus groups with the Biochemistry program students. Student representation on the Undergraduate Curriculum Committee was introduced this year. These student impressions are no doubt growing pains and we have always been mindful of the divergence. These will likely be resolved over time and with careful handling.	Michelle MacDonald, Associate Chair, Undergraduate Studies	Ongoing Next student focus group will occur in January to optimize student turn out vs the end of the year.
4. Support teaching staff	Our complement of teaching faculty are dedicated to optimizing the student learning experience and creating an environment which supports teaching and research. Onboarding of new faculty members to the teaching roster in 2018-19 will alleviate some of the pressures on the teaching faculty.	Michelle MacDonald, Associate Chair, Undergraduate Studies	Ongoing
5. Improve the TA experience	The process for hiring TAs is transparent and involves a matching process which takes into consideration the optimal arrangement for students, while trying to meet the requests of the TAs and the instructors.	Michelle MacDonald, Associate Chair, Undergraduate Studies	Implementation for 2018-19

	Discussions have already taken place between the associate chair of undergraduate education and the associate chair of graduate education to create a mentoring program for graduate students and post-docs with an interest in teaching. The process will be piloted beginning in 2018-19.		
6. Move carefully toward establishing the program under a single administrative Faculty	Discussions have been ongoing for the past year between both faculties. Transition to the faculty of health sciences is dependent on an agreement between both faculties.	Karen Mossman, Chair	Ongoing. Possible transition to be initiated in 2018-19.

Dean’s Response, Faculty of Science:

The Dean would like to thank the members of the review team for their report, including the recommendations and suggestions. Due to some turnover in the Office of the Dean of Science, the response of the Dean has been considerably delayed. The Dean would like to also thank Michelle MacDonald, Associate Chair of Undergraduate Studies, Department of Biochemistry and Biomedical Sciences for the thoughtful and comprehensive Program Response. The reviewers report highlighted several areas of strength in the undergraduate programs in Biochemistry. In particular, the structure of the curriculum with an innovative and team based second year lab course, feeding into a suite of upper year courses based on the Program learning objectives was highlighted, along with the strength and dedication of the teaching faculty and staff. The review team recommendations have provided areas for continued improvement and consideration and have all been incorporated into a plan for moving forward.

Due to the considerable delay between the development of the Program response and the submission of the Dean’s response, the Dean was now able to provide more context for some of the specific recommendations.

Recommendation: “Move carefully toward establishing the program under a single administrative Faculty. This recommendation stimulated a series of conversations related to the administrative structure of the Biochemistry Program and any potential negative consequences of this administrative structure.” The review team noted that the main concerns were the fact that “This means that the Chair is burdened with the task of evaluating and reporting on the activity of the teaching personnel to two different Deans. Students also complained about hidden inter-faculty barriers that occur that block them from taking many classes they are interested in.”

The Dean agrees with the stated concern that any move would have to be very carefully planned and as such we have not moved beyond the initial discussion stage. Biochemistry students enter their program at Level 2 after successful completion of Level 1 Science. If the Biochemistry program was to move to the Faculty of Health Sciences, this would require students to switch Faculties or to enter into the Faculty of Science at level 1, thereby resulting in a very complex series of changes and potentially limiting student flexibility for program choice. Additionally, all of the student support services including Program advising and career and co-op services are provided through the Faculty of Science and would have to be developed from within the Faculty of Health Sciences should any change be advanced. As such, the Faculty has taken some steps to address the specific concerns of the review committee. While the Chair of Biochemistry and Biomedical Sciences still reports to governing bodies in both Faculties, changes have been forwarded to the tenure and promotion practices such that the cases for tenure, promotion (and permanence) will now only flow through the Faculty of Health Sciences, reducing one area of dual report. With respect to expansion of student offerings, one way this concern has been addressed is through the offering of 2 additional elective courses on "Dean's Permission" in 2018/2019 with more on-going curriculum changes to be approved in due course.

While not a specific recommendation, it was stated in the review team report that there was "A desire from students for more career mentorship. Some students stated that they chose the Biochemistry program because it kept their options open, but felt they were not truly aware of what options are available outside of graduate research or professional schools." This desire for additional career supports was also expressed by students in other programs in the Faculty of Science, and as such the Faculty is moving forward with plans to hire a "career integration officer", to assist with the development and implementation of career mentorship programming and supports for all undergraduate and graduate students in the Faculty of Science.

As the Faculty of Science moves forward with its commitment to excellence in undergraduate education, progress will be monitored with respect to the individual recommendations of the review team and engage in the highly valued partnership with the Faculty of Science in refining and delivering these outstanding undergraduate programs in Biochemistry.

Quality Assurance Committee Recommendation

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Biology Undergraduate Programs

Date of Review: March 27 - 28, 2017

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the **Biology** undergraduate program delivered by The Department of Biology. This report identifies the significant strengths of the programs, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Cyclical Program Review of the Undergraduate

Biology Program

In accordance with the Institutional Quality Assurance Process (IQAP), the Biology program submitted a self-study in February 2017 to the Associate Vice-President, Faculty to initiate the cyclical program review of its undergraduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers, both from Ontario and one internal reviewer were endorsed by the Dean, Faculty of Science, and selected by the Associate Vice-President, Faculty. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on March 27 - 28, 2017. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost, Faculty, Dean of Science and Chair of the department and meetings with groups of current undergraduate students, full-time faculty and support staff.

The Chair of the department and the Dean of the Faculty of Science submitted responses to the Reviewers' Report (June 2018). Specific recommendations were discussed, and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

In their report (May 2017), the Review team noted that The Department of Biology delivers a top-quality, lab-based undergraduate program on a minimal budget. The Department has done an impressive job with their recent innovative redesign of Bio1A03 (including the lab component), which incorporates many facets of evidence-based teaching that have been shown to improve learning in STEM courses. Indeed, the department utilizes multiple approaches to teaching in their Biology and Molecular Biology courses. While all courses except the research and co-op courses use lectures, the majority also incorporate innovative and creative approaches that include: clickers, class-based discussions, case studies, group work, collaborative learning, PBL, labs, field work, tutorials, and podcasts, just to name a few. In addition, these multiple approaches to student learning are key to developing student proficiency in many of the Biology department's PLOs that are aimed at higher levels of learning (e.g. PLOs 14 & 23), meeting undergraduate degree level expectations (e.g. PLOs 22-24 & 40) and prioritizes accessibility and removal of barriers to learning. Students are assessed through a variety of methods, including tests, exams, term papers, oral presentations, group projects, case studies, critical reviews, and experiential learning. All of these assessments are effective ways of measuring student learning and the wide variety of types of assessments used represent best pedagogical practice. These methods of assessment of student achievement of PLOs are thorough, appropriate and effective.

The Biology programs are doing an excellent job of meeting or exceeding departmental PLOs and helping the university meet its undergraduate degree learning expectations and overall mission. As part of the self-study, the department has performed a thorough critical analysis of PLO achievement in its programs, and has already identified areas for improvement along with strategies for doing so. The reviewers agree with the department's self-study and areas targeted for improvement include: encouraging more students to enroll in existing laboratory and field courses thereby increasing proficiency in PLOs 25-28 and 33-35, increasing the number of opportunities for students to work with statistics in biology, as well as opportunities for increased exposure to programming as it relates to the modern study of biology. All of these target areas came up in our discussions with students and faculty. The department has already been extremely proactive in implementing new cell biology labs in several key courses as well as securing funding for equipment for a new course in Experimental Approaches in Cell Biology (3D03). These laboratory and equipment improvements will certainly help to increase proficiency in microscopy and cell biology-related PLOs as well as experimental design and lab skill PLOs for the next cohort of biology graduates. A final area of improvement identified involves ethics (PLO 41). Ethical thinking is embedded within several program courses, but it may be that it needs to be made more explicit to students.

Further highlights identified in the report include:

- top-quality, lab-based undergraduate programs on a minimal budget
- courses incorporate many facets of evidence-based teaching that improve learning in STEM courses
- many courses use innovative approaches including blended learning (Bio1A03, Bio2B03) clicker, case-studies, in-class discussions, group work, PBL, labs, field work, podcasts, etc
- Biology is doing an excellent job at meeting or exceeding departmental PLOs that align with Ontario's Undergraduate Degree Level Expectations
- Biology has been very successful in obtaining FWI, ASF and other funding to improve undergraduate education

Areas of Improvement

In their report, the Review Team identified some recommendations for areas of improvement. As in many Departments across the University system, there is an aging faculty and an uneven demographic across sub-disciplines. There has been considerable reduction in Plant Biology, Microbiology and Physiology faculty in recent years, to the point where these major areas of Biology are only poorly represented. This erosion of expertise in some core areas of Biology is a concern that cannot be left unaddressed for long before it will impact program quality.

A recurring theme amongst nearly all our discussions was the Life Sciences undergraduate program. A common perception is that this program, which currently does not reside within an academic unit (department), is a “pre-med” program. However, the LSP did not see itself as a pre-med program, but rather as a program with emphasis on basic science application to human health and Community Engagement Learning. In other words, the LSP wants to differentiate itself as an applied human biology program, while the Department of Biology has a strong emphasis on traditional Biology sub disciplines. The delineation of the roles of these two programs needs to be clearer.

The Department does not appear to have a clear plan regarding faculty complement renewal (beyond replacement in areas required to cover undergraduate courses), and this may hinder developing cogent arguments for faculty replacement/renewal when resources allow. Faculty do not receive credit for teaching intensive field courses. Field courses are a substantial amount of work to organize and operate and require adequate support to ensure safety of all participants, including appropriate TA resource allocation. Other recommendations are outlined below.

- develop a plan for faculty renewal, especially in areas with poor representation (plant biology, microbiology, physiology)
- delineate and differentiate the roles of Biology programs from Life Science programs
- provide teaching credit to faculty teaching field courses
- improved TA resources to maintain high quality of lab and tutorials in biology courses

The Dean of the Faculty of Science, in consultation with the Chair of the program shall be responsible for monitoring the recommendations implementation plan. The details of the progress made will be presented in the progress report and filed in the Vice-Provost, Faculty’s office.

Summary of the Reviewers’ Recommendations with the Department’s and Dean’s Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
R1.1. Continue to strive to provide enriching, experiential learning throughout their	Continue to provide a lab-based biology experience to our students by advocating for the resources to maintain 13 lab/field courses, and	Associate Chair (undergrad), Chair	Ongoing

undergraduate program	experiential/independent research courses (Bio3EP3,3IR3, MolBio3I03, Bio4F06, 4C12, MolBio4G12). TA support is currently a limiting variable for this.		
R2.1 Maintain dual-entry to Honours Biology program and continue to strive to make the differences between Discovery Subplan and regular Honours Biology program more visible to students earlier in their studies.	Agreed, maintain Biology core and Biology + Discovery subplan Look into additional ways to advertise our program options to Level I students (more info on Bio web site & Bio1A03, Bio1M03 Avenue pages), use social media (twitter, snapchat), engage the BioSociety to help with this.	Associate Chair and Biology Undergraduate Committee (BUGs), Biology Undergraduate Society (BioSociety)	2017-18
R2.2. Consider including a Level 2 course or extra-curricular activities aimed at Discovery Subplan students that would build a student learning community or more closely-linked cohort.	Level 2 is full with courses, cannot introduce another. Instead consider recommending or requiring that Bio+Discovery students take Bio2L06 (Experimental Biology). Already considering how to provide a better cohort experience for all programs, perhaps by following our Welcome to Biology Night with additional get-to-know your faculty & fellow student events	Associate Chair and BUGs, BioSociety	2017-18
R2.3. Adopt recruitment activities to maximize the visibility and enrolment in the Honours Biology Discovery Subplan.	See proposed follow-up above	Associate Chair, BUGs, BioSociety	2017-18
R3.1. Faculty be made more aware of	The Associate Chair participated in a workshop that introduced Forward with Flexibility, the new	Associate Chair and Chair,	2017-18

(or be given more access to) institutionally-supported close-captioning video services so that individual faculty do not perceive this accessibility requirement as a barrier to producing learning materials for all types of learning styles.	<p>teaching and learning resource on accessibility and inclusion. This resource will be available sometime this summer to aid faculty in making their teaching more accessible to all. All faculty will be expected to do the online modules and take a quiz as part of our obligation to the Accessibility for Ontarians with Disabilities Act. Representatives from the Forward with Flexibility resource will visit the department to explain use and benefits of the resource.</p> <p>During the workshop the Associate Chair learned that close-captioning and other resources are available for courses that have students with these needs.</p>	Forward with Flexibility team	
R3.2. Faculty be encouraged to continue to develop and adopt innovative and creative approaches to their teaching.	Work with the MacPherson Institute to encourage continued innovative ways to improve teaching in Biology. Invite MacPherson to provide a 1 hour information session to the faculty. Ask Biology Teaching Profs to provide 1 hour information sessions on different ways to enhance student engagement during lectures	Associate Chair, MacPherson Inst, Biology Teaching Profs, Biology faculty	Ongoing
R4.1. Continue to articulate value of laboratory and field courses to students and explore mechanisms to encourage more students to choose these courses in Levels 3 or 4.	<p>Continue to do this at various Biology information events for our students.</p> <p>More promotion of our lab/field courses in all level 2 Biology courses and if possible on social media (see R9.1)</p>	Associate Chair, Level 2 Biology faculty	Ongoing
R4.2. Depending on availability of adequate resources,	Can't add a new lab/field course due to resource issues & already have many lab/field options.	Associate Chair and BUGs	Put this curriculum change through APPC this fall for the 2018-19 calendar.

consider introducing a required Level 3 laboratory or field course for program students not doing co-op or not intending to do a thesis project course. Perhaps Honours Biology Discovery Subplan might be a good place to introduce this.	Instead, considering adding a requirement that all Biology program students take at least 3 units from: 3 rd year lab/field courses, 3 rd year experiential or research courses (Bio3EP3, Bio3IR3, MolBio3I03), 4 th year project (Bio4F06) or thesis (Bio4C12, MolBio4G12)		
R4.3. Continue with its plans to offer a new Level 3 course developed by the computational and quantitative biologists.	Bio3SA3 (Biological Statistics) was approved in fall 2016 and will be offered in winter of 2018		Done
R4.4. Consider where more biostatistical analysis and critical analysis of published biostatistics could be reinforced in existing courses.	This was discussed at a departmental meeting in in 2017 after examining the 2015 IQAP survey of graduating students. A number of faculty have added statistical analysis of biological data to their courses (Bio2L06-Experimental Bio, Bio3SS3-Pop Eco, Bio3JJ3-Field Eco, MolBio3D03-Experimental Cell Bio, MolBio3Y03-Plant responses to the environment. Monthly Data Lunch run by Bolker & Dushoff to help 4 th year students, grad students & faculty with statistical analysis of their data.	Associate Chair will survey faculty and then if necessary encourage more faculty to add biostats analysis to their courses.	2017-18
R5.1. Establish clear guidelines to outline reasonable expectations for newly defined technical roles.	Chair, Associate Chair, Dept. Administrator and staff will work together to outline guidelines and roles. A comprehensive review is scheduled for the spring of 2018.	Chair	2017

R5.2. Consider distributing technical support staff responsibilities according to expertise, rather than course level, to more fully utilize expertise of incumbent staff.	We realize that the new model of one Undergrad Coordinator (UC) + 1 tech for each level, may not be the best way to run our undergrad labs and tutorials. We will work together to find the best way to deliver our labs & tutorials with 3 UCs and 3 techs.	Chair, Associate Chair, Dept. Manager, Staff,	1 st formal meeting – Aug, 2017 to prepare for upcoming 2017-18 academic year 2 nd formal meeting – May 2018 to discuss how the first year went, brainstorm to improve for subsequent years
R5.3. Insofar as resources allow, the allocation of TA resource to Biology be adjusted to meet the demand on programs to deliver high quality, experiential learning opportunities.	We will work with the Dean to maintain the high quality of our undergraduate courses.	Chair, Associate Chair, Manager, staff	Ongoing
R5.4. Faculty of Science consider allowing select appointment of sessional instructors in areas of Biology with limited capacity to deliver necessary curriculum.	Hiring sessionals will not serve the long-term need for subject expertise that is not being met by current faculty complement. We will work with the Dean to explore solutions.	Chair, Dean	Ongoing
R5.5. Field courses be recognized as bona fide courses, and faculty who teach them be afforded teaching credit and TA resources to operate them.	Faculty spend 160-180 hours for each field course, this is often higher than for a regular already developed course offered during the academic year. Biology faculty currently teach 2 to 3 field courses per year, along with a full regular course load in most years. We need to maintain this level of field course teaching to remain in OUPFB (Ontario Universities Program in Field Biology) & provide McMaster students access to these field opportunities. We will work with the Dean to explore solutions to	Chair, Dean	2017-18

	continue to offer field courses while maintaining our regular curriculum.		
R5.6. Department should prepare an updated Strategic Plan, with emphasis on growing strengths and identifying core faculty complement required to continue to deliver their strong undergraduate programs.	Agreed. Chair will organize a retreat to discuss this in spring 2018.	Chair, faculty	2018
R5.7. Renovation of greenhouse space be made a priority.	We agree that the greenhouse is a priority, but renovations are not the answer. A new modern energy-efficient greenhouse is required. The importance of the Biodiversity collection was recently recognized by a Sustainable Design in Heritage Award from the Hamilton Municipal Heritage Committee. It is not generally appreciated that the Biodiversity collection is a core component of our undergraduate teaching and community outreach. The biodiversity collection receives 500 student visits yearly as part of lecture, lab, outreach, as well as loaning plants for lab study almost weekly. We will work with the Dean and Advancement to fundraise for a new greenhouse.	Chair, plant biology faculty, Advancement	2017-18
R7.1 Ensure that faculty, TA, and laboratory resources in Level 2 Bio courses required by both LSP and Bio students are provided at the level required to maintain the pedagogical	Agreed, will advocate for the TA and lab resources to maintain these courses.	Chair, Associate Chair	Ongoing

excellence developed by Biology.			
R7.2 To enable better communication among stakeholders in Life Sciences Programs, an ongoing Life Sciences Program curriculum committee be struck to allow consultation with cognate units prior to decanal approval of new LS courses and programs. Care should be taken to ensure that representation by Biology faculty with 100% appointments is provided.	Agreed. Biology's Associate Chair has suggested this on a number of occasions at APPC.	SIS Director, Associate Dean, Associate Chair	2017
R9.1. Biology make a concerted effort to reach out to undergraduate students through a variety of means, including social media (Twitter, Facebook, etc.).	Agreed. We have been thinking about this as discussed in our Self-Study, as our Information Events, website and emails are not informing enough of our students. We will look into using Twitter, snapchat, TVs outside first year labs in BSB, announcements on Course Avenue sites. We will also consider providing small group mentorship to Biology students, perhaps with the help of the BioSociety. A retreat to discuss these issues will be organized, and funding sought.	Associate Chair, Academic Administrator, BUGs, BioSociety, faculty, staff	IQAP implementation Retreat in Midterm Break in October 2017.

Dean's Response, Faculty of Science:

Due to some turnover in the Office of the Dean of Science, the response of the Dean has been delayed. The Dean noted that the reviewers report highlighted several areas of strength in the undergraduate programs in Biology. In particular, the report highlighted the commitment to comprehensive Biology

undergraduate programs that reflect the breadth of the Discipline, while also providing capacity for students to specialize in areas of interest. It is clear that the program learning objectives are well defined and integrated into the curriculum with many points of evidence indicating that graduating students in all programs should meet or exceed the degree requirements. The recent changes to Biology 1A03 were highlighted as an example of innovation in curriculum design that reflects the excellence of the programs, the staff and the faculty. The review team recommendations have provided areas for continued improvement and consideration and have all been incorporated into a plan for moving forward. The Dean supports all of the proposed actions highlighted in the program response but feel that some of the interpretations and recommendations and subsequent program responses do require some explanation and refinement with the broader lens available at the Decanal level. In addition, due to the considerable delay between the development of the Program response and the submission of the Dean's response, the Dean is now able to provide more context for some of the specific recommendations.

Recommendation R2.3: *"Adopt recruitment activities to maximize the visibility and enrolment in the Honors Biology Discovery Subplan."*

Recommendation R9.1 *"Biology make a concerted effort to reach out to undergraduate students through a variety of means including social media".*

The Dean grouped these recommendations together to highlight action on these items. The Office of the Dean of Science is taking a number of steps to address communication with undergraduate students in the Faculty of Science. We will be supporting enhancement of communication at several levels including the hiring of a communications officer for central facilitation of both internal and external communications. We are also initiating a variety of projects aimed at supporting and informing students with respect to academic, career and co-curricular opportunities and events.

Resource related recommendations (Section 5)

Overall, I believe that many of the resource related recommendations in section 5 could be addressed in a variety of ways in the near future, however a strong Departmental Strategic plan will be crucial to the ability of the Office of the Dean to support requests and initiatives from the Department of Biology.

Recommendation R5.1: *"Establish clear guidelines to outline reasonable expectations for newly defined technical roles."*

The review team correctly noted that a significant re-structuring of the instructional and technical roles had been undertaken just prior to the site review. It is expected that any significant change in organizational structure will result in a period of adjustment and accommodation. While that re-structuring was conducted with the oversight of the Office of the Dean, the actual structure was

developed and implemented from within the Department of Biology. During the 2017/2018 academic year the Dean met on a regular and frequent basis with the Chair of the Department and the staffing plans were a common focus of those meetings. Substantial information was gathered including detailed responsibility and task lists, and time estimates. Reporting structures were altered such that laboratory and technical staff now report to the Department Chair rather than the Department Administrator. A review of the new staffing structure revealed that some adjustments should be made and we have now moved one additional instructional staff to 12 month rather than 10 month and adjusted the activities and expectations of several positions.

Recommendation 5.3: *“Insofar as resources allow the allocation of TA resource to Biology be adjusted to meet the demand on programs to deliver high quality, experiential learning opportunities.”*

The Department of Biology has had and will continue to have the capacity to request additional resources in all areas as part of comprehensive and justified planning. Efforts have been made to clarify the financial supports available to units for their graduate programs (TA and Scholarship) in an effort to assist them in both fiscal management and effective utilization of resources for their academic mission.

Recommendation 5.4: *“The Faculty of Science consider allowing selection appointment of sessional instructors in areas of Biology with limited capacity to delivery necessary curriculum.”*

Similar to recommendation 5.3, the unit already had, and will continue to have, capacity to request sessional faculty, however those requests must be justified both in terms of rationale and resource allocation and be part of a comprehensive strategic plan for the unit. One specific area of concern identified in the report was the heavy reliance on sessional instructors for the Biology/ Pharmacology Program. For this reason and others, this program has now been administratively moved to the Faculty of Health Sciences.

Recommendation 5.5: *“The field courses be recognized as bona fide courses, and faculty who teach them be afforded teaching credit and TA resources to operate them.”*

As this recommendation links specifically to the courses offered through the Ontario Field Biology program which has a separate administrative and enrollment system from McMaster, the dean recently requested and received a report from the Chair of Biology on how the program runs and how it is currently resourced by McMaster. It is clear that the teaching of field courses in this program have been resourced by both faculty and staff and that credit for teaching courses by faculty has been provided on an ad hoc basis in the past. This report will provide the foundation to establish a more stable mechanism of resourcing that also takes the funding of the program into consideration.

Recommendation 5.7 *“Renovation of the greenhouse space be made a priority.”*

The Faculty of Science submitted a successful proposal to the McMaster University Strategic Alignment Fund to assist the Faculty of Science with the costs of building a new greenhouse addition to the Life Sciences Building, where the Department of Biology is housed.

Recommendation 7.2 “To enable better communication among stakeholders in Life Sciences Programs, an ongoing Life Sciences Program curriculum committee be struck to allow consultation with cognate units prior to decanal approval of new LS courses and programs. Care should be taken to ensure that representation by Biology faculty with 100% appointments is provided.”

The Dean has substantial concerns with this recommendation as is not sure that the review team was provided with the full context of the information related to the development of the Life Sciences Program or the curriculum governance process that is already in place. In recognition of the issues of academic planning and resourcing, former Dean of Science, Rob Baker, formed an *ad hoc* committee in 2014 (The Life Sciences Working Group) and that group included representation from faculty, staff and students from many units in Science, including Biology. In their report of March 2015, the working group proposed a variety of revisions to the Life Sciences Curriculum to address a variety of concerns. Those revisions have now been adopted, and as noted by the reviewers have transformed the Honours Life Sciences Program into a distinct and excellent program. In January 2016, the School of Interdisciplinary Sciences was established and the Life Sciences program was moved to that new academic unit. The School of Interdisciplinary Sciences has its own curriculum committee for managing curriculum issues for all programs in the School, and as such, it would not be appropriate to layer on an additional curriculum committee with faculty representation from outside the unit. For this program, as with all other programs in the Faculty of Science, the mechanism for other units, such as Biology, to provide input on the curriculum proposals from another unit occurs at the Faculty of Science Academic Policy and Planning Committee. It will perhaps take some time for all members of the Faculty of Science to become aware of all of the recent changes, but in light of this information, the Dean does not support any action with respect to recommendation 7.2.

As the Faculty of Science moves forward with its commitment to excellence in undergraduate education, it will monitor its progress with respect to the individual recommendations of the review team and engage in its highly valued partnerships in refining and delivering these excellent undergraduate programs in Biology.

