Introduction

Located in Hamilton, McMaster University is one of Canada’s leading research-intensive institutions. In 2011, McMaster generated almost $326 million in total research income, the second highest in Ontario and sixth highest in the country. The University’s six Faculties: Engineering, Science, Social Sciences, Health Sciences, Humanities, and the DeGroote School of Business are home to more than 29,000 undergraduate and graduate students.

McMaster University has a proud history of connecting students, teachers and researchers. Our research-focused student-centred approach to scholarship and learning not only differentiates the University and our globally renowned programs, it has also resulted in the recognition of our faculty through a number of honours and awards, such as Fellowships in the Royal Society of Canada and 3M Teaching Fellowship Awards. It is our environment of learning excellence, innovation and creativity that has resulted in McMaster being consistently recognized internationally as one of the top 100 universities in the world. In addition, in 2012 the Times Higher Education World Reputation Rankings rated McMaster’s Michael G. DeGroote School of Medicine as the best medical school in Canada, and 14th worldwide.

At McMaster, we appreciate the immense challenges that lie ahead for the government relating to Ontario’s economic recovery, and we understand the need to demonstrate efficiency and effectiveness in the use of provincial funds. The University is engaged in a process of transformation: We are focusing on reconceptualising postsecondary education in a way that is financially sustainable. At the same time we are continuing to provide high-quality education that meets the needs of today’s students and prepares them to be engaged and responsible citizens, as well as successful in the modern job market. We continue to collaborate with other local, broader public sector institutions to seek administrative efficiencies to enable us to free up valuable resources that can be directed in support of student programming. We have also been successful in controlling costs through collective bargaining with our employees and have made significant gains in closing the gap between employee and employer pension contributions.

In the 2012 Ontario Budget, the government committed to balance the province’s budget by 2017-18. As a result, over the next two fiscal years, there will be significant reductions to postsecondary education funding through the announced policy levers, which we will take steps to manage. However, the province and its higher education institutions need to know that in future years the resources will be in place to ensure that students receive the best possible education.

Budget 2013 provides the opportunity to ensure that Ontario’s higher education institutions will be more competitive, student learning outcomes will be enhanced, and job creation strengthened through research and innovation.

Budget Recommendations:

1. Funding certainty and flexibility so universities can build on their individual strengths at both the undergraduate and graduate levels. This includes, at a minimum, maintaining current levels of tuition growth. Also, assurances that the basic income unit will be fully funded when the province regains fiscal strength and that the fiscal pressures created by the Budget 2012 policy levers will be addressed.

2. Targeted support for campus mental health initiatives.

3. Support for strategic growth in graduate enrolment.


5. Targeted investments in research in areas of importance to Ontario’s future growth, continued support for ORF-RI, OCE and C4, and investments to promote university/private sector collaborations and entrepreneurism.
Transforming Education and Meeting the Needs of Students

McMaster’s evolution has been strengthened by an enthusiasm for developing pedagogical approaches that have radically transformed the way education is delivered. This includes programs based on self-directed, interdisciplinary, and problem-based learning, intrinsically linked to the nature and mandate of a research-intensive university. In fact, McMaster pioneered small-group, problem-based learning as well as evidence-based medicine, both of which have been emulated around the world and have furthered a level of critical thought that has allowed innovation to flourish.

McMaster’s 2012 pre-Budget submission described how we were embarking on an institution-wide reconsideration of teaching practice and learning assumptions, from curriculum structure to program delivery. Since then, we have identified and focused on three interrelated priority objectives:

1. Developing a distinct, personalized, engaging and sustainable undergraduate experience;
2. Enhancing the connections between McMaster and our community; and
3. Strengthening our research excellence and further integrating it with our educational mission.

These three priority objectives form the basis of the broad transformation that McMaster is currently undertaking. In our view, we must continually reimagine how best to equip our students for success and seamlessly integrate our educational mission within an expanding, world-class research enterprise. We will do so by drawing on the most successful elements from our best programs, with a view to expanding the benefits of these programs to the majority of our students.

This transformation will strengthen our community engagement through experiential learning, which will be the hallmark of a McMaster education. This will involve change on a number of fronts and will deliver significant improvements in quality and productivity. For more details on our plans, please visit:

http://bit.ly/McMasterSMA

As noted in the Jobs and Prosperity Council Report: Advantage Ontario, experiential learning will prepare students for the workforce and sustain job growth. A key part of the University’s plan is a proposed partnership with the provincial government to establish the McMaster Experiential Learning Centre. This centre will explore and seek to effectively address the emerging needs of students with sustainability and improved productivity in mind. Moreover, the proposed learning centre will enhance flexibility within the University, including the ways in which courses are offered and success is evaluated, and it will further pedagogical innovation.

