**MEETING**

**OPEN SESSION**

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## OPEN SESSION


### Regular Agenda

| 10. | Business Arising from the Minutes | | |
| 1:40 | a. Executive Compensation (with Marilyn Thompson) | 55 | Decision |

| 11. | Report of the President | | |
| 1:50 | a. President’s Update | 67 | Information |
| 2:00 | b. Board of Governors Retreat Summary and Action Plan | 102 | Input |

| 12. | Report of the Vice-President, Academic & Provost | | |
| 2:45 | a. New Teaching and Learning Technologies with Mario Coniglio and Donna Ellis | | Information |
| 3:10 | c. Tuition | | Input |
| 3:20 | i. Recommendation from Finance & Investment Committee re: tuition | 111 | Decision |
| 3:30 | d. Co-op Fee | 116 | Decision |

3:40 BREAK

| 13. | Reports from Committees | | |
| 3:50 | a. Pension & Benefits | 117 | Information |

4:00 14. Other Business

### CONFIDENTIAL SESSION

| 4:05 | 15. Conflict of Interest Declaration | Oral | Declaration |

### Consent Agenda

**Motion:** To approve or receive for information by consent items 16-17 below.

| 4:10 | 16. Minutes of the 31 October 2017 Meeting | 8 | Decision |
| 17. | Report of the President | | |
| a. | New Appointments with Tenure | 118 | Decision |

### Regular Agenda

| 4:15 | 18. Business Arising from the Minutes | | |
| 4:20 | 19. Report of the President | 81 | Information |

| 20. | Report from Committees | | |
| 4:30 | a. Finance & Investment | 122 | Decision |
| 4:40 | b. Governance | 123 | Decision |
## CONFIDENTIAL SESSION

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## IN-CAMERA SESSION

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<td>24. Business Arising from the Minutes</td>
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<td>25. Report of the Vice-President, Academic &amp; Provost Nominating Committee</td>
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<td>26. Report from Governance Committee</td>
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<td>5:20</td>
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<td>27. Other Business</td>
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| 5:30 | 28. Next Meeting: Tuesday 3 April 2018 at 1:30 p.m. |
| 29. | Adjournment |

KJ/ees
1 February 2018

Karen Jack
University Secretary
Secretary to the Board of Governors
OPEN SESSION

1. CONFLICT OF INTEREST
Governors were asked to declare any conflicts they may have in relation to the items on the agenda. No conflicts were declared.

2. REMARKS FROM THE CHAIR
Board of Governors Appeal
The chair spoke to the annual Board fundraising appeal, and urged all Board members to take part at a level of contribution that is comfortable to them, the goal being 100% participation by the Board. She emphasized the important work that is done as a result of the appeal, and mentioned increased international opportunities for students as a possible featured project for giving.

At the request of the chair, Sally Gunz spoke to the “Caring Quilts” project as a fundraiser in support of mental health initiatives on campus, and directed governors to a selection of quilts on display.

President’s Reception
The chair spoke to the annual President’s Reception at Federation Hall the previous evening.

Resignations
The chair informed the Board that Satish Rai and Christopher Pugh had both resigned from the Board since the June meeting.

3. AGENDA/ADDITIONAL AGENDA ITEMS
The chair informed that Board that per the February meeting’s minutes, the update on international tuition will be raised under “Other Business.” Following the call for additional agenda items from the floor, the Board heard a motion to approve the agenda as distributed.

Steffler and Clubine. Carried unanimously.
The chair advised the Board that the delegation of authority granted to BEC at the June meeting re: the executive compensation matter was not used. The province made changes to the timing such that BEC did not exercise any authority on behalf of the Board.

The Board heard a motion to approve and/or receive for information by consent items 4-7 below.

Richter and Heins.

4. MINUTES OF THE 6 JUNE 2017 MEETING
   The Board approved the minutes of the meeting as distributed.

5. REPORT OF THE PRESIDENT
   Sabbatical and Administrative Leaves/Administrative Appointments.
   Motion: The Board heard a motion to approve the sabbatical and administrative leaves as presented in the report. The remaining items in the report were received for information.

   Recognition and Commendation. The Board received the report for information.

   Environmental Sustainability Strategy. The Board received the report for information.