Quality Assurance Committee Recommendation

McMaster’s Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT - DRAFT

Institutional Quality Assurance Program (IQAP) Review

Mathematics and Statistics Undergraduate Programs

Date of Review: February 12-13, 2018

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the **Mathematics and Statistics** undergraduate programs delivered by the Department of Mathematics and Statistics. This report identifies the significant strengths of the programs, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Cyclical Program Review of the Undergraduate Programs in Mathematics and Statistics

In accordance with the Institutional Quality Assurance Process (IQAP), the Department of Mathematics and Statistics submitted a self-study for the undergraduate programs in Mathematics and Statistics in December 2017 to the Vice-Provost, Faculty to initiate the cyclical program review of its undergraduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers, both from Ontario and one internal reviewer were endorsed by the Dean, Faculty of Science, and selected by the Vice-Provost, Faculty. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on February 12 - 13, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost, Faculty, Dean of the Faculty of Science, Chair of the department and meetings with groups of current undergraduate students, full-time faculty and support staff.

The Chair of the program and the Dean of the Faculty of Science submitted responses to the Reviewers' Report (July 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

In their report (March 2018), the Review team noted the following strengths of the Mathematics and Statistics undergraduate programs:

- Flexibility of the program
- First year courses in mathematical computation and reasoning
- Actuarial and Financial Management
- High quality of students and faculty

Areas of Improvement

In their report, the Review Team identified some recommendations for areas of improvement including:

- Enhanced versions of courses to give a richer experience to the best students
- Exposure to data science earlier in the program
- More guidance for students especially targeted at opportunities
- Improved support for the Math Help Centre
- More engagement with other faculties

The Dean of the Faculty of Science, in consultation with the Chair of the Mathematics and Statistics department shall be responsible for monitoring the recommendations implementation plan. The details of the progress made will be presented in the progress report and filed in the Vice-Provost, Faculty's office.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Implementation Plan

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
1a. Introduce aspects of data science early, perhaps even into Math 1MP3	Intensively pursue the idea of introducing data science into the curriculum, at some level. Note that both Math 1MP3 instructors have reservations about fitting this material into the existing course.	Undergraduate committee, under guidance of associate chair (undergraduate)	One year for discussion, two or more years for implementation.

1b. Offer enhanced versions of some of level I and II courses	We will explore the details of creating enriched sections of our 1st-year required courses in linear algebra and calculus, and consider repercussions for upper-year courses, including possibly enhanced or honors versions of the curriculum in second year	Undergraduate committee, under guidance of associate chair (undergraduate)	Strike a committee to start work in summer 2018.
1c. Expand teaching of communication skills	Create a list of courses that would be deemed to satisfy a "communications requirement", and create a requirement that students in honors programmes take at least one of the courses from the list. Syllabus (or the calendar copy) of each course would identify it as such. Examples of such courses are Math 4FM3, Math 3MB3, Math 3Z03, Math 4P06, Stats 4T06.	Undergraduate committee, under guidance of associate chair (undergraduate)	Summer 2018, for submission to AP&PC in Fall 2018, and addition to the calendar for 2019-20
1d. Increase emphasis on computing in upper level courses	Hold some workshops in department presenting practical ways to include computing element in upper-level courses. Then discuss whether to mandate this use and in what courses.	Undergraduate committee, under guidance of associate chair (undergraduate)	One year for information gathering, one year for further discussion
1e. Consider aligning AFM courses more with exams, using consultation with actuarial expert.	Work with our shortly-to-be-hired actuarial teaching professor to conduct this review.	Chair, associate chair (undergraduate), David Lozinski, new faculty member	One year
2a. Decrease tutorial sizes, at least in some classes	Consider whether TA budget would allow this, and what courses would benefit from a smaller tutorial. Also discuss how to improve attendance and TA training in order to make these more effective.	Chair, associate chair (undergraduate), Aaron Childs	One year
2b. Have instructional assistants	The chair expects to be able to hire Chris McLean and Erin Clements as instructional assistants, with responsibilities for Math Help Centre, assistant course coordinators, acting as liaison for TA training, etc.	Chair	September 2018

2c. Have more administrative support for undergraduate associate chair, especially for student advising}	Find out how this is done in other departments, decide on case to make to Faculty of Science	Chair	One year
2d. Make the organisational support for Math Help Centre more permanent via an instructional assistant position and commit to funding of Math Help Centre	See response to Recommendation 2b. Discuss ways in which the Faculty of Science could make a commitment to its continued funding.	Chair, associate chair (undergrad), associate chair (grad)	One year
2e. Hire more faculty, and also explore blended learning models to leverage technology to compensate for higher student/instructor ratio	Discuss using blended learning in some courses, make case to Faculty of Science for funding to do so	Undergraduate committee, under guidance of associate chair (undergraduate)	One year for initial discussions; two or more years to implement
3a. Communicate rotating schedule of courses more effectively to students	Changes currently being made to course list on departmental website to implement this recommendation. All courses will be listed with informal description. Courses not being taught in current year will be listed in separate section.	Summer 2018	Associate chair (undergraduate), staff of undergraduate team
3b. Increase communication/consultation/transparency in departmental decision-making, perhaps through more frequent meetings	This can be implemented by the chair.	On-going	Chair
3c. Explore opportunities to collaborate with other Faculties such as Business and Social Science	Did not discuss at retreat but open to creating and exploring further opportunities	On-going	Chair

Further Summary from the Department:

Item 1a. There is strong departmental support for developing a stream of data science courses, and several options were discussed. One would be to work in cooperation with other programs in Science (or more broadly) to develop an interdisciplinary minor in data science. Another would be to develop a data science sub-plan within Mathematics and Statistics. Both options will require additional resources.

Item 1b. Adam Van Tuyl gave a detailed presentation about options for introducing enhanced versions of the Level I and II curriculum. The basic dichotomy is whether to have a “hard” divide by developing new courses that run in parallel to our standard courses, or a “soft” divide by introducing enhanced sections of our standard courses. We have discussed the pros and cons and decided to pursue the latter approach for the level I curriculum, inspired by the example of a program currently being run at Simon Fraser University. There are a number of logistical issues that remain to be worked out, for example, how will students be separated between the enhanced and standard sections? We aim to give them freedom of choice while still retaining the flexibility and diversity (especially with respect to gender issues in the sectional divide) of our level one program.

Item 1c. David Lozinski gave a wide-ranging presentation about the many possible ways in which we could enhance the teaching of communication skills in our programs, with special reference to job training and experiential learning. There is recognition that all of these aspects require our attention, and it is also clear that we will need to attend to these issues over the next 3—5 years. For instance, depending on the outcome of the PASF recommendations, it is expected that all students in our programs may need to satisfy a substantial literacy requirement (e.g. 6 to 9 units). Given that, the question is what additional requirements would we like to adopt. At the very least, we plan to designate certain upper year courses as fulfilling the mathematical or statistical communication skills, and to require that all honours students complete at least one such course. We will work to revise the upper year curriculum to ensure that some of the courses include a significant communication component, and we also plan to continue discussing other ways to enhance the teaching of communication skills and to create opportunities for experiential learning for students in our programs.

Item 2a. Engineering has requested that the level 1 engineering math include a greater emphasis on the symbolic computation system MatLab, and this would require the development of new teaching materials in the form of online modules. Engineering has also requested smaller tutorial sizes in the level 1 engineering math classes. It is worth recalling, however, that we made a choice some years ago to put our TA resources into the MathHelp Centre at the expense of running large tutorials. To run both small tutorials and the MathHelp Centre will require increased TA funds. To meet the increased demand, we would propose to revise the undergraduate TA training course Math 2ET3 and hire undergraduate TAs. This change will require additional resources, but we feel the enhanced learning outcomes for the students justify the investment.

Item 3a. We did not discuss the possibility of further collaborations with Business and Social Science during the retreat. We note that we do already have the Actuarial and Financial Math program, which involves students taking many courses in Business, and a large selection of joint honours programs with Social Science and Humanities. We are very open to creating further such opportunities. For example, the Economics department is introducing a direct entry program, and we would be enthusiastic about using this to further the growth of the Economics and Math joint honours.

Dean's Response, Faculty of Science:

The Dean would like to thank the members of the review team for their willingness to participate in the site visit and for preparing the external reviewers report. The Dean would also like to thank the Department of Mathematics and Statistics for preparing the Program response to the review report and also highlight the benefits of the broad Departmental engagement that informed the Program response. The Dean noted that the insightful analysis of the undergraduate programs in mathematics and statistics and the recommendations stemming from that analysis provide a useful roadmap for the Program to follow in the coming years.

The Dean writes that the review report accurately highlights the strengths of the undergraduate programs in Mathematics and Statistics in the Faculty of Science, and in the broader University, as well as the challenges presented by the recent changes in enrollment and the fiscal restraints experienced in the Faculty of Science. The Dean agrees that the increasing student to faculty ratios and the demographics of the faculty complement in the Faculty of Science have presented difficult resourcing decisions for many units, including the Department of Mathematics and Statistics. The Dean notes that the course of action the program has proposed in response to the specific recommendations are appropriate and reasonable; however, there are several areas where she would like to highlight the impact of central Faculty and University initiatives and one area of concern.

Concern:

Recommendation 1b. Offer enhanced version of some level 1 and II courses. While the Dean understands the merits of the recommendation and the desire of the review team to address the concern of some of the students who were interviewed about their request to have a higher degree of difficulty in Level 1 courses, she has some concerns about the Program response to the recommendation. The Dean notes that at McMaster, if courses are considered to be substantially different either in the pre-requisites or in the content, then they must be identified as different courses. As such, any changes would have to be approved at the Departmental, Faculty and University level committees and adhere to the required timelines for those changes. Additionally, the Dean has a larger concern about the experiences of the large number of students who are taking courses that they perceive to be too difficult, rather than not sufficiently challenging, and she would encourage the Program to consider both sides of this recommendation in determining a path forward.

Additional information to supplement Program response:

Recommendation 1c. Expand teaching communication skills. The Dean writes that as identified in the report, this is an area of considerable interest University wide and she would encourage the Program level undergraduate committee to liaise with the central offices responsible for the implementation of the recommendations of the PASF report prior to moving forward with independent action. The Dean would also recommend coordination with the Life Sciences Program in the School of Interdisciplinary Science, who have developed a similar "communications requirement" and "communications course list" for assistance with this action item.

Recommendation 2e. Hire more faculty and also explore blended learning models to leverage technology to compensate for higher student/instructor ratio. The Dean states that in the last budget cycle, two additional appointments of tenure stream faculty members were approved for hire in the Department of Mathematics and Statistics for a July 1, 2019 start. These hires will assist with addressing some of the concerns related to student/instructor ratios.

The Dean noted that the undergraduate programs in mathematics and statistics are an excellent example of the benefits of the reflective process encouraged through the IQAP process. The Program has responded to previous reviews with concrete action and refinement of the programs, and with the additional resources now available due to fiscal changes in the Faculty of Science, will be able to address several additional recommendations.

Quality Assurance Committee Recommendations

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Medical Radiation Sciences

Date of Review: February 5 - 6, 2018

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the **Medical Radiation Sciences** programs delivered by the School of Interdisciplinary Science. This report identifies the significant strengths of the programs, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Cyclical Program Review of the Undergraduate

Medical Radiation Sciences Program

In accordance with the Institutional Quality Assurance Process (IQAP), the School of Interdisciplinary Science submitted a self-study in January 2018 to the Vice-Provost, Faculty to initiate the cyclical program review of its undergraduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers, one from New Brunswick and one from Halifax and one internal reviewer were endorsed by the Dean, Faculty of Science, and selected by the Vice-Provost, Faculty. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on February 5 - 6, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost, Faculty, Director of the School and meetings with groups of current undergraduate students, full-time faculty and support staff.

The Director of the School and the Dean of the Faculty of Science submitted responses to the Reviewers' Report (August 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

In their report (February 2018), the Review team noted that all professors and management are very supportive of the students and the program. Together they provide a high-quality discipline specific curriculum. It was noted that the program effectively integrates elements of experiential learning, self-directed learning and interdisciplinarity throughout the student experience. There is effective monitoring of quality assurance through various processes. There is a high level of student satisfaction, excellent certification results and positive feedback from employers. The reviewers were impressed by the integrated nature of the IAHS building, the quality of the facilities and the simulation equipment. The existence of a capital equipment purchase plan for replacing older equipment was highlighted as a commendable initiative.

Areas of Improvement

In their report, the Review Team identified some recommendations for areas of improvement including:

- Improve selection process to identify student with more aptitude for MRSc
- Opportunities for additional interdisciplinary learning in levels 1 to 3 through collaboration with FHS
- Incorporate academic modules in P/F courses (skills assessment and clinical placement)
- Explore pathway opportunities such as dual certification
- Explore non-traditional sites (clinics) for clinical placements

The Dean of the Faculty of Science, in consultation with the Director of the School of Interdisciplinary Science shall be responsible for monitoring the recommendations implementation plan. The details of the progress made will be presented in the progress report and filed in the Vice-Provost, Faculty's office.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Implementation Plan

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
"Investigate the possibility of an optional MRSc honours" Page 8	The School of Interdisciplinary Science (SIS) curriculum committee have initiated a review of the current curriculum in order to determine the scope of the changes required to open this option to the MRSc students	Prof Ana Campos (SIS Director) and Dr. Kim Dej (Associate Director of Curriculum)	Timeline will depend on the scope of the changes required. Minimally 2 years.
"Consider adjunct faculty appointment status for Mohawk faculty (especially	The MRSc Steering committee will be consulted and asked to arrive at a process at this level. Mohawk Associate Dean of	Prof Ana Campos, Director of SIS, will add this item to the agenda of the next	Applications should be collected during the 18-19 academic

<p>those interested in conducting research)" Page 8</p>	<p>Allied Health should be in charge of forwarding the applications with their support to the Steering committee first. Any adjunct appointment in the School of Interdisciplinary Science (SIS) must be approved by the school executive council as the home academic unit that will host this appointment.</p>	<p>MRSc Steering committee for discussion.</p>	<p>year for consideration.</p>
<p>"Investigate developing partnerships with other MRSc programs to facilitate study abroad initiatives" Page 8</p>	<p>The Medical Radiation Sciences program is exploring a number of international partnerships at this time. International connections and awareness of global health issues are areas of interest and growth opportunities.</p> <ol style="list-style-type: none"> 1. The program is expecting a visit in late July by Safora Johansen (Oslo Metropolitan University, Oslo Norway) to discuss the expansion of an academic partnership with Dalhousie University to include McMaster/Mohawk. (Research collaborations for RT/Rad). 2. The program is exploring a possible partnership/exchange with Cardiff University (Cardiff, Wales). Exchange for Rad. 3. Expansion of the institutions research in Point of Care Ultrasound training and applications has provided opportunities for students to engage in international research and training 	<p>Wendy Lawson, AD Special Projects, Mohawk College will coordinate the initial information collection and contacts. Wendy will liaise with SIS as appropriate to arrange dialogue with each group.</p>	<p>First contacts have been made in all cases. Further exploration and meetings with SIS to be planned for the 18/19 academic year.</p>

	<p>abroad. Current development of research collaboration with Latin America in Hemophilia management.</p> <p>Exploration of Collaborations with EduAfrica to provide abroad training opportunities/service learning for our students in Africa.</p>		
<p>“Explore the formation of a Rad-Aid chapter at the university” Page 8</p>	<p>RAD-AID international is an international aid organization focused on increasing and improving radiology for poor and developing countries.</p> <p>Imaging the World is sponsored by the WHO to build medical imaging capabilities where healthcare resources are scarce and has been recognized for outstanding social innovation in health.</p> <p>The Medical Radiation Sciences program is exploring the formation of a partnership/chapter with one/both of these organizations.</p>	<p>Wendy Lawson has reached out to both organizations for information.</p> <p>A proposal will be presented to SIS for consideration of next steps.</p>	<p>Presentation of opportunities with Rad-Aid and/or Imaging the World to be presented to Ana Campos and Kevin Diamond in Fall 2018.</p>
<p>“Align Mohawk and McMaster MRSc websites to ensure consistency of program description and information” Page 9</p>	<p>SIS website (McMaster side) is undergoing a complete redesign. It is due to go live sometime in mid to late Fall. The faculty of the Science IT team will be forwarding the first complete mock version of the new website very soon. At this point we will share and consult with our Mohawk colleagues such that modifications can be implemented to achieve consistent information in both websites.</p>	<p>SIS Director and SIS website team</p>	<p>Fall term 2018</p>

<p>“Continue to ensure students have various avenues to explore the three specializations in Level 1” Page 9</p>	<p>There are in place significant opportunities for the students to make informed choices embedded in the 1F03 course designed specifically to introduce the specializations. It includes guest lectures by practicing professionals, graduates and upper year students as well as a panel question and answer session. There are laboratory tours with faculty and student demonstrations and extensive online resources and assignments that focus on researching the scope, legislation, physical and mental demands of the professions. Additionally, the Mohawk faculty works with the MRSc student society to host additional information sessions during the evening of Term 1.</p> <p>We will continue to consult program faculty and students on ways to further highlight and engage students in these resources moving forward.</p>	<p>1F03 instructor, SIS Director, Mohawk Associate Dean</p>	<p>Immediate</p>
<p>“If the radiography and radiation therapy specialization students continue to complete the current CT course together, it will be important to provide more radiation therapy specific content and radiation therapy faculty involvement” Page 11</p>	<p>We have already made modifications to the core CT course MRSc 3K03 effective F2018 separating CT labs by specialization. While all students take the same lecture components for this course, new radiation therapy specific labs were created in 2017 and are taught by radiation therapy faculty. We have also started having regular team meetings weekly for the delivery team to ensure appropriate communication regarding outcomes to ensure alignment with assessments.</p>	<p>Mohawk Associate Dean</p>	<p>Immediate</p>

<p>“Academic modules with assigned grades could be integrated into courses with a specialization skills assessment of clinical component. At present these courses are pass/fail and not included in the GPA calculation.”</p>	<p>This suggestion is currently being discussed at the level of various Mohawk-McMaster Joint Committees for feasibility and will be considered as part of a wider review of courses for an Honours BMRSc.</p>	<p>Medical Radiation Sciences Program Coordinator (SIS)</p>	<p>Fall 2021</p>
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Dean’s Response, Faculty of Science:

The Dean would like to thank the members of the review team for their engagement and enthusiasm during the site visit and for their thoughtful and encouraging report, including the recommendations and suggestions. The Dean would like to thank also the members of the School of Interdisciplinary Science and the representatives from the School of Health at Mohawk College for preparing the Program Response.

The Dean noted that the reviewers report highlighted several areas of strength in this undergraduate program in Medical Radiation Sciences. In particular, the report highlighted the unique and effective nature of the collaboration between McMaster University and Mohawk College in terms of the program structure and oversight, but also in terms of the joint commitment to reflection, assessment and adjustment of the program to meet the desired academic outcomes and provide high quality experiential opportunities. The review team recommendations have provided areas for continued improvement and consideration and have all be incorporated into a plan for moving forward. Importantly, the key individuals (and institutions) responsible for advancing the identified responses to the specific recommendations have been detailed in the Program Response. It is reflective of the program that these recommendations will be led by individuals both at McMaster and at Mohawk. The Dean confirmed that she supports all of the proposed actions highlighted in the program response and in particular supports the recommendation in the report to consider the development of an “honours stream” as an option in the existing program. The Dean agreed with the review team’s assessment that shifting the complete program to meet the degree level requirements for an Honours Science degree would be a comprehensive undertaking that might not meet the needs and aspirations of many of the stakeholders. In contrast, the option to provide an honours stream for some students might result in attainment of several of the recommendations outlined in the report through direct or indirect activities associated with the associated curriculum and resource changes.

The Dean further noted that while the Faculty of Science is incredibly committed to the continued success of this joint program, she would like to emphases that transparency and collaboration with respect to all levels of oversight and governance will continue to be crucial. The changing models for funding of Universities and Colleges and adjustments in fiscal management and governance by both

Mohawk and McMaster mean that all program level decisions must be reviewed and supported, at all levels, by both institutions. As the Faculty of Science moves forward with our commitment to excellence in undergraduate education, we will monitor our progress with respect to the individual recommendations of the review team and engage in our highly valued partnership with Mohawk College in refining and delivering this excellent undergraduate program in Medical Radiation Sciences.

Quality Assurance Committee Recommendations

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Biology Graduate Programs

Date of Review: March 1 and 2, 2018

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the graduate programs delivered by Biology. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Review

In accordance with the Institutional Quality Assurance Process (IQAP), the Biology program submitted a self-study in January 2018 to the Vice-Provost and Dean of Graduate Studies to initiate the cyclical program review of its graduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Science, and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on March 1st and 2nd, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, Chair of the department and meetings with groups of current students, faculty and support staff.

The Chair of the department and the Dean of the Faculty of Science submitted responses to the Reviewers' Report (April 2018 and June 2018 respectively). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

- Quality of faculty: Faculty are productive, research-active, dedicated and supportive of graduate student research.
- Quality of students: Graduate students are energetic, demonstrating remarkable initiative regarding community engagement and opportunities for internships. Students are productive with impressive publication and time-to-completion rates.
- Commitment to community engagement: We understand that student and faculty engagement with the community outside the university is very strong. Notably, there is a high level of positive and creative interaction of Biology faculty and graduate students with local schools.
- Dedicated staff: Administrative and academic staff are dedicated to the success of the Department and appear to go over and above their responsibilities to ensure the health of the graduate program.

Areas for Enhancement or Improvement

- Resources (infrastructure, faculty and staff): The need for upgrades and renovation to the physical infrastructure supporting this program was a dominant concern for our review. The current building deleteriously affects research productivity and animal care. Infrastructure renewal should incorporate effective communal space to improve community and cohesiveness. Strategic Faculty and Staff renewal should also be a major goal of the Department.
- Strategic plan: Graduate Program enhancement would be greatly facilitated with a strategic plan setting out clear vision and goals. Such a plan could invigorate and integrate the program and improve the structure of graduate curriculum.
- Communication: In our meetings with all stakeholders, we became aware that the flow of information from Deans to Chair to faculty to students was problematic. There appears to be structural communication gaps both within the Department and between the Department and the Administration. These gaps likely negatively affect faculty engagement at a Departmental level impacting cohesiveness in the Program. Students indicated communication issues regarding graduate course offerings and Teaching Assistant Assignments. It will be important to bridge these different communication gaps to pull the Department together and to move forward with strategic and forward-thinking goals.
- Cohesiveness: A consistent theme during our site visit was a perceived lack of cohesiveness in the Graduate Program and among research groups. We observed that faculty engagement in graduate program initiatives was inconsistent and graduate students commented on a general lack of integration and cross-talk amongst research groups. We are confident that with thoughtful strategic planning, improved communication and resource renewal, the program will be invigorated with a better sense of community.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
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<p>1. Consider whether direct entry from BSc should be more readily used for exceptional students, including those with outstanding GPAs and undergraduate research experience</p>	<p>a) We will modify our 'Guide to Graduate Studies' and highlight the direct entry option to prospective students. a) This will be communicated directly to <u>outstanding</u> applicants and their proposed supervisors.</p> <p>We note that have taken this route in the past to recruit and retain excellent students. For example, we have just provided this option to an exceptional applicant for the September 2018 entry.</p>	<p>a) The revision of the Guide is the responsibility of the Biology Graduate Studies Committee (BGSC) and the Administrative Assistant b) The Chair of the BGSC will consult with the proposed supervisor(s) and will inform and advise the applicants on this option.</p>	<p>a) Revision of the Guide will be discussed at the next BGSC meeting. Changes to practices and policies in the graduate program will be submitted for discussion with the faculty in the near future. b) This will be implemented by the BGSC Chair as soon as the new practice has been presented and discussed with the BGSC and Biology faculty.</p>
<p>2. The Department may wish to reconsider its approach to international applicants who already hold Masters-level degrees and critically evaluate whether they first need to enroll in the MSc program.</p>	<p>We note that we have directly admitted international MSc graduates into our PhD program before on a case-by-case basis. The BGSC will further examine various options and identify applicants holding a MSc degree who may fulfill the criteria for enrollment to the PhD program.</p> <p>Prior training in a research-intensive MSc program will be considered as a pre-requisite.</p>	<p>Since the BGSC act as the Admission Committee in Biology, it will lead the discussion, determine the guidelines/criteria and oversee the admission to the PhD program of candidates already holding an international MSc degree.</p>	<p>This will be discussed in the near future by the BGSC.</p>
<p>3. The Department engage in curricular planning and mapping for graduate courses. This will include</p>	<p>Curricular planning of graduate courses is already a feature of our "Core Graduate Courses". In particular,</p>	<p>Members of the BGSC will lead the review for their respective area of specialization and provide the list of core</p>	<p>The review process will be initiated in May/early June and discussed at the June departmental meeting.</p>