In order for us to meet our shared goal of building a more responsive and flexible higher education system that will benefit students, Ontario’s universities require funding certainty and a system that supports risk taking.

**Recommendation 1:**

**Government Operational Funding to Support Transformation**

Over the last three decades, provincial operating grants to Ontario universities have increased substantially in absolute terms. But as student numbers and associated costs have increased, this funding as a proportion of total operating revenue has decreased. As a result of the reductions to base funding over the next two years, beginning in 2013, this will be exacerbated. In an effort to make up for this loss in revenue, universities have had to gradually increase the levels of tuition and ancillary fees. This has resulted in additional costs for students, and higher student assistance requirements (e.g. OSAP).
In addition, the government’s commitment, beginning in 2013, to reduce each postsecondary institution’s operating grant by $750 for every international undergraduate and master’s/diploma student enrolled in a program of study, and to remove full-time international undergraduate and master’s/diploma students from the Municipal Tax Grant calculation, will also have a significant financial impact. For example, McMaster projects that in 2013-14, these reductions will reduce the University’s operating grant by almost $2.5 million.

For these reasons, ensuring flexibility in funding, and a stable tuition framework will allow universities to meet their commitment of quality education to students and their parents. In addition, when the province regains fiscal strength it is important that the fiscal pressures created by the Budget 2012 policy levers and international student measures are addressed.

**Recommendation 2:**
**Targeted Support for Campus Mental Health Initiatives**

McMaster also encourages the government to build on its support for mental health initiatives on campuses across the province. The volume and severity of mental health issues has been rising and now represents almost half of all student disability cases at our university. Due to increased demand from students for mental health services across the sector, the resources in this area are strained. The Ontario Government’s $7 million Mental Health Innovation Fund was a good start. In order to provide adequate support for our counselling and mental health centres we would encourage the government to consider ongoing dedicated funding in this area. Of particular need is funding for front-line services. A boost in funding support would enable us to expand much-needed counselling services on our campus and protect the overall quality of the student experience.

**Recommendation 3: Graduate Enrolment Growth**

As noted in our Strategic Mandate Agreement (link provided below), graduate training is central to McMaster’s strategic research plan. This includes targeting graduate enrolment growth to the University’s high-quality, interdisciplinary programs that are nationally and internationally recognized. Additionally, we anticipate introducing a number of new graduate programs to meet Ontario’s higher education and training needs. Once these programs pass through our internal and external quality assurance processes, streamlined and expeditious program approval and support from MTCU will enable us to better respond to labour market needs and introduce innovative program options.

http://bit.ly/McMasterSMA

**Recommendation 4: Strategic Capital Investment**

Through its commitment to increase the percentage of Ontarians with a postsecondary education to 70 per cent, the Government of Ontario has been clear that it intends to increase the capacity of the province’s university sector. McMaster is proud to partner with the government in its effort to improve access for students.

With the support of the province McMaster University is currently moving forward with the construction of the L.R. Wilson Hall for Studies in Humanities and Social Sciences. This new 174,000 square foot liberal arts building will accommodate many new student spaces, provide services to students from across the University, and create approximately 150 construction jobs per year for 2.5 years.

Even with this exciting addition to our campus, pressure on our infrastructure continues due to increases in demand, particularly from the Greater Toronto Area, from which McMaster attracts over half of its students. From 2011 to 2012, total applications to universities in Ontario increased by 3 per cent. Since 2005, total applications have increased by over 20 per cent. In 2012, for the first time ever, the number of applicants to the province’s universities surpassed 92,000. Similar to the provincial average, over the last year, the total number of applications to McMaster University increased by more than 2 per cent and the number of students who named McMaster as their first choice increased by 3 per cent. In addition, since 2003, the University’s total enrolment has increased by over 33 per cent.
In 2010, to ensure the University had an accurate understanding of its space resources and needs, McMaster undertook a campus-wide capacity study. The review recognized that the University did not have the physical space required to meet the number of students enrolled at the institution at that time. While the L.R. Wilson Hall and the University’s Downtown Health Campus will both include new space for students, it is anticipated that by 2020 McMaster will require 28 percent to 36 percent in additional space, over current totals, to meet projected need. This places significant pressure on the University’s facilities, including classrooms, student study areas, research spaces, and graduate student spaces.

McMaster has a cost-efficient capital expansion plan in place for the renovation of existing facilities and the development of new space. The University’s most pressing need currently is the second phase of L.R. Wilson Hall for Studies in Humanities and Social Sciences. With support from government, this project will enable the University to renovate our existing liberal arts space, and as a result it will substantially increase classroom and learning space on campus. Furthermore, this renovation will help McMaster enhance program and teaching excellence for students, through the use of experiential, self-directed and interdisciplinary learning.