6. REPORT OF THE VICE-PRESIDENT, ADMINISTRATION & FINANCE
   Incidental Fee Changes
   Motion: The Board heard a motion to approve the Graduate Student Association Fee as presented in the report.

   Motion: The Board heard a motion to approve the Graduate Student Association (GSA) Administered Fee as presented in the report.

7. REPORT FROM THE EXECUTIVE COMMITTEE
   The Board received the report for information.

   The question was called, and the motion carried unanimously.

   In response to a question, Mat Thijssen, sustainability co-ordinator, advised that future budget requests relating to environmental sustainability will be made to the Board.

Regular Agenda

8. BUSINESS ARISING FROM THE MINUTES
   There was no business arising.

9. REPORT OF THE PRESIDENT
   President’s Update. The president updated the Board of Governors on a number of issues summarized in his written report, and otherwise, including: a very busy “innovation week @ Waterloo”; community events and recent success by the men’s football team; recent HeForShe activities; the federal innovation supercluster initiative and Waterloo’s plans on this front; the strategic mandate agreement with the province; rankings data and survey results; efforts underway to improve the student experience; a construction update; selected performance indicators; an update on the President’s Advisory Committee on Student Mental Health and the University’s indigenization strategy. In discussion: support for the efforts underway on student mental health considerations; the
government does view Waterloo as a “STEM” school, but is aware of other areas of strength; Waterloo’s preference toward research intensive faculty instead of over-reliance on “sessionals”, with agreement to bring more information on this point to the Board; a suggestion by an external member that all governors make a point of attending a convocation ceremony when possible to enjoy this satisfying experience; further conversation with Chris Read, associate provost, students, re: efforts to address student satisfaction concerns and agreement by the president to report on this front at subsequent meetings; efforts underway in Jeff Casello’s office re: improving domestic graduate student numbers, and an undertaking by the president to report on this front periodically; scholarship initiatives to assist with the indigenization strategy; work being done with respect to the University’s online strategy.

Strategic Plan 2013-2018: Progress and Outcomes – Fall 2017 Update. The president introduced George Dixon, who then presented the annual update on progress with respect to the strategic plan. The vice-president apprised members of progress to date and next steps as the University prepares for the next strategic plan.

10. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST
Undergraduate/Graduate Admissions Update. The vice-president introduced Jeff Casello, associate vice-president graduate studies and postdoctoral affairs, and Catherine Newell Kelly, registrar, who then updated the Board of Governors on admissions. At the undergraduate level, the University has exceeded its targets, and at the graduate level, positive increases are occurring. In response to a question, more data are available re: merit-based scholarships and will be provided in the future.

11. REPORTS FROM COMMITTEES
Audit & Risk Committee.
Motion: The Board heard a motion to reappoint Ernst & Young as the University’s external auditors for the fiscal year ending 30 April 2018.

Heins and Richter. Carried unanimously.

The remaining items in the report were received for information following Heins’ review of the committee’s activities.

Building & Properties. Witer presented the report of this committee.

• Field House
  Motion: The Board heard a motion that the Board of Governors approve an increase to the Field House project budget to $16.5 million (+10%), and to approve the awarding of a stipulated sum contract to Ira McDonald Construction Ltd. for $13,193,000 plus HST.

Witer and Clubine. Carried unanimously.

The remaining items in the report were received for information following Witer’s review of the report which included commentary by the vice-president, administration and finance as how the field house is funded.

Finance & Investment. Scott presented the report of this committee which was received for information.

Governance. The Board received the report for information.
Pension & Benefits. Bardswick presented the report of this committee.

- **Actuarial Valuation of the Pension Plan as at 1 January 2017**
  
  **Motion:** The Board heard a motion to approve the filing of the actuarial valuation report as at 1 January 2017 with the Financial Services Commission of Ontario (FSCO) and the Canada Revenue Agency (CRA).

  Bardswick and Scott. Carried unanimously.

- **Statement of Investment Policies and Procedures for University of Waterloo Pension Plan**
  
  **Motion:** The Board heard a motion to approve the 1 January 2017 version of the University of Waterloo Pension Plan (2011) Statement of Investment Policies and Procedures (the “SIPP”), as described in attachment 2.

  Bardswick and Heins. Carried unanimously.

The remaining items in the report were received for information.