<p><i>establishing clear and forward-thinking goals and learning outcomes. Courses should be decided upon and advertised on a 2-year cycle, allowing students and faculty instructors to properly plan.</i></p>	<p>it involves meetings of faculty belonging to the same area of specialization, determination of the content of the core courses for each area and approval of an adequate schedule.</p> <p>As new courses have also been introduced, we will return to a more rigorous planning of our graduate courses and re-visit the content of our core graduate courses, the faculty designated to teach these courses and their schedule.</p>	<p>courses, instructors and schedule for the next two (or more) years.</p>	
<p><i>We recommend that a Scientific Communication course (e.g. Biology 712) be offered every year and be mandatory for all incoming graduate students (MSc and PhD). Our suggestion is that this course be in addition to the 2 courses already required for the MSc and would be an additional requirement for the Ph.D.</i></p>	<p>Some colleagues are concerned by the impact of increasing the course load on completion time. We recognize the value of this course and the interest expressed by a large fraction of our graduate student population. The BGSC will discuss the recommendation and look at alternative models to implement it and perhaps integrate attendance at departmental seminars (see recommendation 5) in the content of this course. This will be done in consultation with the course instructor, Dr. Jacobs.</p>	<p>This discussion and implementation of changes proposed in this recommendation will be done by BGSC in consultation with the course instructor, Dr. Jacobs.</p>	<p>The discussion will begin in May/June but may extend to the summer months as this is a significant modification of our graduate course curriculum and the membership of the BGSC will be updated in July 2018.</p>
<p><i>5. As either a component of a capstone graduate</i></p>	<p>As discussed above (recommendation 4), the BGSC will discuss</p>	<p>The proposal to integrate the departmental seminar</p>	<p>As the composition of the BGSC will be updated in July 2018</p>

<p><i>course or on their own, weekly Departmental seminars be attended by all graduate students.</i></p> <p><i>We suggest that research group focused seminars be held on rotation and held no more than 1x/week (e.g. PHYSIOL, EEB, MCB)</i></p>	<p>recommendation 5 and look at alternative models to implement it. In particular, we'll look at integrating the attendance at departmental seminars in the content of Biology 712.</p> <p>Better scheduling and the coordination of research group focused seminars in the Department is a good idea that will be discussed in the near future.</p>	<p>series in a course such as Biology 712 will be discussed by members of the BGSC and Dr. Jacobs.</p> <p>The schedule and coordination of departmental and research group focused seminars will be discussed by the Seminar Committee in Biology, in consultation with the different groups.</p>	<p>and several faculty members are about to go in the field, the discussion will be initiated in May or June but will likely continue in the summer and fall 2018.</p>
<p><i>6. Ensure MOSAIC, as an administrative tool, is meeting needs and expectations of Graduate student applicants as well as resulting in timely conversions.</i></p>	<p>The implementation of MOSAIC has caused many headaches and is taken seriously by all administrative branches at McMaster University. We will continue to work with the School of Graduate Studies (SGS) to address any problems related to MOSAIC</p>	<p>This is an ongoing process.</p>	<p>Problems arising will be addressed by the Chair of the Biology Graduate Students Committee, the Administrative Assistant for Graduate Studies in Biology and SGS.</p>
<p><i>7. The supervisory committee must be composed of the Supervisor and two other members, one of whom could be from another Graduate Unit.</i></p>	<p>The supervisory committee of PhD students is already composed of three members. We can certainly follow the same practice for MSc students.</p> <p>If possible, we will promote the inclusion of faculty members belonging to different units; this is consistent with the current practices in Biology. Our approach in this regard is to name</p>	<p>Changes in the rules and practices of the graduate program are the responsibility of the BGSC.</p>	<p>The recommendation can be discussed at the next meeting of the BGSC and the change submitted for approval to the Biology faculty at the June departmental meeting.</p>

	<p>faculty members who can contribute significantly to the guidance and evaluation of the graduate student's progress and research program. We will continue to use this guiding principle and therefore decide on a case-by-case basis.</p>		
<p><i>8. The Department should carefully evaluate the recommended timelines for both the PhD and MSc programs, with a view to having meetings and provided feedback earlier and more often in the programs. Students should be provided clear pathways and guidelines to proceed through their programs.</i></p>	<p>We agree with the comments of the Reviewers. There are several aspects to consider in this recommendation. First, we will put in place a mechanism to review the research program of new students within six months of their entry in the graduate program. This may require a presentation to the supervisory committee or, at the very least, the submission for approval of a short two page document describing the research program/directions to members of the supervisory committee.</p> <p>Second, we will form a working group within the BGSC to review the timelines of MSc and PhD programs and make recommendations to the BGSC and Biology faculty. In particular, the working group will be charged with</p>	<p>Changes in the rules and practices of the graduate program are the responsibility of the BGSC.</p>	<p>The discussion on the composition of the supervisory committee will take place at the next meeting of the BGSC and changes will be communicated to the Biology faculty at the June departmental meeting.</p> <p>The working group will be assembled in September, once the new composition of the 2018-2019 BGSC committee is determined in July 2018.</p>

	reviewing the procedures of Transfer from MSc to the PhD and PhD comprehensive examination.		
<i>9. The Department should ensure its program requirements and assessments are consistent with School of Graduate Studies policies. The Department should carefully evaluate the mechanisms it uses for assessments with respect to Section 4.2 of the Graduate Calendar, which gives wide latitude to graduate programs to develop tools that meets their needs.</i>	We will comply with these rules/policies of the SGS and update our "Guide to Graduate Studies in Biology" accordingly. In particular, we will review and modify the potential outcomes in assessment to be consistent with the practices of SGS.	Changes in the rules and practices of the graduate programs are the responsibility of the BGSC.	The recommendation can be discussed at the next meeting of the BGSC and modifications to the "Guide to Graduate Studies" will be made in collaboration with the Administrative Assistant in the near future.
<i>10. We recommend transparent and timely communication between the Graduate Studies Committee and graduate students regarding TA allocation and assignment.</i>	Most in-program graduate students are generally assigned to courses where they have previously worked at teaching assistants. Therefore, the problem generally concerns new graduate students entering the program. As the number of teaching assistants is determined by undergraduate enrolments, we are dependent on the data provided by the Registrar's office, typically in July/August. TA assignment is the responsibility of the Departmental	The BGSC Chair will discuss this with the current TA assigner on how best to communicate the TA allocation.	This will happen in June 2018.

	Administrator with the help of the undergraduate secretary and faculty members. With the approval of the membership of the BGSC (see recommendation 17), the inclusion of a BGSC member in the TA allocation process will make it more transparent.		
<i>11. The Department should work with the Faculty to ensure current plans to improve the building space and infrastructure move forward in a timely manner.</i>	<p>We will continue to improve building space and infrastructure by working with the Faculty of Science and the University. The Life Sciences Building is being prioritized for a deep retrofit, but funding sources for this have not yet been identified.</p> <p>Dean M. MacDonald visited the Department in December 2017 and discussed her strategy to obtain funds for long-term improvements to the Life Sciences Building and infrastructure requirements in Biology. In particular, the addition of a new green house is now the number one priority of the Faculty of Science.</p> <p>We will continue to discuss this important issue with Dean MacDonald.</p>	Chair of Biology and Dean of Science	<p>Dr. Jacobs' term as Biology Chair is ending on June 30, 2018. The selection committee for the new Biology Chair is currently working to identify suitable candidates for this position.</p> <p>One of the key challenges of the next Chair will be to define the hiring priorities for faculty renewal.</p>

<p><i>13. Staff workload must be examined carefully to get a true sense of the work that needs to be done and how best to efficiently maximize staff capacity without causing detriment to both the undergraduate and graduate student experience. With the inefficiencies noted with the University's ERP system, the committee feels that one staff person to administer the graduate program is probably not sufficient.</i></p>	<p>The staffing plan across the Science Department is being harmonized through a central initiative, which recommends that one person is sufficient to administer the graduate program for each department. However, the "one-fits-all" model does not take into account the size of a graduate program (i.e. number of graduate students).</p> <p>The Chair of Biology will seek to revisit this model after providing an hour-by-hour map of the current administrator's activity.</p> <p>The Department of biology recently went through a major restructuring of our staff complement that is still in the implementation stage.</p> <p>Work overload of our Administrative Assistant to Graduate Studies has been noted by graduate students and faculty members. It will be one of the priorities of the new Biology Chair to review the recommendation of the Reviewers.</p> <p>The addition of a half-time assistant may alleviate many</p>	<p>Biology Chair and Dean of the Faculty of Science.</p>	<p>The discussion of this recommendation will depend on the nomination of the new Biology Chair (expected July 2018).</p>
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	problems identified by the Reviewers.		
<i>14. Student stipends should be examined regularly to ensure they remain competitive with peer institutions and programs which may be competing for graduate students.</i>	We will examine the stipend situation for students on a yearly basis by comparing ours with peer institutions. We will try to maintain a competitive guaranteed minimum funding level, taking into account our main competitors in the GTA and Southern Ontario.	The Associate Chair and graduate secretary will gather the required information and will work with the departmental administrator to review the department's funding position and provide suggestions for the BGSC and department.	We will address this issue in the early fall of 2018. i.e. in time for the review of applications for the 2018-19 academic year.
<i>15. Increase opportunities for scientific connections to be made between students in the program.</i>	Biology offers several discipline-based seminar series that provide opportunities for students to hone their presentation skills and seek input for their projects. Better coordination of the departmental and research group-specific seminar series (see Recommendations 4 & 5 above), will allow us to more effectively allocate additional resources for beverages and food as an incentive to enhance and promote the attendance to these seminars and provide the opportunities for students to interact and learn interdisciplinary skills.	The Associate Chair will initiate a discussion with BGSS, members of BGSC, the Chair of Biology on how best to increase scientific connections among students in our program.	The BGSC will organize a meeting to specifically discuss this and other curricula matters in the second half of May 2018. Executive members and representatives of BGSS will be invited to discuss this and other related issues.
<i>16. Work to boost faculty participation in activities that support the graduate student experience, such as volunteering to</i>	We will put a greater emphasis on encouraging both students and faculty to attend departmental seminars and	GRD for at least the next year. The Graduate Chair, BGSC, and the graduate secretary will continue to work with BGSS to	The BGSC will organize a meeting to specifically discuss this and other curricula matters in the second half of May 2018.

<p><i>organize Graduate Research Day and other such activities.</i></p>	<p>contribute to the several discipline-specific seminar series. The first four editions of the Biology Graduate Research Day (BGRD) were organized by faculty members. In 2018 the event was organized by the BGSS for the first time. Several faculty and staff members (including both the Associate Chair and the graduate secretary) contributed to the organization of this year's GRD. We will continue to encourage the BGSS to take a lead role in GRD and provide necessary financial and logistic support.</p> <p>We will look at mechanisms to increase faculty and student engagement. Establishing the GRD as a standing departmental duty/committee will be discussed.</p>	<p>identify their needs with regard to GRD and other activities.</p> <p>The Associate Chair, members of BGSC, BGSS, and the Departmental Chair will discuss whether and how to make participating in GRD mandatory for all graduate students.</p>	
<p><i>17. We recommend that the composition of the Biology Graduate Studies Committee be determined democratically with fair and transparent voting procedures and that Terms of Reference be established for the Committee and for the position of Associate Chair, Graduate Studies.</i></p>	<p>The current BGSC membership is proposed by the Chair in consultation with the Associate Chair and after discussion with individual faculty members. A guiding principle in the nomination of BGSC members is a fair representation of all areas of specialization of the Department.</p>	<p>The Associate Chair for graduate studies will work with the T and P Committee as well as the Chair of the department and other relevant stakeholders to develop a clear set of procedures and the terms of references for the Associate Chair and members of the BGSC. They must be voted on by the department</p>	<p>This will likely happen when the new Chair is confirmed in July 2018 or soon after. The current Associate Chair's term finishes at the end of June 2018. Significantly, all areas of specialization of the Department are represented in the current membership of BGSC.</p>

	<p>This is necessary to ensure that appropriate expertise exists in the committee during the review of prospective student applications and in-program students performances for award nominations (again in BGSC serves as the Admission committee in Biology). Therefore we propose to continue with the current selection process but to submit the admission of new faculty members to the BGSC to vote by the Biology faculty. An email ballot may be used for this purpose. A majority of votes in favour of the candidates would confirm the nomination.</p> <p>The terms of references for both the Associate Chair and BGSC members will be drafted, discussed and published.</p>	<p>before adoption. The Faculty of Science is asking departments to put their regulations in writing and this approach could be incorporated at that time.</p>	
<p><i>18. We suggest that the Department work to increase the visibility of the Associate Chair, Graduate Education towards the student body, and especially to new incoming students. The Associate Chair should be well known to all students in the program, and every effort should be make</i></p>	<p>The Associate Chair will increase his/her visibility to the students. In Biology, at the beginning of each academic year in September, the Associate Chair welcomes all new students and informs the new students of key issues of their</p>	<p>The Associate Chair will discuss with BGSS on how to increase the visibility of BGSC and the Associate Chair.</p>	<p>The Associate Chair has already talked to the president of BGSS about various issues brought up during the IQAP review. A meeting will be scheduled between the Associate Chair and members of BGSS to discuss the strategy to improve his/her visibility.</p>

<p><i>to build a strong rapport between this individual and all students in the program.</i></p>	<p>graduate program. The Associate Chair also organizes Scholarship application seminars for both new and returning graduate students. In addition, all letters of offer to new students, MSc to PhD transfer notices, PhD comprehensive exams, as well as thesis defences all need to be approved by the Associate Chair. On a weekly basis, the Associate Chair also shares relevant opportunities from other sources to the entire graduate student distribution email list. One potential avenue of further exposure is to participate in social events organized by BGSS.</p> <p>Regular, pre-scheduled meetings with the BGSS will be discussed with the graduate students.</p>		
<p><i>19. We recommend that the Biology Graduate Studies Committee publish minutes of their meetings and present these to the Department.</i></p>	<p>Minutes from the BGSC will be shared with the BGSS and the Biology faculty.</p> <p>The timely publication of the minutes will likely require the addition of a part-time/half-time staff member as discussed in Recommendation 13.</p> <p>Currently, the Associate Chair has been sharing</p>	<p>The Associate Chair will ensure that updates of meetings from the BGSC and departmental meetings are passed on to the BGSS representatives as soon as they become available or/and at pre-scheduled meetings, if necessary.</p>	<p>The March 2018 updates from BGSC were sent to BGSS. Minutes from the next BGSC meetings will be sent to BGSS as soon as they become available.</p>

	information regarding graduate studies with members of the department at departmental meetings or via email. The BGSS is represented at the Departmental level.		
<i>20. The Biology Department, through the Associate Chair or the Graduate Studies Committee work closely with allied academic and non-academic units to construct a clearly articulated package of services available to graduate students.</i>	<p>The current Associate Chair has been interacting with other associate chairs of graduate studies in the Faculty of Science through our monthly meetings. In these activities, we share our experiences and concerns to propose faculty-wide initiatives enhancing the student experiences.</p> <p>Tim Nolan, the Director of Student Accessibility Services (SAS), was invited to present the SAS at the April 16, 2018 departmental meetings.</p> <p>The Guide to Graduate Studies in Biology is also updated on a regular basis. Special attention to student services will be devoted in the next edition.</p> <p>Since January 2017, the current Associate Chair has relayed all relevant information (scholarships, writing and presentation trainings, health consultations, community events,</p>	<p>The Associate Chair and the Administrative Assistant to Graduate Studies will be responsible for follow-up, including updating and posting the information, with inputs from members of BGSC when necessary.</p> <p>We will continue to work with the SAS to improve student services.</p>	<p>From now on, all information provided by the SGS, Faculty of Science and other administrative units will be forwarded immediately to students and copied to all supervisors.</p> <p>Our newly revised Guide to Graduate Studies has just been submitted. SGS is proofreading the Guide for consistency. There will be periodic updates to reflect the most up-to-date information from the Biology Department, the Faculty of Science, the SAS, McMaster University and other stakeholders, including the community.</p>

	<p>awards opportunities etc) provided by the SGS, Faculty of Science, MacPherson, and MITACS etc to members of BGSS by email. To improve this process, we will copy the same information to all supervisors and ask them to encourage their students to consider taking advantages of these services.</p> <p>Once the new Chair is confirmed, we will also discuss additional secretarial help for graduate studies so as to enhance such services (Recommendation 13).</p>		
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Dean’s Response

This Faculty level (Dean’s response) has been prepared by the Dean of Science (Dr. Maureen MacDonald), with input from the Associate Dean of Science (Graduate) Dr. Bhagwati Gupta. On behalf of the Faculty of Science, the Dean thanked the reviewers for their careful and thorough assessment of the Graduate Programs in Biology. They were pleased with the recognition of the strengths of the programs, particularly the determination that the program learning outcomes are clear and that research environment is of high-quality. There were however several areas of concern cited and appropriate recommendations made. It is clear that many of these concerns and recommendations can be addressed with improvements in both the policies and practices related to communication at all levels. The Faculty of Science will work to support the Department of Biology in attending to the concerns expressed and in following the implementation plan outlined in the accompanying Program response. Additional comments from the level of the Faculty of Science on significant points related to governance and resources are provided below.

The Dean agreed with the reviewers that a concerted effort must be made to improve the flow of communication within the Department of Biology and between the Department and other units on campus, including the School of Graduate Studies and the Offices of the Dean and Associate Dean (Graduate) of Science. The Program level response has highlighted some of the crucial points of contact

for the flow of information, and the Faculty of Science will support the implementation and formalization of the processes identified. Several other graduate programs in the Faculty of Science have implemented systems of coordinated research seminars linked to incentives for increased attendance, strategic and balanced graduate curriculum planning, and implementation and enhanced scientific communication opportunities. The Faculty of Science will ensure that these “best practices” are shared with the Department of Biology including terms of reference for Associate Chair (Graduate) and Graduate Curriculum and Policy Committees.

It is worth noting that since the time of the site visit and submission of the reviewer’s reports, activities have begun to address some of the concerns and recommendations.

The committee expressed concerns with respect to the administrative processes dependent on the existing ERP (MOSAIC). The graduate MOSAIC module has undergone extensive review led by both the School of Graduate Studies and University Technology Systems. A task force is currently working to address the shortcomings of the current systems with a deadline of Sept 2018 for improvements. Representatives from the Faculty of Science are on the review and implementation teams and considerable improvements are forecasted.

With respect to the resources available to the Graduate Programs in Biology, the Dean agreed that the state of both the Life Sciences Building and the Greenhouse are unacceptable. As indicated in the reviewers’ report, the Faculty of Science has made these resource issues their number one priority in the last year. They have now secured funding for a new greenhouse addition to the Life Sciences Building, and the process of design is underway. Concerning the requested deep retrofit to address the deferred maintenance in the Life Sciences Building, they have not yet received notification on our submission for provincial funding for this project but will continue to advocate for these improvements in the upcoming year. The Office of the Dean of Science has been working on a very frequent basis with the Chair of the Biology Department over the last year to address the staffing, resource and TA concerns in the unit; however, concerns remain on both sides of the discussion. They look forward to working with the incoming leadership in the hopes that a cohesive and detailed strategic plan for the Department will be developed and presented to allow the Dean of Science to support the unit in achieving its goals moving forward. Regarding Faculty renewal, the report of a hiring freeze in the Department for ten years is inaccurate as there have been three hires in Biology in the last seven years. Despite the Faculty of Science enduring a hiring freeze for four years, the Department of Biology was one of a small number of units that received a new appointment. The Dean will provide the incoming Department Chair and Acting Chair support and guidance on their future faculty appointments requests. However, new faculty appointments will likely be constrained in units that do not have companion retirements and a clear, well-articulated and integrated plan for renewal.

The Faculty of Science is committed to supporting the Department of Biology as it moves forward with the implementation plan associated with this IQAP review. We appreciate the opportunity for self-reflection and will work to retain the many strengths of the program while enhancing communication and implementing new processes that will lead to program enhancement.

Quality Assurance Committee Recommendation

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow a modified course of action with a progress report and a modified internal cyclical review to be conducted no later than 4 years after the start of the last review. At the time of the internal review, the committee will be looking at progress that has been made in response to the recommendations and specifically, how the recommendations have been implemented with the appointment of the new Chair.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Chemical Engineering Graduate Programs

Date of Review: April 9 and 10 2018

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the graduate programs delivered by Chemical Engineering. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Review

In accordance with the Institutional Quality Assurance Process (IQAP), the Chemical Engineering program submitted a self-study in March 2018 to the Vice-Provost and Dean of Graduate Studies to initiate the cyclical program review of its graduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Engineering, and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on April 9th and 10th, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, Chair of the program and meetings with groups of current students, faculty and support staff.

The Chair of the program and the Dean of the Faculty of Engineering submitted responses to the Reviewers' Report (June 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

- Very high-quality faculty and high-quality students in the graduate programs.
- Research intensive department with both basic and applied research through industry collaborations, interdisciplinary and collaborative initiatives.
- Very collaborative environment both for the faculty members and students. Collaboration is considered part of the “DNA” of the department and critical to its culture.
- Accelerated Master's program.
- Internship/Co-op programs in research intensive graduate degrees (Ph.D. and Master's).

Areas for Enhancement or Improvement

- The professional development of graduate students is an area of significant potential for the department. The department has a clear commitment to the graduate student experience and this would help the department to compete for graduate students with other universities.
- The committee has commented extensively on the language requirements and sees the resolution of this issue as a top priority.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
That the department continue its practices of intermingling graduate student office spaces between research clusters.	We will continue our current practice, as we agree with the recommendation that this is a strength area of the Department.	Chair and Departmental Administrator	Already implemented and to be maintained
The University and Faculty need to ensure that the space commitments to the department are honoured.	We believe that no follow-up is needed, since the Faculty of Engineering has always honoured the commitments made to our Department and trust is a cornerstone of how the Faculty has always interacted with our Department	Chair and Dean	Immediate and on-going
Continue to develop, in collaboration with the Faculty of Engineering, its graduate student teaching assistant workshops and career development initiatives. There was very positive support for these initiatives at the Faculty level.	We thank the reviewers for pointing out how valuable these programs are. The Dean and his office have been exceptional in establishing and supporting these programs, and we will continue to mandate and/or strongly encourage participation in these initiatives among our graduate students as well as participate in the delivery of such workshops/initiatives as needed.	Chair, Dean and Associate Deans	Already implemented and to be maintained
The department should begin using the TA teaching evaluations currently available at the University level.	This is a very valuable comment and we fully appreciated the need for TAs to receive feedback on their work. The current teaching evaluation questionnaires include a section regarding the TAs. The information on these sections is already typically passed on to the TAs by the course instructor, as long as confidentiality is maintained and after the comments are screened by the instructors for inappropriate content. The	Chair and Associate Chair (Graduate)	Already in place and reminder from Chair to be given to all faculty members every term.