However, for the University to adequately accommodate this increasing enrolment demand, it will require on-going and predictable funding to significantly reduce the current backlog of deferred maintenance, which for McMaster University presently stands at approximately $295 million. Deferred maintenance is defined as work on the maintenance of physical facilities that has been postponed on a planned or unplanned basis to a future budget cycle or until funds become available. To avoid increasing the size of deferred maintenance backlogs, it is necessary to carry out replacement of facility components on an annual basis. McMaster’s deferred maintenance is a growing liability and will increase the likelihood of unforeseen building and system failures which threaten the day-to-day operations of the University.

**Recommendation 5: Strengthen Economic Development through Research**

Universities are an important part of Ontario’s economic future and play a key role in regional economic development. They are centres for the development of highly qualified people and research. McMaster is one of only two institutions in Ontario to be ranked in the top 100 institutions in the world.

McMaster’s strategic research priorities reflect current and emerging social and economic issues of importance to our local community and beyond. What sets McMaster apart is the interdisciplinary nature of our research. The following are examples of strategic research areas in which targeted investment by government could result in improved innovation and competitiveness:

- **Infectious diseases:** Killing over 13 million people a year, infectious diseases are the world’s most common cause of death among children and the elderly. Additionally, there is a growing resistance to the current arsenal of antibiotics. At McMaster University, the Michael G. DeGroote Institute for Infectious Disease Research is making a substantial impact with a combination of trans-disciplinary experts and state-of-the-art facilities. Through advances in antimicrobial drug discovery and diagnostics, host and pathogen biology, population dynamics and clinical research, the Institute is making significant improvements to public health in Ontario, throughout Canada and around the globe.

- **Aging:** Within 25 years the number of Canadians aged 65 and older will more than double from 4.2 million to 9.8 million. To address this demographic shift that will significantly affect our economy, health care and social services, healthy aging must be at the forefront of the social policy agenda. McMaster University has made it a priority to examine aging from a range of multidisciplinary perspectives. McMaster’s scientists focus on biological aspects of aging through research in population genomics, microbiology and immunology, and the University is home to the comprehensive Canadian Longitudinal Study in Aging. Through applied research at the School of Rehabilitation Science, Gilbrea Centre for Studies in Aging and Population Health Institute, researchers also explore the interactions between physical, social and psychological factors of aging.

- **Advanced Manufacturing:** McMaster University has the intellectual resources and laboratory infrastructure to make significant contributions to advanced manufacturing research. McMaster’s existing resources include:
The McMaster Automotive Resource Centre (MARC), which consists of 80,000 square feet of cutting-edge industrial labs focusing on clean automotive technologies. MARC is providing the much-needed space to work effectively with our industry partners and attract new partners to conduct applied research. It is also a dynamic learning facility used to train the personnel needed by industry. The Jobs and Prosperity Council Report: Advantage Ontario recommends that training and experiential learning opportunities should be designed to meet the skills needed in the manufacturing sector. Additionally, they propose that there should be increased linkages between the private sector and research institutions to develop innovative solutions for the sector. MARC is a great example of a successful university-industry collaboration that is driving progress in the manufacturing sector.

- Established partnerships with industries heavily involved in energy R&D including: IBM, Ford, GM and ArcelorMittal Dofasco
- A Canada Excellence Research Chair in Hybrid Powertrain and an NSERC/Ford Industrial Research Chair
- Significant funding from Automotive Partnership Canada (APC)

**Water:** Water-related research at McMaster leverages our strengths in a number of areas including science, engineering, health sciences and social sciences. Our approach is multidisciplinary with research themes that range from sustainable water quality and its impact on ecosystems and human health, to the engineered instrumentation, sensors and data management that are required to monitor and manage this valuable resource. Part of McMaster’s research identifies and develops techniques to protect water after it has been used in cities or industry and impacted by contaminants from various sources. Many of these sources are large or small municipal water systems, but also include industrial activities and processes such as manufacturing and mining.

**Established Funding Programs:** The funding programs provided by the Ministry of Economic Development and Innovation have contributed substantially to Ontario’s economy. Each dollar spent on university research by the Ministry is multiplied through the opportunities for partnerships with the private sector across Ontario or other funding programs.

McMaster supports the following government initiatives:

- The Ontario Research Fund (ORF): The ORF – Research Infrastructure stream of funding, which is mirrored by the Canada Foundation for Innovation’s (CFI) matching program is supporting research that is transforming Canada and the world.
- The Ontario Centres of Excellence: McMaster researchers take part in their Earth and Environmental Technologies, Communications and Information Technology, Materials and Manufacturing, Photonics and Energy areas. OCE programs partner industry and research institutions and expand training and experiential learning opportunities for our students.
- C4: A technology transfer initiative that encompasses 10 universities and their partnering research institutions, fostering innovation in southwest Ontario by promoting technology transfer and commercialization. C4 members coordinate their resources, cooperate with governmental and industrial bodies, collaborate in multi-disciplinary research to solve real-world problems, and commercialize the results of their research. We encourage further investment in this area.