	<p>quantity and quality of the feedback is usually limited, but we have to ensure that in case specific feedback is given, that instructors do send it to the appropriate TAs.</p> <p>Every term the Chair will remind all faculty members that TA feedback should be sent to the TAs, if available in the questionnaires - if appropriate and maintaining confidentiality. The Chair will also encourage all faculty to provide specific feedback to their TAs independently of the student evaluations, as we agree this is valuable feedback for improving TA best practices as well as providing content for future teaching portfolios among the graduate students.</p>		
<p>Ensure that all students who wish to challenge themselves through various TA positions and teaching fellowships are provided an opportunity as appropriate.</p>	<p>We agree with the reviewers and would love to be able to provide as many opportunities as possible, but these opportunities are limited by budgets. Our Department is already over-extended in terms of the allocated budget for TAs. As a minimum, all graduate students get at least one term of TAing per year. If the budget allocated by the faculty is increased, we will happily give more TA opportunities to the students.</p> <p>We already provide a TA preferences questionnaire to graduate students to gauge their interest in various types of TA positions and will continue to use this questionnaire to best match student interests to available positions, while at the same time taking into account the appropriateness of the student's background for</p>	<p>Chair, Dean, Departmental Administrator, Associate Dean (Graduate) and Director of Finance/Administration</p>	<p>Budgets are given on an early basis</p>

	<p>the course and the needs specified by the instructor for the successful delivery of the course to ensure high quality undergraduate instruction. For any available sessional instructor positions, we will continue our practice of posting these positions openly to all Ph.D. candidates in the Department and interviewing interested candidates prior to any assignment being distributed</p>		
<p>Ensure that TAs in the department is viewed as one of the key professional development opportunities by providing various opportunities for positions, adequate training, and constructive feedback to the students.</p>	<p>We agree and we will continue to offer our annual TA training session to all graduate students.</p> <p>We will extend these sessions to emphasize the importance of communication as key factor for professional success.</p> <p>We will encourage our graduate students to take advantage of the many opportunities offered by the MacPherson Institute.</p> <p>In the academic year of 2017-18, our Department voted and unanimously supported changing our graduate course requirements to allow one of our required graduate courses to be in a non-engineering/science field, such as courses in teaching and learning. These changes have been approved at the Senate level, after approval by the Graduate Council. As such, it will now be easier for our students to gain additional training in this area while still fulfilling program requirements.</p>	<p>Chair, Associate Chair (Graduate), Associate Dean (Graduate) and MacPherson Institute</p>	<p>Already implemented new policy to provide flexibility for students to take at least one course that is outside of engineering/science to provide additional opportunities for professional development.</p> <p>We need to increase student awareness of graduate coops and industrial Ph.D. We will work with the Associate Dean to better advertise this to our students – this will be done in the next year.</p>

	The Associate Dean has been very active and is developing capacity in the Faculty to increase the opportunities for professional development, such as coop for graduate students and industrial Ph.D. options. We will continue to support these options for our students.		
Review the requirement for Master's students to give oral presentations and/or other opportunities to communicate their knowledge to a wide audience.	<p>We agree with the reviewers on this point. During our May retreat, we already voted to require all graduate students to present (either orally or through a poster) their research work in our annual research conference called MUCEC, attended by all graduate students and professors.</p> <p>While this formal change requires approval by Graduate Council and thus cannot be a formal program requirement until the 2019-2020 academic year, we have already updated the graduate student handbook strongly encouraging Master's students to deliver one poster presentation at MUCEC and will remind faculty members of our decision on this point prior to the next MUCEC conference to encourage high participation rates.</p>	Chair, Associate Chair (Graduate) and Assistant Administrator (Graduate)	Already added to graduate student handbook. The paperwork to make this a formal program requirement for the Master's degree will be submitted in September. The Assistant Administrator has been tasked with monitoring that this requirement is met.
It is recommended that the department review the course offerings, especially in light of the accelerated Master's students only having one year to take graduate courses, and some courses are only offered on alternative years.	We agree with the reviewers, and for the academic year of 2017-18 we already got Graduate Council approval to modify our graduate course requirements to allow all our graduate students to take one non-technical course selected by the student (and approved by the supervisor) to provide an additional opportunity to professional development – this	Chair, Associate Chair (Graduate)	Already got Graduate Council and Senate approval to provide more flexibility in course selection and cross-listed many graduate courses. We will identify any essential graduate courses

	<p>will open up a large number of potential courses that can be taken by the students. In addition, we cross-listed a large number of graduate courses to increase the available courses to all students. Finally, between 2015 till 2019, we hired 6 new professors, each bringing new graduate courses to the Department to significantly expand our range of course offerings. Most of these new courses will be coming on to the books in the next 2-3 years as these new professors become established, starting this year with a new course in Bacteriophage Biotechnology.</p> <p>In terms of allowing Accelerated Master's students more access to courses offered only in alternate years, we will review the course calendar and ensure that any graduate course that would be considered essential to success in a given project is offered with a frequency suitable for the Accelerated Master's program timing. We have already done this with our advanced statistics course (CHEM ENG 765), which was offered twice last year alone.</p>		<p>for Accelerated Master's students within the next year and will offer those courses on an annual instead of alternate year basis.</p>
<p>The department may wish to discuss how it will support the new internship and industrially based programs.</p>	<p>We did not yet have any students opting for this path, and this is a Faculty-wide initiative. The Chairs of all the Departments meet formally and informally at least once per month and best-practices will be shared.</p> <p>The Department was polled when this initiative was first presented by the Dean and Associate Dean and there was unanimous support. There is a long history of department-industry</p>	<p>Chair/Associate Chair (Graduate)/ Associate Dean (Graduate)/</p>	<p>Already started and current parameters will be revisited and adjusted as students make it through the program.</p>

	collaboration which makes internships a natural process.		
The committee would suggest that the department specifically update the program learning objectives to reflect the new graduate programming specifically the work experience.	We agree with this recommendation.	Chair/Associate Chair (Graduate) in consultation with the Associate Dean (Graduate)/	This exercise will be started in 2018 and to be completed by 2020.
The Faculty of Engineering should encourage all graduate programs in the Faculty to address the matter of language proficiency requirements.	The Faculty of Engineering is aware of differences in language requirements. The Department of Chemical Engineering has already the highest language requirements in the Faculty and, at our May retreat, we voted to further increase the program requirements to a 91 minimum TOEFL score (minimum 20/category) and a 7.0 minimum IELTS score (minimum 6.5/category). The changes to the minima per category are particularly noteworthy in terms of ensuring that incoming graduate students have a complete set of language skills relevant to their success. These are now the second highest language requirements in Canada for Chemical Engineering – only second to the University of Toronto. This change needs to be approved by Graduate Council and will be submitted for approval for the 2019-2020 admission cycle.	Dean, Associate Deans and Chairs	The Dean has been very clear, for a couple of years, in insisting that all departments raise language requirements. Some Departments have responded positively (such as Chemical Engineering), while others have been more conservative because increasing requirements would decrease their graduate student counts. This issue is discussed at Dean's Council several times every year and there has been a gradual overall increase of the requirements thanks to the Dean and Associate Dean (Graduate)

That the Department, in consultation with the School of Graduate Studies, make information regarding the new language proficiency requirements accessible and transparent to prospective graduate students on all relevant websites.	We agree that the varying language requirement statements are confusing. We will ensure that there is consistency in all relevant webpages between the Faculty of Engineering, the School of Graduate Studies, and our department, after the new minimums are approved by Graduate Council.	Chair, Associate Chair (Graduate) and Assistant Administrator (Graduate)	Implemented and to be monitored on a yearly basis.
That the Department of Chemical Engineering admit all graduate students at a single IELTS or equivalent measure.	Our Department does not accept any students below the specified minimum and will not approve any requests for exceptions to these minima. In fact, after our Departmental Retreat in May, we voted to TOEFL/ILETS requirement to 91 (minimum 20 per category) or 7.0 (minimum 6.5 per category), making it the second highest in Canada for Chemical Engineering. We believe that the reviewers got the impression of a multi-tiered system, because different departments have different requirements and the Faculty does not have a common minimum.	Chair, Associate Chair (Graduate) and Assistant Administrator (Graduate) to ensure that these minimum requirements are met	Continuous monitoring and ensuring that applications not meeting the minimum requirements are not further considered, consistent with our current practice.
That Chemical Engineering develop new opportunities for graduate students, particularly Ph.D. candidates, to work in laboratories not only outside of McMaster, but also outside of Canada.	We currently have 2-7 graduate students participating in lab exchanges. We believe that this is best achieved at the supervisor/student level. Doing it at the Department level does not seem to be feasible since the Department does not have funds to support these exchanges and the supervisor/student are much better equipped to make the connections with different labs.	Graduate Students and Supervisors. Associate Chair (Graduate) to provide support to remove barriers	Already being done for many years. We will continue to accommodate these requests in terms of waiving seminar requirements, scheduling TA assignments etc. as appropriate to facilitate these opportunities.
That Chemical Engineering, in collaboration with the Faculty of Engineering	Please see response for previous item – the main issue is the same. We will certainly join with the Faculty on ongoing efforts to establish linkages	Graduate Students and Supervisors. Associate	Already being done for many years

<p>develop key “partner” universities, particularly in institutions (e.g., in the U.S.) where strong relationships – through research collaborations already underway with faculty members – already exist.</p>	<p>with partner universities (most recently with Northwestern Polytechnical Institute in China and Penn State) and promote these exchange opportunities to our students.</p>	<p>Chair (Graduate) to provide support to remove barriers</p>	
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Dean's Response

The Faculty had read the reply of the program to the reviewers' recommendations and consider their approach prudent. They have identified urgent task versus long-term continuing areas for improvement. The reviewers in their assessment of Chemical Engineering found a department that has kept its attention on staffing, research output and teaching, concluding it to be a very strong and collegial department with significant research leaders at all rank levels.

The reviewers identified language proficiency standards as a minor issue to be addressed, which the program has responded that they will immediately handle through GCPC. They seem very concerned that the department and Faculty could have different minimums though it is not the philosophy in the Faculty to operating in a top-down manner; they encourage departments to aspire to the highest possible standards yet recognize that each discipline is in a much better position to set those standards provided undergraduate students encounter only high-quality TAs. The Faculty will continue to ask all of the departments to raise their minimums over time. The reviewers make a mistake though in stating an enrolled student who did not receive a TA due to their low proficiency score while applying may re-take the test to receive a TA later – that is not consistent with the Faculty internal policies.

Most of the big recommendations provided by the reviewers related to internationalization and external collaboration, giving the department some aspirational goals, though the Faculty doesn't see any links being made in the report to curriculum content or programming quality that would be relevant to this review exercise and so they don't consider these as urgent tasks.

The Faculty was gratified that the reviewers were excited by the faculty initiatives to include more workplace experiential learning in curricula and will continue to help Chemical Engineering and all other Engineering departments integrate these experiences in their programs. They greatly appreciate the hard work and effort undertaken by the reviewers and thank them for providing valuable suggestions that will help bring more visibility to the department as an international leader in research excellence.

Quality Assurance Committee Recommendation

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Globalization M.A.

Date of Review: March 28 and 29, 2018

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the M.A. program in Globalization. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Review

In accordance with the Institutional Quality Assurance Process (IQAP), the Globalization program submitted a self-study in February 2018 to the Vice-Provost and Dean to initiate the cyclical program review of its M.A. program. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Social Sciences, and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on March 28th and 29th, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, Director of the program and meetings with groups of current students, faculty and support staff.

The Director of the program and the Dean of the Faculty of Social Sciences submitted responses to the Reviewers' Report (May 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

The reviewers noted many strengths with the MA in Globalization program. The overall student experience with the program was judged to be exceptional. This is due primarily because of the high quality of the academic training, with students benefitting from a wide range of theoretical and methodological approaches to understanding globalization. The program's commitment to interdisciplinarity, its enthusiastic faculty, the flexible program structure, as well as the diverse academic and personal backgrounds of the student body were further identified as elements that enhanced the student experience. The reviewers also emphasized that the graduate program is consistent with, and indeed makes a unique contribution, to McMaster's Mission and Academic Plan.

Areas for Enhancement or Improvement

- Recruit additional tenured/tenure-track faculty to do core teaching in the graduate program
- Increase the profile and expand the network of the graduate program both externally and internally
- Enhance the opportunities for research training, experiential education, and community engaged research for graduate students
- Expand the opportunities for graduate funding (especially for international students) and improve the transparency of funding decisions
- Revitalize the governance structure and expand the staffing of the IGHC

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
Improve the branding and marketing of the MA in Globalization in order to make its public and social media more coherent with its outlook and values	The IGHC will review its online and print materials that promote the MA in Globalization. The Marketing & Promotions Coordinator at the Faculty of Social Sciences will be consulted when developing a strategic plan about the marketing and branding of the graduate program.	Director	Fall 2018
Secure committed teaching units from tenure track faculty members	The IGHC will enter into negotiations with the relevant	Director	Fall 2018

from Social Sciences and Humanities at McMaster University for extended periods, ideally for 3-5 years stints, which would consolidate the program while building stable personal links with departments	Deans to secure additional teaching commitments from existing permanent faculty at McMaster.		
Build partnerships and explore possible collaborative opportunities with other programs	The IGHC will consult with the Directors of the MA in Gender Studies, the MA in Cultural Studies & Critical Theory, and other relevant graduate programs to identify potential areas of collaboration, cooperation, and partnership in order to enhance the student experience.	Director/Advisory Committee	Ongoing over next 3 years
Hire a part-time administrator to assist the Coordinator and increase opportunities to involving students in faculty research and training.	The IGHC will enter into negotiations with the Dean of Social Sciences to secure an additional staff position.	Director	Fall 2018
Explore opportunities with the Office for Community Engagement and look to commensurate programs for guidance and potential collaboration to develop experiential learning opportunities. However, be mindful of existing resources constraints and the material frailty of the program. In order to have a successful community engagement program, the MA would require additional personnel to manage the opportunities. In the absence of increased teaching units and	The IGHC will continue building its relationship with the Office of Community Engagement by connecting graduate students with research opportunities in the Hamilton area. Research opportunities that complement students' MRP papers will be prioritized. The level of engagement with this Office will be mindful of the administrative resources available at the IGHC.	Director	Ongoing

administrative support, we do not recommend pursuing community engagement.			
Internationalization: where possible, more funding should be directed to offsetting international fees in the form of tuition waivers or scholarships. This will attract more international students to the program whilst maintaining its commitments to inclusion and accessibility for disadvantaged and marginalized people.	The IGHC will continue working with the Faculty of Social Sciences, in particular the Associate Dean of Graduate Studies and Research, to secure additional scholarships and other financial resources for international students.	Director	Ongoing
Increase research training opportunities for students.	The Advisory Committee will consider this recommendation and look to design research training workshops for all graduate students as well as increase the number of opportunities for students to work as Research Assistants. Further efforts will be made to integrate graduate students into the research life of the IGHC.	Advisory Committee	Ongoing over next 3 years
Improve marketing and profile with sister undergraduate programs beyond McMaster	The IGHC will promote the MA in Globalization to undergraduate students in relevant global studies programs across Canada and abroad. It will consult its 2015 report on the possibility of creating an undergraduate program in Globalization Studies at McMaster. This report conducted a detailed	Director	Fall 2018

	analysis of undergraduate programs in global studies. The IGHC will aim to marketing the MA in Globalization to students in these programs.		
Standardize the TA allocation process and make clear that these positions are allocated on a competitive basis.	The Advisory Committee will create new protocols for the distribution of TA positions and develop a transparent process for communicating how these positions are allocated to students.	Director/Advisory Committee	Fall 2018
Refine the research methods course such that it offers training opportunities beginning in first term and formalizes the workshop program.	The Advisory Committee will consider this recommendation as part of its overall consideration of how its core graduate courses (Globalization 709 and 710) are taught.	Advisory Committee	Fall 2018
Develop program streams to improve the coherence of the program and assist students in the design of their MA degree	The Advisory Committee will review the program structure of the MA in Globalization and make changes that will enhance the student experience while maintaining the academic integrity of the program.	Advisory Committee	Ongoing over the next 3 years
Consider improving experiential learning and community engagement opportunities by increasing the faculty resources involved and interchanging the MRP with field work opportunities.	The IGHC will consider this recommendation contingent on securing staff resources to support internships and field research opportunities.	Advisory Committee	Ongoing over next 3 years
Offer research assistantships in projects led to faculty members'	The Director will consult with the Dean of Social Sciences as	Director/Advisory Committee	Fall 2018

research programs, in place of scholarships	well as the Associate Dean of Graduate Studies and Research in order to determine the feasibility of this recommendation. The Advisory Committee will also reach out to IGHC faculty and encourage them to use their research funding to hire Globalization MA students as RAs.		
Re-introduce distinct positions for the direction of the MA program and of the Institute.	The Advisory Committee will consider this recommendation about the governance of the IGHC and graduate program once the new Director begins her five-year term in July 2018.	Advisory Committee	Fall 2018
Ensure that membership of the advisory group be broadly representative of the McMaster community and especially of those engaged with globalization issues, and that it be truly involved in the life of the program and of the Institute.	The Advisory Committee will review its membership on an ongoing basis in order to ensure that it is a diverse and representative body.	Advisory Committee	Ongoing
Develop a PhD Diploma/Certificate in Globalization that could be tacked on to a standard disciplinary PhD.	The Advisory Committee will consider this recommendation and consult with relevant PhD granting departments at McMaster about their interest in such an initiative. The viability of providing a Diploma for MA/MSc students in other programs will also be explored.	Advisory Committee	Ongoing over the next 3 years

Dean's Response

Overall, the reviewers provided a resounding endorsement of the program, while noting some areas for improvement and recommending some specific actions to undertake to address them. The reviewers emphasized the distinctiveness of the Globalization MA within the Canadian landscape of global programs (e.g., Munk, Balsillie, etc.), the exceptional student experience in the program, the intellectual rigour underlying its approach to the critical analysis of globalization and its effects, and the program's fit with McMaster's strategic focus on globalization and internationalization. As is often the case for interdisciplinary programs that cross departments and faculties, it relies heavily on the goodwill and commitment of participating faculty, and the reviewers lauded the commitment of participating faculty.

While the Faculty will support the IGHC as it implements the larger set of recommendations, the Dean focused his comments on those recommendations for which the Faculty may play a particularly important role.

1. Build partnerships and explore possible collaborative opportunities with other programs.

This recommendation is consistent with a greater emphasis within IGHC more generally on increased collaboration (research and educational) both with other units at McMaster and externally. While the report highlighted opportunities with Humanities, which should be explored, opportunities likely exist with other faculties as well. There may be scope, for instance, to expand the current collaboration within the inter-faculty Global Health graduate programs. A broader range of research collaborations with other academic partners external to McMaster may also lead to opportunities for exchange and other types of educational collaborations. The Dean's office is happy to work with IGHC as appropriate to pursue such opportunities.

2. Secure committed teaching units from tenure track faculty members from Social Sciences and Humanities at McMaster University for extended periods, ideally for 3-5 years stints, which would consolidate the program while building stable personal links with departments

This, to be frank, is a challenging recommendation at a time when the faculty complements in both Humanities and the Social Sciences have fallen, overall course enrolments have grown, and, although the financial status of each has improved in recent years, both faculties continue to face fiscal challenges. Nonetheless, the Dean's office will work with the Director of IGHC, relevant Department Chairs and interested faculty, and the Dean of Humanities to explore opportunities to make such time-limited commitments to the Globalization MA. Working together, they may be able to identify creative ways to take advantage of shared interests that can provide greater stability to the MA program.

3. Hire a part-time administrator to assist the Coordinator

The administrator role is a shared position across the Globalization MA and general IGHC programming and activities. Changes to staffing therefore have to be considered within the larger context of demands across these two components of the position, and support provided by IGHC for its activities

distinct from the MA program. They also have to be considered in light of the new responsibilities providing support for a limited set of administrative activities to the Water Without Borders program, an arrangement that began this past year (and is more limited than depicted in the review report).

4. *Internationalization: where possible, more funding should be directed to offsetting international fees in the form of tuition waivers or scholarships. This will attract more international students to the program whilst maintaining its commitments to inclusion and accessibility for disadvantaged and marginalized people.*

Admitting international students has been, and will continue to be, a challenge for the program. The Dean viewed this issue as linked to the discussion and recommendations about integrating students into faculty research. The reviewers too readily dismissed the contribution research funding associated with IGHC and its faculty can play in providing funding to support the admission of strong international (and Canadian) students. While tuition waivers can help and deserve to be examined, alone they will be of limited effectiveness. Working with IGHC, the Faculty needs to develop ways to expand the pool of resources available.

5. *Experiential Learning and Community Engagement*

- a. *Consider improving experiential learning and community engagement opportunities by increasing the faculty resources involved and interchanging the MRP with field work opportunities.*
- b. *Explore opportunities with the Office for Community Engagement and look to commensurate programs for guidance and potential collaboration to develop experiential learning opportunities. However, be mindful of existing resources constraints and the material frailty of the program. In order to have a successful community engagement program, the MA would require additional personnel to manage the opportunities. In the absence of increased teaching units and administrative support, we do not recommend pursuing community engagement.*

These two are linked. The reviewers correctly identify these as a challenge in a 12-month MA program. However, a number of aspects of the current environment suggest that there may be more opportunities than in the past. The greater emphasis on experiential learning in graduate training suggests that both more and more variety of opportunities will be available, even in the context of programs structures as the Globalization MA. Given that many of the faculty associated with IGHC conduct community-engaged research, better integration of Globalization students in the research of faculty should create opportunities for community engagement related to that research. This is also consistent with potential opportunities for students to get involved with the Office for Community Engagement through the research shop that it now oversees. So while resources and the nature of the 12-month program place real constraints on the nature and amount of experiential learning and community engagement that is possible within the MA, it is possible to improve upon the current situation.

6. *Re-introduce distinct positions for the direction of the MA program and of the Institute.*

This is an internal matter relating to the governance of IGHC and its programs. IGHC receives the same support for the Institute and the MA program (6 units of teaching release) as comparable units within the Faculty. The MA program is notably smaller than the graduate programs of departments

and schools in the Faculty, which counterbalances the increased administrative complexity of an interdisciplinary MA.

Quality Assurance Committee Recommendation

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow a modified course of action with a progress report and a modified internal cyclical review to be conducted no later than 4 years after the start of the last review. At the time of the internal review, the committee will be looking at progress that has been made in response to the recommendations and specifically, how the recommendations have been implemented with the resources available at the time.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Master of Health Management

Date of Review: January 22 and 23, 2018

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the Master of Health Management Program. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Review

In accordance with the Institutional Quality Assurance Process (IQAP), the Master of Health Management program submitted a self-study November 2017 to the Vice-Provost and Dean of Graduate Studies to initiate the cyclical program review of the program. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Deans, Faculty of Business and Health Sciences, and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on January 22nd and 23rd, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, Co-Directors of the program and meetings with groups of current students, full-time faculty and support staff.

The Co-Directors of the Program and the Deans of the Faculties of Business and Health Sciences submitted responses to the Reviewers' Report (March 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

- **Strengths**

Master in Health Management (MHM) is an innovative program, exceptionally well run and is meeting the advanced education needs of health professionals. Overall, stakeholders (staff, full-time and part-time faculty, upper management, students and alumni) view this program positively. Two indicators reported in the self-study, student retention and time to completion, reflect a rigorous, yet appropriately paced, program that selects the right candidates. Revenues are reinvested in support of faculty (research and conferences) and students (awards). Current innovations in the program to integrate a full-time stream and course development to support experiential learning options are key indicators of the ongoing responsiveness of the program to student demand and feedback.

- **Areas for Enhancement or Improvement**

The program noted that the following items were worthy of their attention but not included by the reviewers in the section called areas for enhancement/improvement:

1. Reviewers note that the admissions process of non-regulated healthcare professionals should be more transparent. Admission requirements for non-regulated healthcare professionals are listed on the program website. Applicants are required to submit a one-page letter outlining their educational and work experience and provide a clear rationale as to how these have prepared them for meeting the following core competencies of the Master of Health Management Program:

- a. Awareness of the political and healthcare environments
- b. Organizational behaviour and human resources management
- c. Financial management
- d. Research awareness
- e. Leadership

The statement regarding the letter and the core competencies is linked to the admissions page; based on the feedback of the review team they will ensure that this is included on the main page and added to the MHM Program description of the 2019-2020 Graduate Calendar. They will discuss at a future executive meeting the inclusion of non-regulated healthcare professionals, review data on the achievements of the non-regulated health professions who have completed the program and determine whether additional admissions criteria are warranted.

2. The reviewers suggest that the feasibility of offering travel bursaries for students to attend the residency be investigated and considered by the MHM executive. The program will review the need and financial implications of providing travel bursaries for students. As current students are working full-time, we do not anticipate that there is a significant need. However, they are mindful that the costs associated with attending the residencies could be significant in the full-time cohort. If demonstrated

need is apparent, then a process will be developed and shared with students in time for 2019 Spring Residency.

3. On an ongoing basis, pre-course skills will be identified by instructors and appropriate modules will be added to the MHM Virtual Office for students to gain various proficiencies that could attribute to course success.

4. The reviewers note that there was little information about academic services accessed by students and their level of satisfaction with these services. The program will implement a survey of current students and recent graduates of their use of available student services to assess utilization and need.

Summary of the Reviewers’ Recommendations with the Department’s and Dean’s Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
Curriculum (EDI, Canadian content and examples)	<p>-Although not always explicit, the topic of EDI is included in some courses (HM700-Health Policy, HM708-Leadership). We recognize that aspects of EDI could be included in all courses. We will poll current instructors about the inclusion of EDI in their courses to understand our baseline. We plan on having this as a discussion topic at the Fall 2018 Instructors Meeting. Instructors will discuss personal strategies to include EDI in their curriculum. Instructors will add a statement about EDI to their course description of the 2019-2020 Graduate Calendar.</p> <p>-Some courses do include content dealing with other provinces/countries. In HM700-Health Policy and HM731-Economic Evaluation students have the freedom to complete an assignment using any province/state/country. Instructors will discuss personal strategies to include more Canadian/world content, and interprofessional examples that are more relatable to all students in their curriculum at the Fall Instructors Meeting.</p>	<p>-Instructors -Executive</p>	<p>Initiate at Fall 2018 Instructors Meeting. Adopt new and better examples each year.</p>

Curriculum (human resources, digital health, quantitative analysis techniques)	<p>The core content of the program and courses is reviewed annually.</p> <p>-Aspects of human resources (HR) are included in HM706–Health Foundations I, HM708–Leadership, and Spring Residency (Conflict Mode workshop). We will discuss key HR learning outcomes at a future executive meeting and where best to include these materials: in an existing course(s) or an online module.</p> <p>-Digital health is not significantly core to MHM curriculum. Students interested in this topic have the choice to focus on this area by completing an elective, HM730-Scholarly Paper, or HM798-Experiential Study.</p> <p>-Including quantitative analysis techniques is beyond the scope of the MHM Program. Students interested in this topic have the choice to focus on this area by completing an elective, HM730-Scholarly Paper or HM798-Experiential Study.</p>	-Instructors -Executive	At future executive meeting discuss key HR learning outcomes and determine where to include these aspects in the curriculum by Fall 2019.
Enhance mental health supports for distance students	<p>Through the Student Handbook and during the Fall Residency, we will increase student awareness of available mental health supports (in-person or by phone). Staff have completed QPR training. We will send annual reminders to Instructors and MHM staff of available mental health supports for students. Instructors have mental health resources available in the Instructor Guide and the Instructors Virtual Hub. These resources are used to support and redirect students when appropriate.</p>	-Instructors -MHM staff	Reaffirm supports to instructors, staff and students at the beginning of each academic year.
Provide informal, confidential mentoring opportunities	<p>Group work and residency periods offer students the opportunity to develop community within their cohort and outside of their cohort. During the residency and within the Student Handbook, we will provide a</p>	-Program Manager -Co-Directors	Include in Student Handbook and Orientation for each Fall Residency.

	list of ways students have and can create mentoring opportunities. It is our impression that some students have organically developed these relationships through Facebook, etc. The nature and means of these opportunities can differ based on the needs of the students.		
Marketing (program name, interprofessional)	We have not heard this feedback previously. Thank you for bringing it to our attention. We will amply promote the interprofessional nature of the program and highlight its value to the student experience. All marketing materials including the website and brochures will be reviewed and updated to include additional strengths of the program such as flexible, leading, doable, and interprofessional. We acknowledge that there has been some unfamiliarity with the degree designation of MHM. To counter this, we will ensure that students develop awareness of the differences between a MBA, MHM, and MHA degree with the intent to educate and advocate about the nature, content, and value of the MHM degree. We are confident that there will be more clarity in the community as we produce more graduates who can advocate on behalf of the program.	-Program Manager -Co-Directors	To be completed by Fall 2018. Ongoing with each new group of students.
Program planning (PhD and career pathways)	Advise students during Fall Residency and Spring Residency about the connection between course selection and academic/career pathways. Examples of careers such as management in health system, consulting, policy, etc. could be included.	-Program Manager -Co-Directors	Include in each Spring and Fall Residency.
Student input through focus groups	The MHM Program gathers student input after each residency, each course, and one year after graduation. Informally students provide program input during the	-Program Manager	Include in each Spring Residency.

	Spring Residency. A formal focus group could be led by the McPherson Institute during the Spring Residency. Any other time may be challenging given the fact that our students and alumni are located across Canada and abroad.		
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Dean’s Response

The Deans’ appreciated that the reviewers recognized the innovative nature of this program that combines both business and healthcare administration. They agreed with their perception that the joint government and management is working very effectively and that the program does not have any major weaknesses. They appreciated the enhancements that were recommended for greater transparency in the admission of non-regulated healthcare professionals and to improve mentoring and mental health supports given that the primary mode of program delivery is through online courses. They also appreciated the suggestion to further develop the curriculum in some specific content, including issues related to equity, diversity and inclusion, human resource management and the coordination and delivery of healthcare to diverse populations and beyond the Ontario environment. The positive feedback on how the program is being run by the co-Directors and on the program’s quality indicators and enhancements was appreciated.

They reviewed the program response to the reviewers’ reports and fully agreed with their plans to address the suggested improvements, including the supports to attaining pre-course skills for those in need, enhancement to the program curriculum, and the enhancements to admissions for non-regulated healthcare professionals. They will be following the progress of these changes. Related to exploring needs for travel bursaries, they agreed with the program’s view that the needs may not be significant given that current students are working full time. They support the plans to improve marketing, survey current students and recent graduates about academic services, and to increase student awareness of the interprofessional strengths of the program, mental health supports and mentoring opportunities. They also agreed with the plan to use the residency periods to discuss the possibility of PhD and other post-MHM completion career pathways.

Quality Assurance Committee Recommendation

McMaster’s Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Materials Science and Engineering – Graduate Programs

Date of Review: February 6th and 7th 2018

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the graduate programs delivered by Materials Science and Engineering. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Review

In accordance with the Institutional Quality Assurance Process (IQAP), the Materials Science and Engineering program submitted a self-study in December 2017 to the Vice-Provost and Dean of Graduate Studies to initiate the cyclical program review of its graduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Engineering and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on March 30 - 31, 2017. The visit included interviews with the Provost and Vice-President (Academic); Associate Vice-President, Faculty, Associate Vice-President and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, Chair of the department and meetings with groups of current students, full-time faculty and support staff.

The Chair of the department and the Dean of the Faculty of Engineering submitted responses to the Reviewers' Report (April 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

- **Strengths**

The Reviewers have highlighted the following as clear strengths of the Department's Graduate Program: (i) reputation for research excellence and achievement, (ii) world class resources housed within the Department's research centres (CEM, SRC and CAMC) and (iii) quality of the student experience. The global reputation for research excellence and achievement is based on two key aspects. First, is the Department's record of research excellence awards, as contributed by both graduate students and faculty members. Second, is the Department's healthy and sustainable funding lever per full-time equivalent, which is viewed as being above average for a Materials Science and Engineering program in Canada. The world class resources are based on the state-of-the-art research instrument and tools that have been acquired over the past decade and half as part of successful capital grants applications along with the associated modernized space that is available for graduate research. The quality of the student experience is based on the generous level of financial support that is provided along with the incorporation of graduate students into the Department's administrative functions.

An emerging strength recognized by the Reviewers is the set of recent faculty hires at both the assistant and associate levels, as these hires have both expanded the breadth of research offerings in the department and increased the gender diversity of the faculty. The biomaterials hires in particular were called as having significant potential for expansion into biomedical research by coupling with the School of Medicine, which is a globally recognized area of strength for the University.

- **Areas for Enhancement or Improvement**

The Reviewers have highlighted the following relevant areas for enhancement: (i) future hires, (ii) career planning initiatives and (iii) additional course offerings. A future hire in the field of computational materials science would strengthen this under represented areas at the Department and serve to enhance the breadth and depth of research expertise available. Expanding the career planning initiative to include follow up activities and incorporate industry involvements will serve to enhance the quality of the quality of the student experience. Leveraging courses offered at other universities via video link will serve to provide increased coursework options such that the associated program learning objectives can be realized in more student-specific manner.

The Reviewers have highlighted the following areas for improvement: (i) website, (ii) removal of the Materials Science degree designation and (iii) modification of the graduate seminar course. An improved website will serve as an effective tool to better promote the Department's programs and research opportunities that are possible taking advantage of world class faculty and research infrastructure whilst enjoying a high-quality student experience. A simplified offering of two, rather than four, core degree programs (one at the Master's level and the other at the PhD level) will remove a "quirk" that is not typical of Materials Science and Engineering programs worldwide and, thus avoid confusion for potential graduate students. A modified graduate seminar course will ensure that the both the "speaker" (feedback assessment) and "audience" (active learning) roles are indeed aligned with the program learning objectives, as indicated on the Department's curriculum map.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
Update website and make it more exciting for potential graduate students	-Work with Faculty web masters to share resources to decide on layout and acquire content for updated website	Department Leadership (Chair, Associate Chair - Undergraduate and Associate Chair - Graduate)	Summer Term 2018
Remove Materials Science Degree (at both Master's and PhD level)	-Held Department meeting in March to discuss this specific recommendation -Consensus to offer one degree each at level (Master's and PhD): Materials Science and Engineering	Department Leadership (Chair and Associate Chair - Graduate)	-Prepare and submit necessary paper work to GCPC during 2018-2019 academic year
Modify graduate seminar course	-Strike a Department committee to examine the recommendation in detail and then propose a solution strategy	Associate Chair – Graduate to chair the Department committee	- Committee meetings to be held during Summer and Fall Terms - Decision early in Winter Term - Prepare and submit necessary paper work to GCPC during before deadline for 2019-2020 academic year
Future hire in computation materials	Already identified as priority area in Department's strategic hiring plan	Department Chair	- Discussions are ongoing with local industry to develop and industrial research chair in this area. - Our hiring plan also aligns with the Faculty's <i>Smart Systems</i> priority area. We will be submitting a proposal for hiring in the area of AI.
Expand career planning initiatives	-The Faculty of Engineering is already in the process of	Associate Chair - Graduate	Summer Term 2018

	releasing online career planning modules. -Work to promote these modules and encourage graduate students to complete them.		
Additional course offerings through video-link	Strike a Department committee to examine the recommendation in detail and possible pathways forward	Associate Chair – Graduate to chair the Department committee	- Committee meetings to be held during summer term as trail run could be offered as Special Topics course in 2018-2019 academic year

Faculty Response:

The Faculty extended its gratitude to the reviewers, department staff, graduate students and faculty members who carried on this important task. Materials Science and Engineering (MSE) is the oldest department in the Faculty and represents a strong foundation upon which the Faculty has built its international reputation. The Faculty accepted the report as a very positive indicator of the high quality academic programs it offers and the open, collaborative social environment it creates for its graduate students.

The faculty has undergone substantial growth over the past four years, with MSE hiring four tenure track professors in areas of biomaterials and materials processing/characterization. Requests for future hires will be accommodated in the fullness of time as student demand requires, but for the moment the Faculty will be unable to cover the requested computational faculty position. Neither the program nor reviewers are identifying computational research as a knowledge deficit impairing the quality of the programs or reputation of the institution, and so they will accept the recommendation as meant for future discussions with the department on their strategic plan.

The overlap in degree requirements between the science and engineering degrees (both Master’s and Doctoral) has been a recent source of confusion and the Faculty was happy to acknowledge that the department will be eliminating the science degrees. The Associate Dean will assist the department in moving these changes, along with the course changes, through the mechanisms of the university starting in the fall of this year.

Quality Assurance Committee Recommendation:

McMaster’s Quality Assurance Committee (QAC) recommends that the Materials Science and Engineering graduate programs should follow the regular course of action with an

Materials Science Engineering M.A.Sc./M.Sc./Ph.D.

18-month progress report and a subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.

FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

Psychology – M.Sc. and Ph.D.

Date of Review: April 19 – 20, 2018

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the graduate programs delivered by Psychology. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the Review

In accordance with the Institutional Quality Assurance Process (IQAP), the Psychology program submitted a self-study in March 2018 to the Vice-Provost and Dean of Graduate Studies to initiate the cyclical program review of its graduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Science and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on April 19 and 20, 2018. The visit included interviews with the Provost and Vice-President (Academic); Vice-Provost and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, the Chair of the program, meetings with groups of current students, full-time faculty and support staff.

The Chair and the Dean of the Faculty of Science submitted responses to the Reviewers' Report (June 2018 and August 2018). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

Strengths

- PNB is a high functioning, collaborative, and integrated department, and this reflected throughout the graduate program. The strengths of this program include a flexible and individualized program, a high degree of collaboration that allows each student to work with multiple faculty members, and extensive opportunities for graduate students to engage in mentorship of research assistants. PNB is unusual among psychology graduate programs in maintaining a well-integrated research-intensive program that has not split into multiple streams or fields of study.
- The IQAP review team stated in their review (page 5) that the “PNB graduate program is high quality and well-functioning”. They further stated that the program provides a rich and collaborative program for our students, and that PNB has an uncommonly high level of collaboration and cohesion across the department. They noted that we “successfully combine rigorous academic graduate training with a strong sense of collegiality”.
- The review team noted that research in PNB is very strong, based on publication and citation rates, as well as international reputation.
- The reviewers were very positive about the recent introduction of the Research and Clinical Training (RCT) stream. They stated that the objectives of this new stream, which is to provide a small number of students each year with opportunities for strong clinical research training, and to do so in a manner that maintains integrity with the PNB program more broadly, have been largely met. There is a high level of satisfaction with its current delivery and a strong sentiment that the success of the stream to this point is in large part owing to the strong partnership between PNB and Psychiatry that oversees its administration.
- The review committee expressed a positive opinion about the curriculum, in which the department achieves the program’s learning outcomes in a manner that reflects disciplinary trends in the field using a strong “teaching at the bench” apprenticeship model, and by interdisciplinary work, collaboration, and acquisition of strong statistical and computational skills.
- The review team emphasized the cohesion of PNB very positively, as follows: “The extent to which opportunities for collaboration and interdisciplinary research are built into all components of the curriculum was viewed by the reviewing committee as an especially innovative feature and unique strength of the PNB graduate program. We were struck by how purposeful this aspect of the curriculum design was, and to what degree it was reflected in the department culture as a whole, which exudes a spirit of cooperation and cohesion. It is more common for Psychology departments to be functionally split into separate research areas. The PNB department at McMaster has done exactly the opposite and maintains a remarkable level of cohesion across the subdisciplines of psychology, to the benefit of the graduate program.”
- In addition to the formal program requirements and expectations, students gain the opportunity during their graduate studies to develop strong mentorship skills by actively participating in the supervision of undergraduate project students and volunteers. It is common practice for undergraduate students in years 2, 3, and 4 to assist graduate students in their laboratory research, and to collaborate with graduate students on data analysis and

writing papers. The committee was extremely impressed by the level of engagement of graduate students in this apprenticeship model that would clearly facilitate students in achieving many if not all of the Graduate Degree Level Expectations and corresponding program learning outcomes.

- Even within the areas of improvement identified, the reviewers stated that the members of PNB seemed well-attuned to the challenges, and well-prepared to respond.

Areas for Enhancement or Improvement

- The executive summary offered by the review team: In general we conclude that the PNB graduate program is of very high quality. All of our recommendations should be considered as minor recommendations and are not meant to detract from our general conclusion that this is a very strong program.
- The reviewers confirmed that the program functions very well but could be further enhanced through formalizing some processes in procedures. This would particularly benefit the program moving forward as new faculty members are recruited as supervisors. Providing clarity about topics such as composition and term length of the graduate studies committee, graduate course offerings, expectations around reading group courses would enhance the transparency of the program for newcomers without sacrificing the very strong sense of collegiality and community.
- During the review the topic of long-term funding for core facilities, such as the LiveLab, came up. This is a common challenge in Canada where there is a challenge in funding ongoing operation of infrastructure built with CFI funding. The review team stated that the PNB department and university will need to work together in the long-term for the operation of such facilities.
- PNB is top heavy due to challenges related to hiring. They have not been able to add to the faculty complement in recent years. Moreover, there is an imbalance in the male:female ratio in the research stream that has widened considerably over the last several years.
- The program would like to improve their skills at developing and offering workshops on professional development for both academic and industry related careers. This might be done effectively in collaboration with other departments, and to that end we will coordinate through School of Graduate Studies.

Summary of the Reviewers' Recommendations with the Department's and Dean's Responses

Recommendation	Proposed Follow-Up	Responsibility for Leading Follow-Up	Timeline for Addressing Recommendation
<p>Recommendation 1 PNB should continue to work with the Faculty of Science to identify how to use funds to attract international students and enhance internationalization. Context: The review team wrote: "The department has a very strong international reputation. Based on our meetings with faculty and graduate students, it appears there is a lack of clarity regarding the financial support recently made available for international graduate students. We see an opportunity here to build on existing strength. The PNB program should continue to work with SGS to identify how to use recent funds made available for international Ph.D. students in a manner to facilitate internationalization."</p>	<p>The site visit (April 19-20, 2018) was held at the same time as changes to international graduate tuition and support were being discussed and implemented at McMaster, so the sense of lack of clarity when talking to faculty and students was likely a function of these new opportunities being in transition. The School of Graduate Studies (SGS) has been working closely with faculties and departments to optimize our international PhD student fee structure in light of the Ontario government's modified structure of funding to Ontario universities.</p>	<p>PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC), School of Graduate Studies (SGS).</p>	<p>Ongoing now, in consultation with Faculty of Science and SGS.</p>
<p>Recommendation 2 PNB should continue best practices in graduate student recruitment and work to ensure implicit biases are minimized throughout the recruitment process. Context: The review team wrote: "Based on discussions with faculty members it appears the program is already doing a good job of ensuring that admission is based on merit and not</p>	<p>As a department they recognize the power of implicit biases and the challenges involved in identifying situations where implicit biases play a role. They have</p>	<p>PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).</p>	<p>Over the 2018-2019 academic year (and beyond) we will continue to improve our process for reviewing graduate</p>

<p>how sociable or “like us” the applicants are. We encourage the program to continue to face this challenge and to codify practices to continue to reduce any implicit biases (which we are all subject to) in the admission process.”</p>	<p>organized workshops around these issues and will continue to address this important issue going forward. With respect to graduate recruitment, they agree with the review committee that it is important to codify the assessment criteria used in the recruitment and admission process so that we can better evaluate our responses and work on minimizing effects of implicit biases. We would like to underline the importance of identifying and reducing implicit biases in other areas as well, such as hiring practices.</p>		<p>applications, as well as improve our evaluation process over the recruitment weekend activities. They are mindful of the need to apply these same improvements to our hiring processes.</p>
<p>Recommendation 3 (Curriculum): The program should formalize existing criteria for student performance and progress to ensure that assessment of student progression is transparent and accountable. Context: The review team wrote: “While the committee was impressed by the element of flexibility that is built into the curriculum, allowing students to tailor their program in manner that best befits their interests and career development, we would encourage the department to continue to develop practices to ensure clear and accountable processes on student performance and progress. For example, it was not entirely clear to us what the process is (or whether there is a formal process in place) for following up with students who are identified as progressing with difficulty during the course</p>	<p>The program stated that their procedure for monitoring individual student progress is quite good at present but could well benefit from additional measures as recommended by the IQAP review team. Currently, their process for monitoring progress is designed to create a paper trail of progress each year, including supervisory committee meeting reports, progress report evaluations, and review of each individual student at the annual June faculty meeting. Students who are not progressing as well as desired are identified at the June</p>	<p>PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).</p>	<p>This will be resolved over the 2018-2019 academic year.</p>

<p>of the annual evaluation meeting, and also for ensuring that students complete course requirements in a timely manner. Although we understand that the supervisory committee is expected to follow up with the student and create a plan when performance is unsatisfactory, we would recommend that consideration also be given to the Graduate Chair providing a letter with feedback from the department.”</p>	<p>meeting and both the supervisory committee and the graduate chair follow up on these students. There is a process already in place such that a letter from the graduate chair and SGS is prepared when a student is substantially off-track in their progress. This is a very rare occurrence and they believe it is rare because our system of monitoring and guiding students is very successful. However, they agree with the IQAP review team that in some cases, a letter from the graduate chair with feedback from the department could be a valuable addition to our process. The GSC will develop a proposal for criteria for such a letter.</p>		
<p>Recommendation 4 (Curriculum): PNB should continue to ensure that adequate numbers of graduate courses are offered each year, with as much advance notice as possible in order to facilitate student planning. Context: The review team wrote: “We encourage the department to continue to be mindful of offering an adequate selection of courses each year, and to provide as much advanced notice of upcoming course offerings, such that students are able to optimize the feature of flexibility built into the program in a manner that is not constrained by course availability. This is an issue that came up in both our meetings with students and faculty. We recognize the challenges associated with timetabling</p>	<p>Improvements in course offerings, especially providing advance notice of what will be offered in the coming year, is already underway. In the past, scheduling of undergraduate and graduate courses has been organized separately, with undergraduate commitments obtained in December and January, and graduate commitments obtained much later in the year. The program sees an opportunity to improve scheduling of graduate courses by yoking</p>	<p>PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).</p>	<p>The program had already started earlier this year to confirm course availability for 2018-2019. They expect to have the new system in place for 2019-2020. The GSC will prepare course substitution guidelines for</p>

<p>of courses, and also that the department is making efforts to address the matter.” Further context: The review team also pointed out that PNB could set in place more explicit guidelines regarding course credit for reading groups and online courses: “While the committee applauds the flexibility and opportunity for program customization that this mode of delivery affords students, it was not clear to us what safeguards are in place to ensure quality control. We would encourage the department to develop a clearly articulated set of expectations and reporting process for the administration of these courses. Likewise, in the Self Study it is mentioned that students are sometimes given permission to complete online courses in fulfillment of course requirements. The process for approving these courses, or what assessment criteria they are expected to meet in order to ensure that they are achieving the intended learning outcomes is not clear. In addition, it is not mentioned whether there are a maximum number of credits that can be obtained via this option. We encourage the department to clearly articulate the approval process, including quality assurance. “</p>	<p>the undergraduate and graduate scheduling. This way they can post graduate courses months earlier.</p> <p>With respect to offering course credit for reading groups and online courses, the program thinks these options provide valuable flexibility for the students whose needs are diverse. In the case of course credit in a reading group setting, their approach has been to carefully structure content and assessment so that the requirements meet the expectations for a graduate level quarter-course or half-course. To this end, a course outline is constructed by the faculty member overseeing the reading group and is approved by the Graduate Studies Committee. In the case of an online course, the study module is negotiated between the student, the faculty member who oversees the student’s work, and the Graduate Studies Committee. They have added information to our Graduate Handbook with specific guidelines regarding expectations and evaluation.</p>		<p>implementation in 2018-2019.</p>
<p>Recommendation 5 (Curriculum): We commend the PNB department’s attention to</p>	<p>As the program outlined in their self-study, there are substantial efforts by SGS and the McMaster Graduate</p>	<p>PNB chair, PNB associate chair</p>	<p>To start, the program will</p>

<p>professional and transferable skills development in students, and recommend they continue these efforts at both the program level and in conjunction with SGS. Context: The review team wrote: It was the impression of the committee that more focused attention may be given to ensuring that students receive adequate opportunities for professional skills development, including encouraging students to take advantage of offerings by SGS. We understand that professional development is a component of the Contemporary Problems course that all students take in their first year, and is a component that is currently in development. We also recognize that the department has, since the last review, made efforts to prepare students for careers outside academia, including expanding course offerings in computational and skills-based methods, and organizing events that allow current in-program students to establish a network with former students who have successfully navigated the path to industry. We commend the department for these efforts, and encourage them to continue to develop this component of their curriculum.”</p>	<p>Student Association to offer workshops and other events that provide professional skills development. They already offer professional development classes as part of first year Contemporary Problems. They are working on improving these offerings for all of their students. Moreover, they are committed to learning more about the transition from academia to industry, so that the program can either provide workshops or point students to existing workshops that develop skills for both academia and industry.</p>	<p>(graduate), PNB Graduate Studies Committee (GSC).</p>	<p>expand their professional development series in CP for 2018-2019, and continue to identify (on campus and in the community) or develop a wider selection of lectures and workshops across the next two years.</p>
<p>Recommendation 6 (Teaching and Assessment): We recommend that the PNB graduate studies committee continue to monitor the functioning of the Contemporary Problems course in light of recent and potential increased enrolment. Context: The review team wrote: “There is a sense among some students that the ‘program has outgrown the course’. We understand that discussions between faculty and students have begun on how some aspects of the course design may be modified to support</p>	<p>The Contemporary Problems (CP) course is team taught by a rotating set of faculty members each year and is meant to provide breadth of knowledge about current research areas in the department, as well as offer tutoring on issues related to professional</p>	<p>PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).</p>	<p>They expect to transition over the next two years towards a model that can better satisfy the larger class sizes.</p>

<p>growing enrollment numbers, but in a manner that does not compromise those features of the course that seem to be working well. We commend the department for already initiating conversation on this issue in response to student feedback received in the course of preparing the Self Study, and encourage them to continue to refine the delivery and assessment of the course in a manner that reflects changing enrollments in the department.”</p>	<p>development. Moreover, it serves an important cohort building function for the incoming class. As the incoming graduate class grows larger, they must reorganize the way they offer CP so that important features are not compromised (e.g. student involvement in discussions). The program is exploring options, in consultation with faculty and students, to revise some components of CP and will be implementing a set of changes in 2018-2019 to enhance this valuable course.</p>		
<p>Recommendation 7 (Teaching and Assessment): PNB should continue its existing culture of sharing equipment and resources for graduate students across labs. Context: The review team suggested: “The department does not appear to have any current plans for renovations of facilities, but if and when such renovations are considered the program may benefit from moving from having graduate students and equipment housed in individual labs to a more open concept core facilities model. This would allow the physical layout of the department to more fully support the cohesive and collaborative nature of the program.”</p>	<p>The collaborative nature of the graduate program helps to maintain their success with sharing equipment and resources. There is enough space in the human research labs for their students to have their own desks in the lab itself. However, this does not work for the animal research labs and in that case the students share space in an open concept space. There are advantages and disadvantages to both these models. If the program is fortunate enough to be able to renovate department facilities in the future,</p>	<p>PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).</p>	<p>They do not expect to renovate facilities for all graduate students in the near future, but they do evaluate student working space each year. For example, this year (2018-2019) they are redesigning the space for the graduate students working</p>

	they will consider these pros and cons and decide whether to move to a more general open concept work space for all students.		in animal research labs.
Recommendation 8 (Academic Services): PNB should work with central administration to ensure adequate access to site-licensed software required by graduate students. Context: In our review the only academic service that appeared to need improvement was central site licensing of necessary software packages. It was not clear if this would be a Faculty or University responsibility at McMaster. Provisioning site licenses for necessary core software (e.g. Qualtrics, MatLab) is typically most efficiently done at an administrative level higher than the department. We encourage an exploration of how to most effectively to provide licenses for core, and necessary, software packages that support the graduate program in PNB and others on campus.	The program was in strong agreement that adequate access to site-licensed software is a critical element for productive research, and that this element could be improved at McMaster for some software packages such as Matlab. They will talk with administration at the faculty and university level to improve this critical support.	PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).	The program will initiate these discussions immediately, over the 2018-2019 academic year.
Recommendation 9 (System of Governance): The department may wish to be more explicit in regard to detailing the policies by which the GSC makes decisions and implements changes, perhaps as part of the Faculty-wide process of updating Department by-laws and program handbooks.	Over the 2017-2018 year the program has made substantial improvements by developing a PNB Graduate Handbook, as well as a handbook specific to the Research and Clinical Training stream. A graduate student committee was formed during the winter term (2017-2018) to work with the graduate chair to construct the PNB Graduate Handbook. We	PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).	These improvements are ongoing now; the program expects that updates will be needed each year. In fact, they are also revamping the department website

	designed the Graduate Handbook as a WIKI so that changes can be made at anytime in collaboration with faculty and students. Thus, the PNB Graduate Handbook is a “living” document such that it is edited and improved each time a question is raised or a clarification is needed. They are also working on updating PNB department by-laws.		on which department by-laws will be shared.
Recommendation 10 (System of Governance): Consideration may also be given to implementing a system whereby membership of the GSC is determined by election with renewable fixed terms.	Traditionally, the chair of the department is elected for a fixed term, and the associate chairs are selected by the chair for that same fixed term. The typical process for determining committee membership on GSC (as well as other department committees) involves a careful evaluation by the chair of the department of service and duties carried by faculty members. Assignment to committees is done in collaboration with associate chairs and the relevant faculty member so that the workload is shared fairly, and so that membership rotates across committees. Thus, each committee will usually have a rolling membership, with the chair	PNB chair, PNB associate chair (graduate), PNB Graduate Studies Committee (GSC).	During the 2018-2019 academic year they will propose to the department the idea of changing our system such that the department would elect members of the GSC to serve over a fixed term.