**Entrepreneurship**

McMaster would also recommend targeted investment in entrepreneurship activities. An investment in entrepreneurship at the post-secondary level is an investment in Ontario’s future.

As universities encourage ideas, discovery and critical thinking, they can be instrumental in assisting and mentoring students who have an entrepreneurial spirit. Providing students with the necessary entrepreneurial infrastructure to develop their ideas has become part of the culture at McMaster University. Indeed, it is deeply rooted in our discussions surrounding future research and educational programs. At McMaster, we focus our entrepreneurship activities on mentoring and growing a new generation of successful Ontario-led businesses.
We bridge the gap between education, research and entrepreneurship through a number of programs and initiatives including:

- The Xerox Centre for Engineering Entrepreneurship and Innovation (XCEEI): The first centre of its kind in North America, XCEEI offers master’s programs in entrepreneurship and innovation to Science, Technology, Engineering and Math (STEM) students and non-STEM students alike.

- Science & Engineering in Business (FedDev): Nearly $780,000 has been invested in a new program for STEM graduate students and recent graduates to assist them in developing their business skills.

- DeGroote School of Business: Entrepreneurs-in-Residence act as mentors and coaches to undergraduate, MBA and PhD students. Recruited from global corporations, these experts bring a real-world perspective to our students. Additionally, our undergraduate entrepreneurship course sees our students develop a detailed business plan for a local entrepreneur, while graduate students – from any discipline – are able to reap the benefits of an interactive and cross-disciplinary program on entrepreneurship.

- Communications Management (Humanities): Communications management students – both undergraduate and graduate – have the opportunity to work with leading practitioners on a campaign (fundraising, marketing and/or political) which includes both management and execution.

- preINC: Located at the McMaster Innovation Park (MIP), preINC encourages the creation of start-up companies based on inventions and research discoveries made at the University, as well as our partner hospitals – Hamilton Health Sciences and St. Joseph’s Healthcare Hamilton.

We not only teach entrepreneurship but we have created a culture of innovation and commercialization to better assist our students as they move through the process – from idea to marketplace.

**Public-Private Partnerships**

McMaster also encourages the government to increase its investment in opportunities designed to bring universities together with industry. The German Fraunhofer model epitomizes the benefits of these kinds of partnerships and should be considered as a model. Its mission is as follows:

- To promote and undertake demand-driven research in an international context of direct utility to private and public enterprise and of wide benefit to society;

- To reinforce the competitive strength of the economy by developing technological innovations and novel systems solutions for their customers;

- To provide a platform that enables staff to develop the necessary professional and personal skills to assume positions of responsibility in industry and in other scientific domains.

For the government, this amounts to an investment in the physical infrastructure and core funding of 30 per cent towards operating costs, with the remaining 70 per cent provided by the institute partners, primarily drawn from industry. This innovation platform serves as the de facto research organization for many of Germany’s technology leaders and manufacturers of some of the best known brands in the world.

At McMaster, we have the infrastructure and expertise to communicate and provide added value to the private sector. Compared with the provinces’ other universities, McMaster receives the highest proportion of research funding from industry, with more than 45 per cent of the University’s total research funding being provided by industry in 2010.
Conclusion

As the government looks ahead to Budget 2013, McMaster University intends to continue working as an active partner in Ontario's economic development. Even in the province's current economic climate, graduates from universities experience high rates of employment. For instance, in 2012, 88 per cent of McMaster graduates, who finished a bachelors or first professional degree program as of 2010, found employment within six months after graduation and 93 per cent were employed within two years. These figures are above the provincial average.

In addition to offering a high-quality educational experience and providing the crucial skills needed for the workforce of tomorrow, McMaster is a significant source of employment in the Hamilton area. With roughly 7,800 full-time faculty and staff, the University is one of the largest employers in the greater Hamilton area. Looking ahead, a new downtown Hamilton health campus will provide patient care, clinical services and educational learning opportunities. This, along with McMaster University's Downtown Centre (home to the University's Centre for Continuing Education), is helping to revitalize the City of Hamilton's downtown.

A major hub of research and innovation, McMaster generates ground-breaking discoveries that will have a positive impact in Ontario and beyond. Exploring areas such as infectious diseases, aging, advanced manufacturing and water, our research will help the province build a healthy and sustainable future. The University also participates in several public-private partnerships, merging ideas, resources and facilities to improve overall competitiveness and productivity.

McMaster is undergoing a transformation in its delivery of postsecondary education as detailed in our Strategic Mandate Agreement. With focused investment from government and consideration of the recommendations set forth, McMaster will continue to drive economic prosperity in Ontario.

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