	<p>of the committee first serving as a member of the committee for 2 or 3 years, and members of the committee cycling out to different committees after serving for 3 or 4 years on a staggered basis so that the committee always consists of new and experienced members. This system has worked very well for the department.</p>		
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Deans Response:

This Dean's response was prepared by the Dean of Science with input from the Associate Dean of Science (Graduate). The Dean thanked the review team for their efforts during the site visit and preparation of the report. The review highlights the strengths of the PNB graduate program and indicate that it provides a high-quality, collaborative training atmosphere, and where impactful research is carried out by graduate students. It is worth noting that graduate enrolment in PNB has increased by about 25% since the last review took place in 2009, in part due to the new RCT stream. In spite of the substantial growth, the program has done extremely well with regards to maintaining the quality of the experience, the careful and consistent methods of assessments, and the overall academic progress of students.

The Program has provided a detailed response to the review recommendations and we agree with both the recommendations and those Program responses. In some specific areas we have provided additional information and context to supplement the program responses and action plans. The reviewers were positive about Program graduate curriculum map of learning outcomes and the fact that these meet degree level expectations. The Dean noted that the recommendations with regards to course offerings have been adequately addressed by the department and agreed with the timelines for implementation and action.

The recommendation to enhance reputation by recruiting international Ph.D. students is timely since starting 2018-19 McMaster has equalized the tuition of this category of students. This step should make PNB more attractive to recruit the best students from other countries. Also, Dr. Bhagwati Gupta (Associate Dean of Science, Graduate) is working closely with PNB, as well as other graduate programs, in the Faculty of Science to develop graduate program specific international student strategic plans and to understand the associated resource needs to support these internationalization efforts.

The Dean agreed with the recommendation of developing best practices and accountable processes in order to follow up on performance and progress of students effectively. The program recognizes that it is an important issue and will be taking steps to strengthen the processes currently in place. The Faculty of Science will work to support these efforts.

The Faculty of Science supports efforts towards professional skill development of graduate students. In fact, McMaster is currently participating in one of the OCAV Taskforce pilot projects on Graduate Experiential Learning that is led by Bhagwati Gupta, Associate Dean of Science (Graduate). As part of the project, a subset of graduate programs from Science, as well as other Faculties, are being reviewed for curricular experiential learning activities. The outcome of this exercise is expected to help us engage with graduate programs and the School of Graduate Studies to further enhance the professional skills of the graduate students.

With respect to the recommendation to explore the possibility of centralized access to site-licensed software and packages, this is a topic of discussion at many levels of the McMaster University. McMaster recently purchased centralized access to Microsoft Office for all students, faculty and staff and similar solutions for high use software and IT resources are being explored. The new

Information Technology (IT) governance process at McMaster will provide several opportunities for consideration of this, and similar recommendations in the future.

The cohesive and collaborative nature of the Department of PNB and the successes of its associated academic programs are outstanding examples of excellence within the Faculty of Science and McMaster University. The IQAP review process has provided an important opportunity for self-reflection, external review and subsequent refinement that will certainly enhance these already outstanding programs.

Quality Assurance Committee Recommendation

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with a progress report and subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.



Facility Services

2019/2020 Capital Plan Update

May 2019

BRIGHTER WORLD

FACILITY SERVICES



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1 INTRODUCTION

1.1 Scope of the Capital Plan

McMaster University's 2019/2020 Capital Plan is a planning document that supports the University's strategy Forward with Integrity (2011) and the Strategic Mandate Agreement (2014-17 and 2017-20). The intended purpose of this Capital Plan is to guide the growth of physical assets at McMaster University and it includes planning through fiscal year 2025/2026. The Capital Plan encompasses all buildings under the purview of McMaster, both on and off the main campus. The Campus Plan is a subsidiary document.

The Capital Plan is a Board-approved document to guide the University's priority setting and planning of capital projects over a period of time. It is intended to be responsive to the University's strategic vision both at present and in the future. As a result, the Capital Plan is viewed as a dynamic document that is subject to change in order to align itself with the shifting priorities and opportunities of the University. According to the capital planning process, this plan is updated annually. Additionally, the plan is supported by detailed documents that elaborate on various concepts and initiatives related to infrastructure such as academic and enrolment plans, research priorities, the Campus Master Plan, the Campus Capacity Study, the Asset Management Plan, the Campus Accessibility Action Plan and the Energy Management Plan.

In 2016, the University engaged in a "Capital Refresh", i.e., a statement of information regarding proposed projects, for the Ministry of Training, Colleges and Universities (MTCU). Input from stakeholders was gathered and incorporated into this version of the Capital Plan. The Capital Refresh statement touched on the then proposed projects such as the Peter George Centre for Living and Learning (PGCLL) and the Centre for Emerging Devices at MIP, but also included more detail on those proposals for which provincial funding was being requested: L.R. Wilson Hall Phase 2, Arts Quad Renovation and the STEM Academic Building.

1.2 What is a Capital Plan?

The Capital Plan represents McMaster University's existing approved priorities and a number of additional projects (funded, partially funded, or unfunded) for capital investment. It will set forth a framework to guide the growth of physical assets such as buildings and land and infrastructure. The IT Strategy 2019-21, which sets the strategy for information systems, is a separate document.

The Capital Plan provides an overview of the capital needs, issues and projects in various stages of development. Additionally, the plan summarizes the status of current and planned capital activities that are directly related to various planning processes. Furthermore, the Capital Plan encompasses other capital projects' activities related to the current condition of the University's building infrastructure, energy management capital projects and building accessibility capital investments. Table 1 illustrates the relationship of the Capital

Plan within the hierarchy of key capital plans and other documents prepared for the University.

Level of Planning/Reporting	Key Capital Plans and Reports at McMaster University	Audience	Review
Strategic: University's overall philosophy and approach to managing capital; highest level of planning; fundamental decisions and actions directed to achieving institutional goals	McMaster Capital Plan	Public	Annual
	Campus Master Plan	Public	Every 5 -10 years
	Asset Management Plan	Public	Annual
	Energy Management Plan	Public	Annual
	Campus Accessibility Action Plan	Public	Annual
	Campus Capacity Study	Public	2011
Portfolio Governance: Updates/funding status of capital projects for Board; delineate McMaster's management, oversight and monitor capital projects approved/under construction	Annual Capital Plan	Public	Annual
	Capital Funding and Expenditure Report	Planning and Resource Committee	Every meeting
Project Management: Identify strategic and specific capital requirements along with plans and strategies intended to resolve the most urgent and highest priority needs	Key Technical/Management Documents (Asset Reports)		
	Asset Management Plan	Public	Annual

Table 1

The Capital Plan includes the following Sections:

- Section 1, Introduction
- Section 2, Background and the Current State of Capital Infrastructure
- Section 3, Strategies Guiding Future Capital Development
- Section 4, Planning and Growth Assumptions
- Section 5, Projects and Initiatives to Support the Capital Plan
- Section 6, 2019/2020 Capital Plan and Budget
- Section 7, Conclusion and Recommendations
- Section 8, Executive Summary
- Section 9, Appendices

1.3 Why Create a Capital Plan?

The Capital Plan provides strategic guidance and direction for long-range capital development needs. As a post-secondary institution, McMaster is subject to ongoing demand for changes to its physical, structural and economic landscapes. To this end, the Capital Plan identifies capital funding needs and issues, summarizes current actions and capital projects and outlines potential funding solutions and strategies. This may include a combination of internal and external financing and informs decision-making at McMaster that is tied closely to the various planning processes and informs priority setting and the annual consolidated budget. The Capital Plan achieves all of these objectives in an effort to

promote a synoptic system of capital related resource allocation at McMaster. It is not however intended to deny opportunity; rather it provides a contrast against which to consider opportunities.

2 BACKGROUND AND THE CURRENT STATE OF CAPITAL INFRASTRUCTURE

2.1 The First 30 Years in Hamilton

In 1930, the University moved from Toronto to Hamilton, the forty-first academic session opening on the present site. The University's lands and new buildings were secured through gifts from graduates, members of the churches of the Baptist Convention of Ontario and Quebec and citizens of Hamilton.

2.2 Buildings Procured 1960 – 2019

For detailed information about the development of McMaster facilities during this period, refer to “McMaster University, Facility Services, Planning and Infrastructure Development History: 1960 – 2019” posted at <https://facilities.mcmaster.ca/>.

In the past 59 years McMaster has not only acquired infrastructure through new build construction and renovation/addition projects but has also procured the use of various existing off-campus buildings. For example:

- McMaster's family practice teaching unit, established in the early 1970's at Henderson Hospital, was relocated in the early 1990's to the south mountain as the Stonechurch Family Health Centre.
- McMaster Innovation Park (procured for use in 2004).
- 88 Forsyth Avenue (purchased in 2015).
- 47 Whitton Road (acquired in May 2015 and used for research purposes).
- 182 Sterling Street (purchased in 2015).
- One James North (leased from 2015).
- 96 Forsyth Avenue North (purchased in 2017).
- Existing houses bound by Forsyth Avenue South, Traymore Avenue, Dalewood Avenue and Main Street West (purchased in 2017).
- 106 Forsyth Avenue North (purchased in 2018).

Furthermore, McMaster has expanded to house remote campuses in space procured or leased in municipalities other than Hamilton:

- The Waterloo Regional campus was established by McMaster at the University of Waterloo in 2007 and focuses on Health and Medical Sciences.
- Similarly, in 2012, McMaster opened Educational Services space in St. Catharines at Brock University's Cairns Family Health and Bioscience Research Complex.
- In 2010, McMaster built the Ron Joyce Centre in Burlington.

- The Welland McMaster Family Health Team has been in operation since 2011.

2.2.1 Summary

Since 1960, McMaster has added a total of 40 buildings on campus to its existing infrastructure through new construction. These buildings total 4,597,669 gross square feet of added infrastructure, during the past 59 years. McMaster has also invested in several renovation/addition projects to existing infrastructure since 1960. During this time, McMaster has completed major renovations/additions, totaling 966,483 SF, on 20 campus buildings. Renovations and additions were often completed in order to update technological, electrical and utility infrastructure as well as add usable space. These construction projects have been supplemented with infrastructure growth off campus, particularly in the last decade, through the procurement of buildings and property.

Charts 1 through 3 indicate the growth in sponsored research money intake and student population and the comparative amount of new space added to McMaster, over the same recent period.

Chart 1: Added Sponsored Research Income

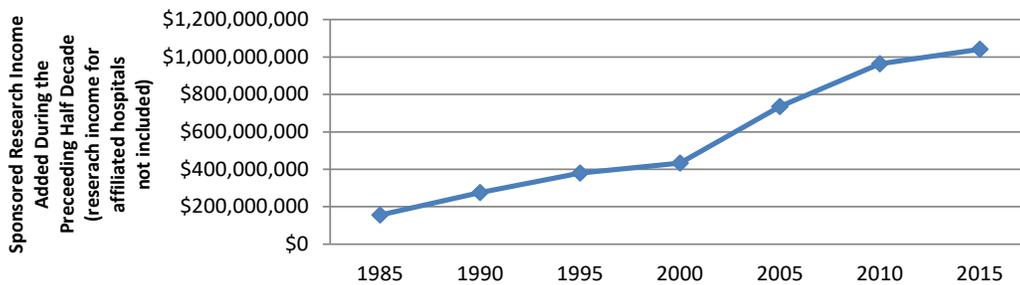
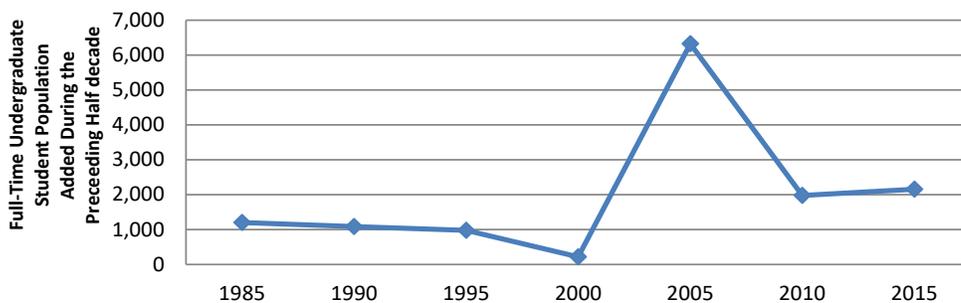
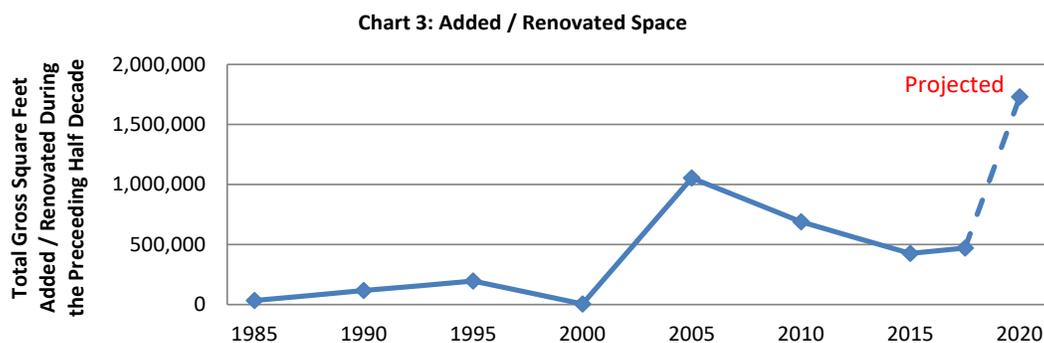


Chart 2: Added Student Population





2.3 Existing Usage, Ownership and Condition of McMaster’s Physical Assets

McMaster University was home to a total enrolment of 31,843 students (undergraduate and graduate, full- and part-time, not including students on co-op work term, as of November 1, 2017). The University employs 10,342 staff (as of July 25, 2018) and an additional 988 full-time instructional faculty (including research educators, but excluding clinician educators, as of November 1, 2017). Concerning the critical space categories, space is dispersed as indicated in Table 2, current as of November 1, 2016 and reported to the Council of Ontario Universities (COU) Committee on Space Standards and Reporting to inform the triennial “2016-17 Inventory of Physical Facilities of Ontario Universities.”

Category	Area (net assignable square feet (NASF))	Area (net assignable square metres (NASM))
1 Classrooms	284,372	26,419
2 Class Labs	194,515	18,071
3 Research Labs	620,712	57,666
4 Office Academics	644,898	59,913
5.1 Library Stacks	104,937	9,749
5.3 Library Support	10,419	968
5.4 Library Study	49,439	4,593
6 Athletics	185,602	17,243
9 Maintenance Shop	36,619	3,402
10 Office Administration	195,139	18,129
7,8,12,13,14,15 Central Services	257,925	23,962
Total	240,115	240,115

Table 2: 2016 Space by Category

McMaster’s most recent Campus Capacity Study (2011) cites critical needs for administrative office and related space, graduate student offices, assembly facilities and service space. A similar study is underway presently to update this information.

McMaster has 54 buildings on the main (Westdale) and west campus, including 12 residences, a nuclear reactor, a stadium complex and a hospital. McMaster owns or otherwise operates out of several more buildings throughout Hamilton and the province, such as the Ron Joyce Centre in Burlington. The main campus itself sits on 296 acres of land with approximately 5,900,000 gross square feet of building area. Appendix C includes a list of McMaster properties.

Charts 4 and chart 5 shows the breakdown of McMaster’s building age and area (facilities as listed in Appendix B).

Chart 4: Distribution Based on Building Age

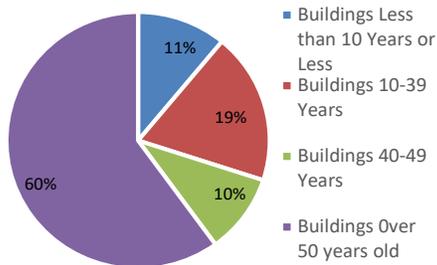
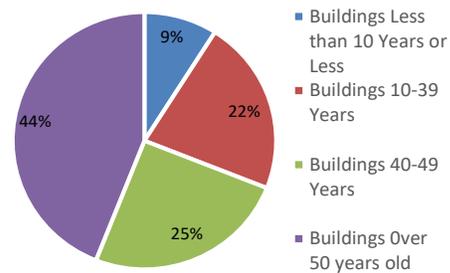


Chart 5: Building Gross Area Based on Age



Charts 6 and chart 7 show the breakdown of the condition of the on-campus occupiable facilities by building gross area.

Chart 6: Facility Condition Index by Building Gross Area (Excluding Residences)

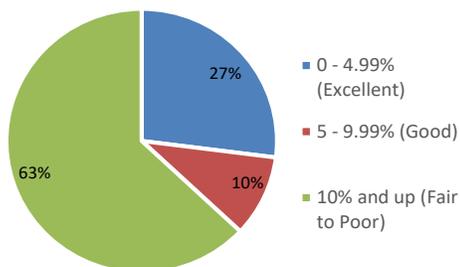


Chart 7: Facility Condition Index by Building Gross Area (Including Residences)

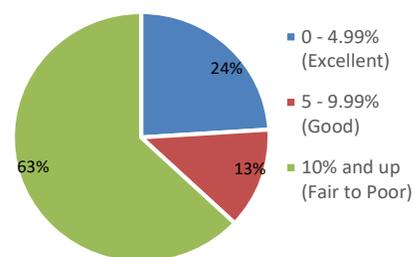
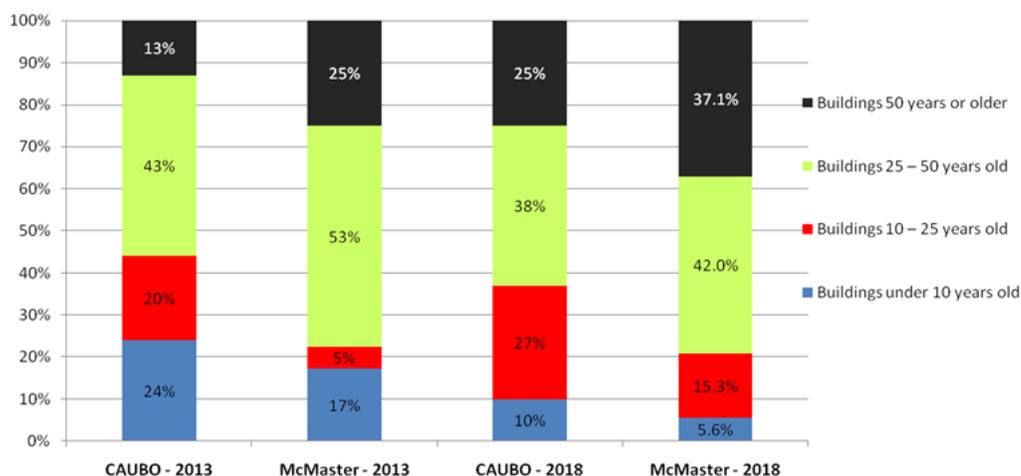


Chart 8 shows building age (as a percentage of total building area) at Canadian campuses compared to that at McMaster.

Chart 8: Building Age: Canadian Campuses compared with McMaster



* This chart includes existing buildings only. Potential new development is not included.

The Deferred Maintenance backlog was identified in 2012 as a high-risk item. Facility Services developed an asset management plan which has been updated and followed through on every year since then.

The Council of Ontario Universities (COU) Space Management Committee’s Triennial Report was published in June, 2018 as the Inventory of Physical Facilities of Ontario Universities 2016-17 and shows that McMaster’s current interior classroom space totals 284,382 net assignable square feet. It also shows that overall, the institution has increased its inventory of classroom space from having approximately 84% of the space it needs (2013) to 85% (2016) according to COU standards. This is covered in more detail in Section 5.1.

2.3.1 Computerized Maintenance Management System

PeopleSoft’s Maintenance and Asset Management modules are used to maintain McMaster University’s facilities and grounds. These modules integrate with McMaster’s Finance landscape (Asset Management, Project Costing, Expenses, Procurement and Payables and General Ledger). Proper maintenance of an organization’s asset infrastructure is key to ensuring safety, complying with regulations and achieving the financial and operational targets that are established by the leadership team. This software enables the organization to create work orders, schedule resources and track costs associated with asset maintenance and repair. In addition, McMaster employees can create an online self-service request to report or request maintenance, repairs, renovations, cleaning, moves and other service activities. When required, a work order is generated from the service request and associated costs can be billed back to the requestor. Business process mapping of the work order process will begin in 2019 to ensure the most efficient process is in place.

2.4 Land Assets, Physical Growth Opportunities

The McMaster University Campus Master Plan was originally prepared in 2002 and updated in 2008. Most recently, Facility Services engaged with a consultant to help prepare a 2017 update to the Campus Master Plan. This process included the sourcing of campus user input by way of on-campus visioning stations, online polling and meetings with stakeholders in a working committee that included students, staff and faculty.

The Campus Master Plan provides an overall physical framework for campus growth and renewal. The Plan outlines a vision for the campus and recommends that this be updated every five to ten years. Specifically, it establishes a framework for future development that extends the structure of the campus's historic core to its periphery while respecting the surrounding built and open space context. Although it does not advocate for growth, it identifies area for potential new development, with supporting open space amenities and infrastructure initiatives. The current capacity available for new development is estimated to be 3,000,000 gross square feet of floor area on the Main Campus. As outlined in the Campus Master Plan, physical capacity on McMaster's main campus has been largely determined by its physical structure, which contains a well-established hierarchy of streets and natural features. This clear structure has provided a strong setting and logic for development and infrastructure investments to continue to evolve in an integrated manner. The Campus Master Plan is intended to be flexible, to accommodate the changing needs of various departments and Faculties and to enhance learning by providing the physical environment in which to gain knowledge, live and work.

An important component of the implementation of the vision outlined in the Campus Master Plan was the identification of several potential development sites that could support incremental growth throughout the University campus. However, it is understood that some of these sites may not be developed and that McMaster may need to consider further off-campus development in appropriate locations.

The identified development sites are primarily within the Core Campus, North Campus and West Campus.

- Within the Core Campus, there are several opportunities to introduce new buildings and/or building additions: north of Bates Residence beside the President's Residence, Forsyth Avenue frontages and a significant gateway/landmark development site at the location of existing building to be removed, T-13. Parking Lot 'I' at Cootes Drive and Main Street is being planned for development of a transit hub.
- Even with years of substantial building activity in the North Campus (the David Braley Athletic Centre, Stadium and Les Prince Hall), there remains development potential in the area. The Peter George Centre for Living and Learning is currently under construction at the location of previously demolished buildings T28, T29 and T18. The McMaster Athletics and Recreation Complex Facility Assessment and Master Plan Study, October 2016, identified a number of potential additions that are either under consideration for future development or otherwise are already at the initial construction stage, i.e., the Student Activity and Fitness Expansion (SAFE) project.

- West Campus has substantial potential to accommodate new buildings, subject to more detailed investigations which are planned to begin in 2019/20.

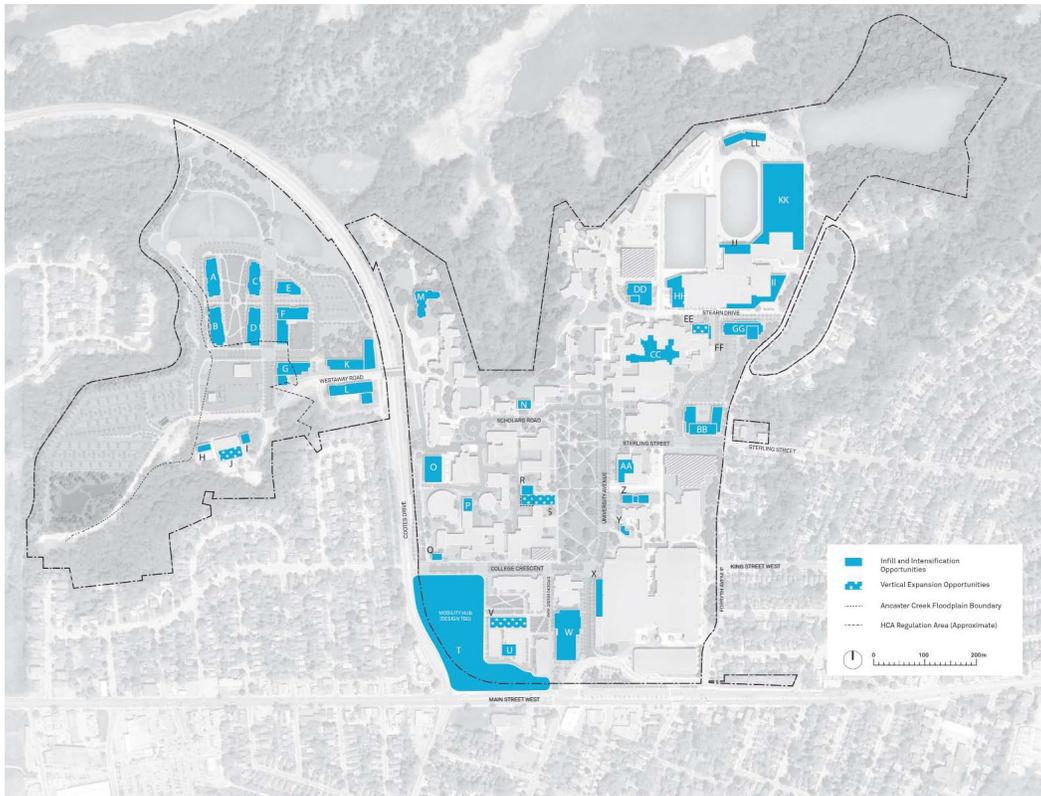


Figure 1: Potential Development Sites

Off campus, McMaster has acquired the land adjacent to the Ron Joyce Centre in Burlington, which would allow for more construction in an expansion of that campus. In downtown Hamilton, McMaster has built the David Braley Health Sciences Centre; the north parcel of that building site includes an existing parking lot facing King Street West and Bay Street South, which remains vacant and could be developed. Also, McMaster’s property at Lower Lions Club Road, currently used in part by the Faculty of Science, could see limited future development to further that Faculty’s efforts.

McMaster has recently acquired five existing houses in the Westdale neighbourhood. 88 Forsyth Avenue North has been transformed into the new Home of the Bertrand Russell Archives and Research Centre. The Faculty of Engineering is using 47 Whitton Road as a “Smart House”, i.e., as a space to monitor elderly health in a typical home. 182 Sterling Street is now being used by Student Affairs for recipients of the Wilson Leadership Scholar Award. 96 Forsyth Avenue North is now available to accommodate visiting scholars or for as a conference facility. It is managed by Housing and Conference Services. In mid-2018 McMaster also purchased 106 Forsyth Avenue North which is currently under renovation.

McMaster also owns land and a grouping of houses bound by Main Street West, Traymore Avenue, Dalewood Avenue and Forsyth Avenue South. This is a prime development

location, immediately adjacent to the main campus. The University plans to build an undergraduate student residence at this location as part of a P3 partnership. It is anticipated that this building will be open in 2023 pending planning approvals.

McMaster is also working in a partnership to develop a large vacant property on the south-west corner of King Street West and Bay Street South in downtown Hamilton. This is across the street from the existing David Braley Health Sciences Centre and will be home to a graduate student residence, also being constructed as part of a P3 partnership, anticipated to be complete in the summer of 2023.

2.5 Accessibility

2.5.1 McMaster University Accessibility Plan 2012-2025

In September 2012, the McMaster Accessibility Council (MAC) published the McMaster University Accessibility Plan 2012-2025 in order to comply with the evolving Accessibility for Ontarians with Disabilities Act (AODA). This plan reflects a commitment by the University to engage in incremental initiatives in accordance with the AODA and the expectation that the University will be free of attitudinal, physical and social barriers by the year 2025.

2.5.2 Campus Accessibility Action Plan (CAAP)

The Campus Accessibility Action Plan (CAAP) Phase 2 (2018-2023) is a multi-year plan to address the identified accessibility issues on campus buildings. The Plan is posted at: <https://facilities.mcmaster.ca/app/uploads/2018/10/Campus-Accessibility-Plan-2018-2013-V5-20Apr2018.pdf>

2.6 Building Sustainability

The McMaster University Facility Services Energy Management Plan identified and recommended 11 potential energy-saving projects. More information about Sustainability, included the LEED and Energy Management is included in the Environmental Sustainability Plan and the Energy Management Plan, respectively, posted on the Facility Services website and Section 5.3, Energy Management Projects and Sustainability. The co-gen installation was completed in December 2017. The second Energy Management Plan, for 2017-2022, is approved.

2.6.1 LEED®

McMaster currently has fifteen LEED® certified, or anticipated to be certified, projects. New buildings and major additions at McMaster are to be constructed according to McMaster's Sustainable Building Policy, which in turn references the LEED® Rating System. The LEED Rating system has recently undergone some revisions, which will need to be reflected in an updated Sustainable Building Policy in 2019.

Table 3 lists these projects. They total 1,754,858 gross square feet of space.

Building	Construction Date/Renovation Date	Gross Area (Square Feet)	Attained/Anticipated LEED® Certification Level
New Construction			
Les Prince Hall	2006	106,016	LEED® Certified
David Braley Athletic Centre	2007	140,479	LEED® Certified
Engineering Technology Building	2009	125,600	LEED® Gold
Ron Joyce Centre (Burlington)	2010	105,745	LEED® Gold
CANMET Materials Technology Laboratory (MIP)	2010	145,000	LEED® Platinum
Halton McMaster Family Health Centre – Burlington	2014	10,647	LEED® Gold
David Braley Health Sciences Centre – Downtown Hamilton	2014	192,081	LEED® Gold*
L. R. Wilson Hall	2015	177,927	LEED® Gold*
Peter George Centre for Living and Learning (PGCLL)	2019	335,167	LEED® Silver*
Total New Construction		1,338,662	
Renovation/Addition			
C.E. Burke Science Building	2005	196,401	LEED® Silver
Nuclear Research Building	2011	23,605	LEED® Gold
Ivor Wynne Centre	2012	20,010	LEED® Silver
McMaster Automotive Resource Centre (MARC)	2013	85,000	LEED® Silver*
Gerald Hatch Centre for Engineering Experiential Learning	2017	28,007	LEED® Silver*
ABB Addition	2018	63,173	LEED® Silver*
Total Renovation/Addition		416,196	

* denotes anticipated certification level

Table 3: LEED® Certified Projects

2.6.2 Trends of Energy Consumption

See the Energy Management Plan, posted on the Facility Services website, for details.

2.7 Environmental Compliance

McMaster University retained the services of an external consultant in late 2012 to survey all campus buildings in terms of their compliance with Ontario Ministry of Environment (MOE) air & noise emissions regulations. A long-term Environmental Compliance Action Plan (ECAP) was developed in the fall of 2013.

The ECAP identified many noise sources on various campus buildings that require mitigation to achieve compliance. The total cost for mitigation measures excluding the Health Sciences Centre and E.T. Clarke Centre, was estimated at \$2 million. A funding recommendation was made to the 2013/14 Budget Committee and the funding level of \$400,000 per year for five years (2013 – 2018) was approved. This proposed funding was supplemented by additional contributions from Ancillaries including Housing and Conference Services and Athletics and Recreation. In 2017, as part of the co-generation project Environmental Compliance Approval application process, the Ministry of the Environment and Climate Change (MOECC) asked McMaster University to apply for an Environmental Compliance Approval (ECA) for the entire campus. This changed the requirement for building emissions and a re-audit of all campus buildings was undertaken in 2017. A campus wide ECA application was made in June 2017 and it was approved in November, 2017.

Phase Two of the Plan is for 2019/2020 – 2027/2028. Facility Services plans to spend an estimated \$8.8M to address non-compliance issues including at E.T. Clarke Centre during that time.

3 RESEARCH PRIORITIES GUIDING FUTURE CAPITAL DEVELOPMENT

McMaster University continues to submit applications to the Canada Foundation for Innovation’s (CFI) Innovation Fund (IF) competitions and to Ontario’s Ministry of Economic Development, Job Creation and Trade (MEDJCT), seeking funding for new construction and renovation projects to support McMaster’s innovative and transformative research and technology development activities.

Most recently McMaster received funding from the CFI Innovation Fund and MEDJCT Ontario Research Fund – Research Infrastructure program for a \$15M project entitled “The Good Bugs, Bad Bugs Program”. The renovation budget is \$1.25M. No construction is required however renovations are needed within the Michael G. DeGroot Centre for Learning and Discovery (MDCL) to accommodate the new infrastructure which will enable this research program. New infrastructure and associated renovations will facilitate development of a more comprehensive understanding of microbial biology and pathogenesis and enable the application of this knowledge to accelerate the discovery of therapeutic leads aimed at improving human health.

McMaster also led the development of the \$10M “Canadian Research Data Centre Network Transition to High Performance Computing: Liberating Data for Research and Policy” infrastructure proposal which was awarded \$2.8M from CFI and \$2.6M from various provincial governments across Canada. Minor renovations to L. R. Wilson Hall will enable security upgrades at the McMaster site. This multi-institutional project involving 30 university-based Research Data Centres (RDCs) will develop a high-performance computing platform which will enable researchers across Canada to access and research survey and census data to better evaluate and craft policies to improve Canadians' health and well-being.

Implementation for both projects is underway with anticipated completion dates of 2021 for the Good Bugs, Bad Bugs Program and 2023 for the Canadian Research Data Centre Network.

4 PLANNING AND GROWTH ASSUMPTIONS

4.1 Enrolment Growth

McMaster has experienced rapid growth in recent years, because of population increases in the Greater Toronto Area and Hamilton Region. This institutional growth has been further accelerated because of the rising prominence of many of the University’s diverse academic offerings, particularly in the fields of Health Sciences and Engineering. With continued enrolment growth expected and the ongoing development of new academic programs,

McMaster is ideally positioned to become one of North America's most prominent universities.

International student enrolment has been steadily increasing. In 2006, 1,714 international students made up 7.8% of the McMaster student population. In 2017, 3,718 international students made up 11.7% of the McMaster student population.

4.2 Technological Development

The McMaster IT Strategic Plan 2019-2021 was published in January 2019. The Plan is focused on the Strategic Pillars of a Connected McMaster community, a Seamless Foundation and Transformative Information Technologies and Services. This new IT strategy addresses classroom and technology needs for the future.

4.3 Efficient Space Management

In order to actively and responsibly plan for future growth, McMaster is presently reviewing its current space management practices. The McMaster University Space Management Policy was last approved in 1987 and is targeted for an update. Space processes such as maintenance of the space inventory database, control of scheduling, maintenance of facilities, new project approval, evaluation of space requests, etc., will be reviewed through this policy revision.

The University has a need for more and better classroom space. For this type of space, McMaster's I/G (Inventory of Space / Generated, or needed space based on COU standards) is 85%. In 2014, a Classroom Design Subcommittee was struck, co-chaired by the AVP Facilities and the AVP Leadership and Learning, to study and analyze the current utilization of classroom spaces. This activity has resulted in a Reconfiguration Plan which calls for the upgrading of existing classrooms and which also lays out a strategic approach to designing new, needed, teaching and learning space.

In early 2019, the Board of Governor's approved a \$2 million annual allocation for 5 years to renovate classrooms on campus. Classrooms are being prioritized based on data from a survey completed in 2018 of faculty and students, along with health and safety and legislative requirements as well as the results from the Reconfiguration Plan noted above. Funding will be used to replace seating, upgrade lighting, flooring, electrical, accessibility and audio visual in classrooms identified.

4.4 Student Residences

In May of 2017, The Government of Ontario released an update to the June 16, 2006 Growth Plan for the Greater Golden Horseshoe, under the terms of the provincial Places to Grow Act, 2005. A core objective of the Growth Plan policies is accommodating and directing new population and employment growth to built-up areas through intensification. Directing growth in this manner is intended to create complete communities that offer options for living, working, shopping and playing; providing greater choice in housing types; and curbing development sprawl.

McMaster's efforts to accommodate population growth are as follows.

McMaster's objective is to guarantee all first-year entrants with a grade above a particular percentage a space in residence. This cut-off percentage changes from year to year based on factors including: number of applicants, existing capacity and department cut-off percentages. At this level McMaster is behind many peers.

Since 2012, configurations to campus residences – such as changing bunk and loft rooms to double rooms – have impacted total capacity. McMaster has twelve different residence buildings on campus, with a variety of room types and lifestyle themes for a total capacity across all buildings of 3,780 students living on campus. Given enrolment growth as noted above, more capacity is needed. To this end, new residence buildings are being planned.

Plans for a new Main Street student residence on Main Street West and Dalewood Avenue, are now moving through the approval stages with the City of Hamilton. This new residence will include 1,373 beds.

McMaster is also working in partnership with a developer on the design of a new 30-storey graduate student residence and integrated parking garage, on the south-west corner of King Street West and Bay Street South in downtown Hamilton.

4.4.1 The Peter George Centre for Living and Learning (PGCLL)

After extensive development by way of design committee meetings with stakeholders, resulting in the creation of a comprehensive business case and functional program and the sourcing of an architect, the University approved in 2015, the construction of a new multipurpose building. This building includes a student residence and several other facilities. Construction is underway on the 335,000 gross square foot mixed-use building, located at the previous site of temporary buildings T-28, T-29 and T-18. The project is being financed by the University. It will provide residence accommodations for 518 first year and upper year students, anticipated to open for the fall of 2019.

Research shows that students who stay in residence develop stronger relationships and support networks, leading to a more positive overall student experience. McMaster is one of only two universities in Ontario that cannot guarantee residence to all first-year students, for lack of space. Residence enables student success and the provision of 518 new residence beds is anticipated to help meet the demand for this type of experience.

4.5 Health Sciences Centre (HSC)

The Health Sciences Centre is occupied by McMaster's Faculty of Health Sciences (FHS) and the McMaster University Medical Centre (MUMC), as operated by Hamilton Health Sciences (HHS). MUMC has been playing a major role in the provision of healthcare services for Hamilton and the surrounding region. HHS has approved a long-term strategy which would include the construction of a new children's hospital, at which time they would vacate the MUMC site. Although this plan is likely at least 10 years in the future, discussions are

beginning now about deferred maintenance liabilities to the University should McMaster become the sole occupant of the building.

5 PROJECTS AND INITIATIVES TO SUPPORT THE CAPITAL PLAN

5.1 Addressing Research, Program and Enrolment Growth

Space at McMaster is tracked relative to its need. McMaster's inventory vs. generated (I/G) ratio represents the amount of net assignable space that McMaster has vs. how much it should have based on standards set by the Council of Ontario Universities. The construction of new buildings and additions, the fluctuation in the number of students and professors and consideration of different needs for different types of spaces, are some of the factors that impact this ratio.

The Council of Ontario Universities (COU) is published the results of the most recently prepared triennial report on space, i.e., from 2016. The results may be compared to those from 2013. McMaster's I/G for classroom space and athletics and recreation space kept relatively stable compared to the previous (2013) triennial report, at 85.3% and 68.6% respectively. In these cases, student population growth kept close pace with net building floor area growth.

For library space, McMaster's I/G is 78.6%. This is a decrease over the previous report, resulting from a change in COU standards that required study space to be split into library and (a new separate category) non-library space.

As noted in part in the Campus Capacity Study, the most critical space needs at McMaster are for administrative offices, graduate student offices, assembly facilities, service space, classrooms, research space, recreation space and quiet study space.

The University needs classrooms of different sizes, particularly larger sizes, but for classrooms that have enough built-in flexibility to allow for adjusting into smaller size classrooms as may be needed in the future. The new Peter George Centre for Living and Learning (PGCLL), described in Section 5.1.2, addresses the need for new large classrooms. A new addition has recently been completed on the A. N. Bourns Science Building (ABB) as part of a Strategic Innovation Fund (SIF) project. Another project is underway (initial construction stage) to increase athletics and recreation space. This project is to build additions to the David Braley Athletics Centre and the Ivor Wynne Centre.

5.1.1 Projections of Growth in Research

Recent trends (five years of McMaster's financial statements as reported to the Canadian Association of University Business Officers (CAUBO)) indicate a sponsored research income of approximately \$200 - \$215 million per year, not including intake for affiliated hospitals.

5.1.2 Ongoing / Recently Completed Projects and Initiatives

The following is a sample of ongoing major capital projects in McMaster.

- Peter George Centre for Living and Learning
 - In recognition of the strong need at McMaster for more classroom, exam-writing, residence, administrative and daycare space, this project is under construction at the previous location of temporary buildings #T28, #T29 and #T18, including 335,000 gross square feet at an approximate cost of \$122 million.
- Athletics and Recreation – Pulse and Student Space Expansion
 - In March 2017 students voted in a referendum to have a significant expansion and improvement of campus activity and athletic recreation space, including adding nearly 100,000 square feet of fitness studios, study areas, multi-faith prayer space and meeting facilities. The plan calls for the expansion of the Pulse fitness area, providing all students with Pulse memberships, a small grocery store and rooms for events and meetings. The expanded facilities will contribute to a revitalization of the north end of campus, which is also the site of the Peter George Living and Learning Centre. Completion is expected in 2020.
- DSB Expansion (at Innis Library)
 - To address the need for more new administrative and academic space at the DeGroot School of Business, this \$72 million, 100,000 sq. ft. project will allow for additional floor levels to be built north of the existing DSB building.
- Forge Expansion at MIP Parking Garage
 - The Forge is a start-up incubator and on-campus entrepreneurship initiative. The program employs a hands-on workshop-based structure with the goal of educating young entrepreneurs about building a successful start-up. This proposed expansion into 10,000 sq. ft. of the existing MIP parking garage is estimated to cost \$1.8 million.
- Existing Building Infrastructure Asset Management and Renewal
 - See the Asset Management Plan, posted on the Facility Services website, for details.
- Energy Management Projects and Sustainability
 - See Appendix 'A' for details.
- Campus Accessibility Action Plan (CAAP)
 - The approved Campus Accessibility Action Plan (CAAP) invests \$334,000 annually for accessibility-related improvements to McMaster buildings. The CAAP Phase 1 ran from 2012-2013 through to 2016-2017. Phase 2 of CAAP (2018-2023) is underway.
- Environmental Compliance
 - The Cogeneration project completed at the E.T. Clarke Centre required an Environmental Compliance Approval (ECA) and the Ministry of the Environment asked McMaster to submit a campus wide ECA application. Some of the major noncompliance noise sources such as cooling towers will be mitigated as part of a multi-year plan. McMaster is implementing a 9 year phased plan given that most of the non-compliant sources are at

the end of their service life and are identified for replacement as part of the deferred maintenance/Asset Management Plan.

- Classroom Reconfiguration Plan (includes the classroom renovations funded in 2019)
 - See Appendix 'A' for details.
- Residence Renewal
 - See Appendix 'A' for details.

5.1.3 Planned Projects and Initiatives

5.1.3.1 Major Projects

The following lists of sample projects respond to the demands outlined above but many are as yet unfunded (Complete lists are in Appendix 'A').

This is a dynamic list, subject to change based on the dynamic strategic priorities and considerations for the University's financial health. The following projects are grouped based on their current funding status and also based on their priorities as viewed by the University. This list will be updated annually according to the Capital Planning Program.

A- High Priority Projects That Need to Proceed and Will Be Funded Through the Central Bank and/or Academia

- CFI 2015 and 2017 University Contributions
 - These are mandatory contributions required by the University towards successful CFI applications.
- Bates Residence – Retrofit
 - This \$36 million, multi-year, multi-phase project calls for major upgrades to nearly all building systems at Bates Residence and includes interior finish replacements and suite re-arrangements.
- Graduate Student Residence Partnership and Parking Structure (P3)
 - In partnership with Knightstone Capital, a new Graduate Residence will support student recruitment and retention and will also further enhance the student experience at McMaster. This project has an integrated parking structure with 270 planned parking spaces.
- McMaster Main Street Residence (P3)
 - The University, in partnership with Knightstone Capital, continues to work with stakeholders as plans progress for a proposed undergraduate student residence on Main Street West. The proposal is for a mixed-use student residence building on a site owned by the University, on Main Street between Forsyth and Dalewood. The current plan envisions a two-phased project housing approximately 1,373 students.
- Global Hub / International Affairs / One-Stop Shop (Student Affairs) Reno Study
 - This major renovation is planned for select spaces at Gilmour Hall, Togo Salmon Hall and Kenneth Taylor Hall. The relevant areas on these levels total approximately 26,600 square feet (departmental gross). The project is to include front-facing student service space, back-of-house office space and consolidation of existing functions.

B- High Priority Projects and Externally Funded

- LRT Transit Hub – Garage and Foundation (Phase 1)
 - The Metrolinx light-rail transit (LRT) line on Main Street West has been planned to terminate in the vicinity of the south end of McMaster’s main campus. A transit hub with 512 parking spaces is planned to be built. This terminus may in due course incorporate a mixed-use McMaster building with programs appropriate to the accommodation of LRT users.

C- High Priority Projects for Consideration to be Funded Through the Central Bank and/or Academia and/or External and to be Approved

- Greenhouse New Construction and Demolition
 - It is planned that the existing Greenhouse is to be demolished and relocated to the vicinity of the Life Sciences Building.
- STEM Academic Building
 - In an effort to help generate more qualified candidates for high-tech careers and to have STEM work taught within a more integrated curriculum, McMaster is planning to expand its existing robust capabilities by constructing this proposed 200,000 sq. ft. facility at an estimated cost of \$100 million. This new STEM facility would be comprised of space to accommodate the existing McMaster departments of Life Sciences and Health Sciences. The building would help to foster collaborations amongst Engineering, Science and Health Sciences – building on existing partnerships. The building is proposed to be constructed at the site of the existing temporary building T13.
- Life Sciences Building Renovation
 - Revitalization of the building’s envelope, systems and infrastructure. The proposed deep retrofit will solve existing building envelope deficiencies of barrier leaks, thermal bridging, and roof leaks. Student study space and an identifiable entrance is lacking within the current configuration. With a growing enrollment for the programs, additional space is needed to increase capacity and must be located within close proximity to required services. Overall this project would offer a platform for future development and growth of life sciences research and education. It would also bring an aging building in line with current industry standards for both research and operations.
- Arts Quad Renovations
 - L.R. Wilson Hall (phase 1), allowed for the migration of teaching and learning spaces from the Arts Quad to this new building. Phase 2 – Arts Quad Renovation is to allocate \$63 million toward critically needed design and construction renovation improvements in the teaching and learning spaces within the existing Arts Quad.

D- Projects to be Considered when External Funding is Available

- Athletics and Recreation – Phase Two and Three Expansions
 - Multiple phases of expansion to the existing David Braley Athletics Centre and Ivor Wynne Centre athletics complex are planned at an estimated total cost of \$148 million. The expansions are to include a field house and pool space.
- Capacity Expansion – Downtown Hamilton
 - McMaster University is looking to develop additional capacity in downtown Hamilton, on the surface parking lot immediately adjacent to the David Braley Health Sciences Centre. Programming for this potential building will begin in 2019. It is anticipated that this project will provide concrete economic benefit to the City of Hamilton while simultaneously benefitting McMaster students and the quality of the undergraduate experience.
- Arts Quad Cover
 - This is a proposal to cover the Arts Quad, i.e., the 39,000 sq. ft. exposed plaza level, to provide security and weather protection and more large-scale programmable interior space. Cost is estimated at \$47.5 million.
- Mills and Thode Library Renovations
 - This is a multi-project, multi-phase future effort to thoroughly renovate and expand all library space on campus.

5.3 Design Principles and Standards

All projects will be executed in accordance with appropriate campus planning principles, design standards, code compliance and functional requirements; and all major projects are to adhere to McMaster policy on sustainable buildings.

The overall planning policies for the McMaster Campus follow from the twelve principles as detailed in Section 3.4, Westdale Campus Master Plan. They are intended to guide the University's growth and renewal over time. They are supplemented by area-specific policies for the campus found elsewhere in the Campus Master Plan.

In all cases, the policies are intended to reflect the intent of the University's Environmental Policies, including its Sustainable Building Policy, the City of Hamilton's Official Plan and Zoning By-law, the principles of Hamilton's Vision 2020 document and the planning and environmental policies of the Hamilton Conservation Authority and Royal Botanical Gardens.

Also, the space standards from the McMaster Space Management Policy (1987) need to be reviewed and revised, to more appropriate and up-to-date minimum standards, based on current minimum space standards outlined by the Council of Ontario Universities and the analysis of McMaster's current spatial data to reflect how space is actually being used on campus.

6 2019/2020 CAPITAL PLAN and BUDGET

Currently the University funds deferred maintenance from the operating budget. The asset management base was increased by \$2 million in each of 2013/14, 2014/2015, 2015/16 and 2016/17; i.e., until the allocation reached an annual base increase of \$8 million per year. For 2019/20, the total budget for deferred maintenance is \$13.26 million, which includes this \$8 million allocation, along with \$3.56 million from the Ministry of Advanced Education and Skills Development for deferred maintenance needs and \$1.7 million in additional operating funding within Facilities Services. The 2019/20 approved project list for deferred maintenance items is attached as appendix D.

6.1 Summary of Capital Budget

The McMaster Capital Budget, as outlined in Appendix 'A', accounts for major projects approved and under development as well as additional proposed initiatives. Section 5.1.2, Ongoing Projects and Initiatives, will add 1.1 million square feet of space at an estimated cost of \$866.6 million (this Section includes asset and energy management, accessibility improvements and environmental compliance). Section 5.1.3, Planned Projects and Initiatives, is to add 1.0 million square feet of space at an estimated cost of \$358.6 million if the Plan is fully funded.

6.2 Financing Considerations

The Financial Capacity of the University is addressed in the multi-year financial projections.

Funding for capital projects has been and will continue to be a significant challenge for the University. From a financing perspective the projects in Appendix 'A' can be categorized into one of three categories (and is reflected in the Appendix):

Category 1: includes projects that will generate either revenues or savings that can be used to repay the capital investment, such as a new residence.

Category 2: includes projects for which external and internal funding sources have been confirmed, such as the Bates Residence Retrofit and the LRT Transit Hub (Phase 1).

Category 3: includes projects for which a funding source has not yet been identified.

The timing for projects in category 1 will be governed by the availability of internal loans, which are balanced by the University's ability to self-fund the central bank. The University was able to secure \$120 million in additional long-term financing in November 2015 (maturing in 2065). This financing was obtained to assist in funding the University's capital plan by adding funding to the central bank. Management considers projects identified in category 1 will proceed on the time line planned in Appendix 'A' (unless further prioritization is requested before the consolidated budget is finalized).

Projects in category 2, those for which external and internal funding sources have been confirmed, are expected to proceed on the time line listed in Appendix 'A'.

Projects in category 3, those for which funding source/and or a payback plan has not yet been identified will begin when a funding source or a payback plan has been identified.¹

7 CONCLUSIONS AND RECOMMENDATIONS

McMaster has recently successfully completed a great deal of new construction, addition/renovation projects and has acquired new space by lease arrangements. It is estimated that there is 3 million square metres of gross floor area of space available for development at the Main Campus. This location needs to be the focus of future growth.

Population in the Hamilton and Halton regions is growing, spurring increasing need for post-secondary education facilities; so, McMaster would need to aim even higher to accommodate this anticipated future growth. McMaster's many currently ongoing addition/renovation projects and plans for new residence buildings and new teaching facilities, will help to bridge this gap over the next few years.

In regard to existing infrastructure asset management, it should be noted that 70% of McMaster buildings are over 40 years old and 63% are in fair to poor condition. Consequently, funding for deferred maintenance is a high priority. McMaster University is currently funding deferred maintenance for the academic portfolio to \$8 million / year, an investment that will only maintain control of the top priority deferred maintenance items in the short term.

In the interest of sustainability, energy conservation and cost savings, McMaster has implemented a number of energy management programs.

8 EXECUTIVE SUMMARY

This 2019/2020 Capital Plan is an update of Version 3, published by McMaster University Facility Services in March 2018.

The amount of classroom space on campus is close to 85% of what is needed, by COU standards. Full-Time Student Enrolment and the subsequent critical demands for space, is increasing. As such, McMaster University needs to identify and take advantage of existing opportunities for physical growth. McMaster needs to seek out off-campus expansion opportunities and to take advantage of the 3 million square metres of gross floor area available for development on the main campus. It will also be essential to increase efficiencies in planning for the utilization of existing space.

Over its rich history, McMaster has accumulated a wealth of physical assets. The challenge today is to manage this inventory of aging buildings and infrastructure as best suits anticipated needs. To this effect, McMaster University has increased the deferred

¹ In accordance with PAC-ICES Recommendation – Operational –Capital –“Limit all new projects to those that are fully funded and supported by an appropriately costed and approved business plan. This will significantly reduce the risks associated with additional debt.”

maintenance funding for the academic portfolio and is allocated to spend \$13.26 million (including funds from the Ministry of Advanced Education and Skills Development) in 2019/2020. This investment will maintain control of the top priority deferred maintenance items in the short term.

In addition, McMaster needs to further embrace sustainable construction and energy management practices. Accessibility needs to be increased for compliance with today's standards, including new installations of barrier-free ramps, washrooms, fire alarm strobe lights, water fountains, etc.

Numerous documents and reports have been produced to inform McMaster's efforts. Chief among them are McMaster President and Vice-Chancellor Patrick Deane's 2011 letter, "Forward with Integrity" (FWI), his 2012 letter, "Forward with Integrity: The Emerging Landscape" and the follow up document "Forward with Integrity: Next Phase" issued in October, 2015. The Strategic Mandate Agreements (2014-17 and 2018-20) have also been prominent in outlining priorities and principles which help shape the University's development. Also, McMaster has joined the world's health-promoting universities and colleges in signing the Okanagan Charter, dedicated to advancing human and societal health and wellbeing.

9 Appendices

Appendix A: Capital Budget – Summary (Refer to Section 5)

Project	Gross Area (Square Feet)	Estimated Cost	Funding Category	Fiscal Year. Note: projections shown include 3.41% tax and holdback amounts.									
				Pre 2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	
5.1 Addressing Research Program and Enrolment Growth													
5.1.2 Ongoing Projects and Initiatives													
1	L. R. Wilson Hall and Parking	177,927	66,054,625	1&2	62,066,068	3,988,557	-	-	-	-	-	-	-
2	David Braley Health Sciences Centre – Downtown Hamilton	215,278	84,644,854	2	83,789,968	854,886	-	-	-	-	-	-	-
3	Peter George Centre for Living and Learning	334,870	122,320,000	1&3	35,802,179	41,863,863	36,550,000	8,103,958	-	-	-	-	-
4	SANS for Nanostructured Materials (Gaulin CFI)	3,810	8,920,669	1&2	4,127,346	4,793,323	-	-	-	-	-	-	-
5	Fraunhofer Center IZI at MIP	20,000	17,400,000	2	14,414,096	2,985,904	-	-	-	-	-	-	-
6	ABB - SIF (renovation, addition, deferred maintenance)	63,173	56,220,000	2	33,801,349	22,418,651	-	-	-	-	-	-	-
7	DSB Main Floor Renovations	N/A	999,527	2	773,662	225,865	-	-	-	-	-	-	-
8	Thode: Maker Space	2,450	1,000,000	2	0	1,000,000	-	-	-	-	-	-	-
9	Athletics and Recreation - Pulse and Student Space Expansion	102,814	64,000,000	1	1,590,299	2,800,000	29,500,000	30,109,701	-	-	-	-	-
10	Temporary Lecture Hall	4,300	1,800,000	1	143,125	1,656,875	-	-	-	-	-	-	-
11	Research Capital Commercialization Project	40,000	50,000,000	3	20,495	10,000,000	30,000,000	9,979,505	-	-	-	-	-
12	Advanced Manufacturing Centre	15,000	9,060,000	2&3	0	2,500,000	6,560,000	-	-	-	-	-	-
13	DSB Expansion (at Innis Library)	100,000	72,305,181	2	0	-	14,085,970	24,970,385	25,397,631	7,851,195	-	-	-
14	Mayfair Properties	4,667	5,600,000	2	0	-	5,600,000	-	-	-	-	-	-
15	Innovation Hub "The Clinic"	3,315	2,250,000	2	0	-	2,250,000	-	-	-	-	-	-
16	Forge expansion at MIP parking garage	10,000	1,800,000	2	0	1,800,000	-	-	-	-	-	-	-
17	Existing Building Infrastructure Asset Management and Renewal	N/A	232,210,000	2&3	127,820,000	13,250,000	13,020,000	13,020,000	13,020,000	13,020,000	13,020,000	13,020,000	13,020,000
18	Energy Management Projects and Sustainability ¹	N/A	27,830,778	1	19,177,951	8,652,827	0	-	-	-	-	-	-
19	Campus Accessibility Action Plan (CAAP)	N/A	6,844,000	2	2,004,000	605,000	605,000	605,000	605,000	605,000	605,000	605,000	605,000 ²
20	Environmental Compliance Action Plan: for air & noise emissions on campus	N/A	4,800,000	2	1,600,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
21	Classroom Reconfiguration Plan	N/A	12,541,594	3	2,061,594	3,000,000	3,000,000	2,480,000	2,000,000	-	-	-	-
22	Residence Renewal	N/A	18,000,000	2	974,578	3,025,422	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Subtotal for Ongoing Projects and Initiatives:		1,097,604	866,601,228		390,166,710	125,821,173	143,570,970	91,668,549	43,422,631	23,876,195	16,025,000	16,025,000	16,025,000
5.1.3 Planned Projects and Initiatives													
5.1.3.1 Major Projects													
A- High Priority Projects That Need to Proceed and Will Be Funded From the Central Bank and/or Academia													
23	CFI 2015, University Contribution	N/A	1,280,538	2	187,000	1,093,538	-	-	-	-	-	-	-
24	Bates Residence - Retrofit	N/A	36,000,000	2	-	-	4,000,000	14,000,000	14,000,000	4,000,000	-	-	-
25	Graduate Student Residence Partnership + Adj. GSR Parking Structure	310,000	8,417,889	1	277,549	500,000	18,319,553	7,642,004	-18,321,217	-	-	-	-
26	McMaster Main Street Residence (P3)	250,000	13,121,000	1	14,204,664	1,645,336	-	-2,729,000	-	-	-	-	-
27	Global Hub / International Affairs / One-Stop Shop (Student Affairs) Reno Study	26,600	8,000,000	2	-	1,500,000	4,500,000	2,000,000	-	-	-	-	-
28	Research Projects not yet identified	N/A	4,807,693	2	-	-	4,807,693	-	-	-	-	-	-
29	CFI 2017, University Contribution	N/A	6,011,769	2	-	6,011,769	-	-	-	-	-	-	-
B- High Priority Projects and Externally Funded													
30	LRT Transit Hub - Garage and Foundation (Phase 1)	200,000	8,981,000	2	-	-	5,927,460	3,053,540	-	-	-	-	-
C- High Priority Projects for Consideration to be Funded Through the Central Bank and/or Academia and/or External and to be Approved													
31	DSB Expansion (at Innis Library): Floors 8 & 9	36,000	18,000,000	2	-	-	-	6,000,000	6,000,000	6,000,000	-	-	-
32	Greenhouse New Construction and Demolition	3,000	6,000,000	2	-	-	3,000,000	3,000,000	-	-	-	-	-
33	STEM Academic Building	204,514	100,000,000	3	-	-	-	-	2,000,000	32,000,000	42,000,000	17,000,000	7,000,000
34	Life Sciences Building Renovation	N/A	65,000,000	3	-	-	-	-	6,500,000	26,000,000	26,000,000	6,500,000	-
35	Central Animal Facility Renovation	N/A	20,000,000	3	-	-	-	8,000,000	8,000,000	4,000,000	-	-	-
36	Arts Quad Renovations	N/A	63,000,000	3	-	-	-	-	3,000,000	31,500,000	28,500,000	-	-
Subtotal for Planned Projects and Initiatives:		1,030,114	358,619,889		14,669,213	10,750,643	40,554,706	40,966,544	21,178,783	103,500,000	96,500,000	23,500,000	7,000,000
Subtotal for Ongoing and Planned Projects and Initiatives:		2,127,718	1,225,221,117		404,835,923	136,571,816	184,125,676	132,635,093	64,601,414	127,376,195	112,525,000	39,525,000	23,025,000
D- Projects to be Considered when Funding is Available													
37	LRT Transit Hub - Academic and Commercial Building (Phase 2)	N/A	34,900,000	3	-	-	-	-	-	-	-	-	-
38	LRT Transit Hub - Academic Classroom (Phase 3)	N/A	56,250,000	3	-	-	-	-	-	-	-	-	-
39	Athletics and Recreation - Phase 2 Expansion	20,000	50,400,000	3	-	-	-	-	-	-	-	-	-
40	Athletics and Recreation - Phase 3 Expansion	190,000	37,900,000	3	-	-	-	-	-	-	-	-	-
41	Capacity Expansion - Downtown Hamilton (Formerly Experiential Learning)	183,000	80,000,000	3	-	-	-	-	-	-	-	-	-
42	Arts Quad Cover	39,000	47,500,000	3	-	-	-	-	-	-	-	-	-
43	Thode Phase 1: High-Density Shelving	N/A	2,000,000	3	-	-	-	-	-	-	-	-	-
44	Thode Phase 2: Major Renovations	61,721	8,300,000	3	-	-	-	-	-	-	-	-	-
45	Mills Library Phase 1 (Sherman)	8,000	4,000,000	3	-	-	-	-	-	-	-	-	-
46	Mills Phase 2: Entry, Washroom, CAV Renovations	9,000	3,200,000	3	-	-	-	-	-	-	-	-	-
47	Mills Phase 3: Staff, Learning, and Collections Area Renovations Part 1	18,000	4,600,000	3	-	-	-	-	-	-	-	-	-
48	Mills Phase 4: Staff, Learning, and Collections Area Renovations Part 2	30,000	6,500,000	3	-	-	-	-	-	-	-	-	-
49	MAC Forest - proposed teaching and research building	N/A	4,000,000	3	-	-	-	-	-	-	-	-	-
Subtotal for Projects to be considered when Funding Available:		558,721	339,550,000										
Grand Total		2,686,439	1,564,771,117										

Funding Category Index: 1- Project will pay back, eg. Internal Loan., 2- External and Internal Sources Confirmed, 3- Not yet identified

¹Note: includes Cogen and other projects.

²Note: Not yet approved.

Appendix B: Schedule of Facilities

Building Code	Building Name	Building Section	Construction / Renovation / Acquisition Date	Current Total Building Gross Area (Square Feet)	Current Total Building Gross Area (Square Metres)
1	University Hall		1929	48,652.83	4,520.00
		Addition	1991		
2	Hamilton Hall		1929	51,865.81	4,818.49
4	Refectory		1929	23,365.44	2,170.72
		Addition	1965		
5	Edwards Hall		1929	25,025.44	2,324.94
6	Wallingford Hall		1929	23,461.70	2,179.66
7	Alumni House (Formerly President's Residence)		1929	6,523.90	606.09
8	Alumni Memorial Building		1949	14,062.10	1,306.41
		Addition	2003		
9	Nuclear Research Building		1950	61,117.00	5,677.96
		Addition	1957		
		Addition	2001		
		Addition	2011		
10	Mills Memorial Library/Alvin A. Lee Building		1950	230,069.00	21,374.11
		Addition	1962		
		Addition	1968		
		Addition	1990		
11	Burke Science Building		1953	196,401.35	18,246.28
		Addition	1958		
		Addition	1961		
		Addition	1963		
		Addition	1969		
12	E. T. Clarke Centre		1954	53,465.93	4,967.15
		Addition	1958		
		Addition	1965		
		Addition	1968		
		Addition	1996		
		Addition	2002		
15	Nuclear Reactor		1957	28,780.8	2,673.8
16	John Hodgins Engineering Building		1958	278,377	25862.06
		Addition	2017		
		Addition	1989		
		Addition	2001		
		Addition	2016		
17	Divinity College		1959	38,148.20	3,544.08

18	Moulton Hall		1959	58,692.50	5,452.71
19	Whidden Hall		1959	69,989.40	6,502.23
20	Gilmour Hall		1959	90,127.80	8,373.15
22	General Sciences Building		1962	59,583.20	5,535.46
23	Chester New Hall		1964	87,870.01	8,163.39
24	Ivor Wynne Centre		1964	246,954	22,942.77
		Addition	1972		
		Addition	2011		
25	Arthur N. Bourns Building		1968	289,475.00	26,893.11
		Addition	2003		
		Addition	2006		
26	Matthews Hall		1964	61,808.30	5,742.18
27	McKay Hall		1964	66,824.30	6,208.18
28	Commons Building		1965	56,448.90	5,244.27
		Addition	1968		
29	Togo Salmon Hall		1965	146,039.68	13,567.53
		Addition	2000		
		Addition	2015		
30	Biology Greenhouse		1967	8,377.60	778.30
31	Campus Services Building		1968	51,935.60	4,824.98
32	Tandem Accelerator Building		1966	36,493.00	3,390.31
		Addition	2002		
		Addition	2011		
33	Applied Dynamics Laboratory		1967	21,480.00	1,995.56
34	Psychology Building		1970	102,691.5	9,540.3
		Addition	2013		
35	Woodstock Hall		1968	64,341.30	5,977.50
36	Brandon Hall		1968	118,354.70	10,995.51
37	Health Sciences Centre ¹		1970	981,238	91,159
		Addition	2005		
38	Kenneth Taylor Hall		1971	126,990.70	11,797.82
39	Life Sciences Building		1970	106,851.52	9,926.83
40	Bates Residence		1971	164,055.40	15,241.25
		Addition	1972		
42	H. G. Thode Library		1976	87,793.70	8,156.30
43	Communications Research Laboratory		1983	28,862	2,681.36
		Addition	1989		
44	Health Sciences Parking Garage		1986	N/A	N/A
45	Hedden Hall		1989	104,279.10	9,687.85
46	DeGroot School of Business		1990	74,422.44	6,914.07
		Addition	1999		
		Addition	2001		
48	Institute for Applied Health Sciences ¹		2000	118,652	11,023.13
49	Information Technology Building		1955	123,725.60	11,494.48
		Addition	1959		
		Addition	2001		
50	Mary E. Keyes Residence		2002	146,195.20	13,581.98
51	McMaster University Student Centre		2002	146,830.69	13,641.01
			2016		
52			2004	304,365.61	28,276.49

	Michael G. Degroote Centre for Learning and Discovery	Addition	2005		
		Addition	2017		
53	Les Prince Hall		2006	106,016.20	9,849.23
54	David Braley Athletic Centre		2007	140,478.85	13,050.91
55	Ron V. Joyce Stadium		2008	56,941.95	5,290.08
56	Engineering Technology Building		2009	138,682	12,883.97
57	Ron Joyce Centre (Burlington)		2010	103,591.87	9,624.00
58	MIP - MARC		2013	85,000	7,896.75
59	MIP – Atrium Building		2009	140,751	13,076.19
73	St. Paul's Anglican Church (Hamilton) – Leased Space		2013	5,808	539.5
74	L.R Wilson Hall		2016	177,927.00	20,438.20
82	88 Forsyth Avenue North		2015	4754	441.66
83	David Braley Health Sciences Centre		2015	232,843.00	21,631.82
85	One James North – Leased Space ¹		2015	52,991	4,923.02
86	47 Whitton Road		2015	3,587	333.24
87	182 Sterling Street		2015	3,937.00	365.76
90	Halton McMaster Family Health Centre/JBH		2013	31,107.70	2,890.00
91	Canadian Martyrs – Licensed Space		2016	4,172	387.59
92	Cairns Research Complex- (Brock University)		2012	10,176	954.49
94	96 Forsyth Avenue North		2017	5,944.78	552.29
95	106 Forsyth Avenue North		2018	5012	465.63
T13	Preliminary Laboratory		1967	23,066.60	2,142.96
TB26	Temporary Building, Multi-use (Formerly Scourge Building)		1989	2,112.00	196.21
T31	Stone Church Family Health Care Centre		N/A	15,726.01	1,460.99
T32	Temporary Portables (Offices)		2013	6,031.56	560.35
T33	Temporary Portables (McMaster Children's Centre)		2013	7,805.02	725.11
200	Integrated Health Building (Waterloo)		2010	59,816.34	5,557.12
Grand Total:				6,650,896.02	617,888

Note 1: McMaster space in shared building

Appendix C: Schedule of Properties

Of McMaster's on-campus buildings, the following have unique ownership arrangements:

- Divinity College – owned by College of Divinity.
- Health Sciences Centre – owned by McMaster and leased to Hamilton Health Sciences (HHS then leases approximately 38% of the building back to the Faculty of Health Sciences).
- Institute for Applied Health Sciences – owned jointly by McMaster and Mohawk.
- McMaster University Student Centre – operated by McMaster Students Union under the direction of a management committee.
- David Braley Athletic Centre – owned by McMaster and operated by Athletics and Recreation; construction paid for from external sources, operating expenses paid for by McMaster and the students.

Additionally, off campus, the University owns or leases the following:

- 4350 South Service Road, Burlington – Ron Joyce Centre (east side)
- 4350 South Service Road, Burlington – Farmland (west side)
- 200 Longwood Rd South, Hamilton – McMaster Automotive Resource Centre (MARC) Warehouse (MIP)
- 175 Longwood Rd South, Hamilton – The Atrium Building at McMaster Innovation Park (MIP), aka The Atrium@MIP (Various Suites)
- 155 Chatham Street, Hamilton – (MIP) (undeveloped)
- 270 Longwood Road South, Hamilton – BEAM (Fraunhofer)
- 565 Sanatorium Road, Hamilton – Chedoke Hospital (leased space)
- 25 Charlton Avenue East, Hamilton, Suites: 300, 303, and 702 – Family Medicine
- 30 Birge Street, Hamilton – David Braley Research Institute (leased space)
- 237 Barton Street East, Hamilton – Hamilton General Hospital (leased space)
- 699 Concession Street, Hamilton – Juravinski Cancer Centre (leased space)
- 100 West 5th Street, Hamilton – Juravinski Centre for Integrated Healthcare (leased space)
- 711 Concession Street, Hamilton – Juravinski Hospital (leased space)
- 1475 Upper Ottawa St, Hamilton – Stonechurch Family Health Centre
- 2757 King Street East, Hamilton – St. Joseph's Community Health Services (leased space)
- 50 Charlton Avenue East, Hamilton – St. Joseph's Healthcare (leased space)
- 1140 King Street West, Hamilton – St. Paul's Anglican Church in Westdale (leased space)
- 10B Victoria Street, Kitchener – McMaster Michael G. DeGroot School of Medicine in the Integrated Health Building, Waterloo Regional Campus, Education Services, Faculty of Health Sciences
- 304 Victoria Avenue, Hamilton – Victoria Medical Center (leased space)
- 25 Main Street West – (leased space)
- 88 Forsyth Avenue North, Hamilton

- 100 Main Street West, Hamilton – David Braley Health Sciences Centre (south side)
- 100 Main Street West, Hamilton – Parking (north side)
- One James North, Hamilton – (previously known as The Downtown Centre, i.e., DTC) (leased space at Lloyd D. Jackson Square):
 - The Centre for Continuing Education (CCE),
 - Finance,
 - University Advancement (UA),
 - Institutional Research and Analysis (IRA)
- 47 Whitton Road, Hamilton
- 182 Sterling Street, Hamilton
- Existing houses bound by Forsyth Avenue South, Traymore Avenue, Dalewood Avenue, and Main Street West
- 1221 Lakeshore Road, Burlington – Halton McMaster Family Health Centre at Joseph Brant Hospital
- 1355 Main Street West, Hamilton – Canadian Martyrs (licensed space)
- Brock University, Level 200 @ 500 Glenridge Ave., St. Catharines – (leased space, Education Services)
- 96 Forsyth Avenue North, Hamilton
- 106 Forsyth Avenue North, Hamilton
- 110 King Street West, Hamilton – (leased space)
- 199 James Street North, Unit 2, Hamilton – (leased space, Sociology)
- 1205 Rymal Road East, Hamilton – (leased space, Faculty of Health Sciences)
- 142 Queenston Street, St. Catharines – (leased space)
- 16-24 Ontario Street, St. Catharines – (leased space, Medical Clinic)
- 180 James Street South, Hamilton – (leased space)
- 249 Caroline St S, Unit A, Hamilton – (leased space, School of Nursing)
- 293 Wellington Street North, Hamilton - (leased space, Family Medicine - Surgery), Suites: 110, 111
- 3155 Harvester Rd., Burlington – (leased space, Family Medicine), Suites: 207, 208, 209
- 495 Woodward Avenue, Hamilton – (leased space)
- 1960 Main Street West, Ancaster – (leased space)
- 555 Prince Charles Drive North, Suite 201, Welland – (leased space)
- 700 Bay Street, Suite 2303, Toronto – (leased space)
- 701 Main St. West, Suite 101, Hamilton - Family Medicine – Maternity Centre (leased space)
- 162 Ward Avenue, Hamilton - Parking lot (leased lot)
- Lot 56, of Hamilton Plan 1475 – (MIP)
- 245 James Street North, Hamilton – (leased space)
- 200 Victoria Street, Toronto, unit 1506 (leased space)
- Property on the north side of Lower Lions Club Road, east of Louise Drive, Ancaster – (undeveloped 115 acres)
- 120 Forsyth Avenue North, Hamilton – (The Oval at Mayfair Crescent: 5.5 acres)
- Grant Boulevard at Barrie Street, Hamilton – (undeveloped)
- 1190 Main Street West, Hamilton – (between Forsyth Avenue South and Dalewood Avenue) (undeveloped)
- 1480 Sandhill Drive, Ancaster – (leased space) Suites: 9A

- 777 Bay Street, Toronto – Capital Hill Group (leased space)
- 459 Hume Street, Collingwood – Collingwood General and Marine Hospital (leased space)
- Osler Drive, south side, east of University Plaza (undeveloped)
- Osler Drive, north side, east of University Plaza (undeveloped)

Appendix D: 2019/20 Approved Project List for Deferred Maintenance Items

Bldg #	Building Name	Scope	Estimate (\$)
Structure			
24	Ivor Wynnee Centre	Concrete repairs	
16	John Hodgins Engineering	Repair foundation water leak	
Sub-Total			\$200,000
Exterior Enclosure			
23	Chester New Hall	Exterior pre-cast concrete panel repairs	
38	Kenneth Taylor Hall	Exterior pre-cast concrete panel repairs	
15	Nuclear Reactor	Roof replacement	
20	Gilmour Hall	Roof replacement	
Sub-Total			\$1,500,000
Conveyance and Interior Finishes			
10	Mills Library	Elevator upgrade	
16	John Hodgins Engineering	Common washrooms and corridor upgrades	
Sub-Total			\$519,429
Mechanical			
31	Campus Services Building	Replace 2 air handling units (AHU)	
12	E.T. Clarke	Boiler # 5 replacement	
16	John Hodgins Engineering	Replace AHU # 4, 6 and 7 - Phase 2	
10	Mills Library	Control upgrades	
38	Kenneth Taylor Hall	Chilled water pipes replacement	
48	Institute of Applied Health Sciences	Deferred maintenance work, cost shared with Mohawk	
Sub-Total			\$4,862,371
23, 24	Chester New Hall and Ivor Wynne Centre	Replace high voltage lead cables	
N/A	NF91	Transformer Replacement Year 3	
Sub-Total			\$3,330,000
Environmental Compliance Action Plan			
28	Commons	Mitigation measures	
Sub-Total			\$200,000
Infrastructure			
Campus	Tunnels	Repair tunnel leaks	
Campus	Watermain on Stearn Drive	Replace watermain line	
Sub-Total			\$1,350,000
McMaster University Medical Centre (MUMC) Loan Repayment			
37	MUMC	Facility contribution to pay for the outstanding central bank loan	\$200,000
37	MUMC	Infrastructure projects at MUMC	\$1,100,000
Sub-Total			\$1,300,000
Total			\$13,261,800