12. OTHER BUSINESS

**Tuition Fees Report.** The vice-president, academic & provost reported on international tuition fee setting. Governors heard: what is in place and how we came to be here; the University’s expectations with respect to the future; how the University plans to move forward. In discussion: international and domestic student support mechanisms and aid; the value in understanding where Waterloo ranks in terms of student support and its ties to fees; a suggestion that the Finance & Investment Committee review the proposed increases in advance of the February meeting; federal funding impacts; minimal effects in the past of tuition increases on retention; the merits in providing predictability for students once they decide to attend Waterloo; the draw of scholarships; a suggestion that the Board ought not involve itself in such detailed decisions better left to committees and administration.

After discussion, the Board heard a motion to direct the university administration to move its international fees to the mid-point of all Canadian universities.

Pristanski and Swainson.

After a friendly amendment did not succeed, the question was called and the motion failed (6 yeas; 10 against; and 4 abstentions).

Members understood that the Finance & Investment Committee will review the matter and provide a recommendation at the February meeting.

The Board convened in confidential session. At the request of the chair, Michelle Hollis, Lee Hornberger, and Glen Weppler stayed for confidential session.
CONFIDENTIAL SESSION

The confidential minutes have been removed.
The confidential minutes have been removed.
IN-CAMERA SESSION

The *in-camera* minutes have been removed.
To: Board of Governors

From: Feridun Hamdullahpur, president and vice-chancellor

Date: 6 February 2018

Subject: Call for Nominations for Honorary Degrees

An honorary degree is the highest honour conferred by the University. Through the conferring of honorary degrees, the University of Waterloo seeks to recognize outstanding achievement, whether academic or through service to society. These achievements are celebrated at Convocation where they inspire those in attendance and, in particular, our newly graduating students.

Guidelines for the awarding of honorary degrees, including selection guidelines, procedures, considerations to make in assessing a candidate’s qualifications, and details on what to submit in a nomination package, can be found on the website for the Senate Nominating Committee for Honorary Degrees (https://uwaterloo.ca/secretariat/committees-and-councils/honorary-degrees-committee/guidelines-awarding-honorary-degrees). You are also welcome to contact the committee secretary, Rebecca Wickens (rebecca.wickens@uwaterloo.ca) for information and assistance.

We invite you to consider nominating a worthy candidate for this honour. Please note, the University embraces and appreciates diversity and wants to ensure a diverse pool of candidates. With the community’s input we can continue to maintain a substantial pool of deserving individuals whose achievements the University would be delighted to celebrate and honour.

Thank you in advance for your contribution to this important tradition.
FOR INFORMATION

Recognition and Commendation

Alice A. Kuzniar, university research chair and professor of German and English, was awarded the Hans-Walz Research Prize on 1 December 2017 at the Robert Bosch Haus in Stuttgart for her work on the history of homeopathy. The Birth of Homeopathy out of the Spirit of Romanticism was published by the University of Toronto Press in Spring 2017. The research for the book was generously supported by the Alexander von Humboldt Foundation, the Lois Claxton Humanities and Social Sciences Research Fund, and the Social Sciences and Humanities Research Council. The bi-annual Hans-Walz Research Prize is internationally recognized and supports research into the history of homeopathy. It is awarded by the Institute for the History of Medicine, which belongs to the Robert Bosch Stiftung (Robert Bosch Foundation), and is also supported by the Hans-Walz Foundation, a part of the Robert Bosch Foundation. (adapted from the Waterloo Centre for German Studies News, 30 October 2017)

Fourteen University of Waterloo researchers have been awarded Canada Research Chairs (CRC). They are:

Applied Health Sciences
• Ken Stark (Kinesiology) – CIHR Renewed Tier 2 CRC in Nutritional Lipidomics ($500,000 over five years)
• Mark Ferro (School of Public Health and Health Systems) – CIHR New Tier 2 CRC in Youth Mental Health ($500,000 over five years)

Arts
• Andrew Bauer (School of Accounting) – SSHRC New Tier 2 CRC in Taxation, Governance and Risk ($500,000 over five years)
• Kathryn Henne (Sociology and Legal Studies) – SSHRC New Tier 2 CRC in Biogovernance, Law and Society ($500,000 over five years)

Engineering
• Frank Gu (Chemical Engineering) – NSERC Renewed Tier 2 CRC in Nanotechnology Engineering ($500,000 over five years)
• Luis Ricardez Sandoval (Chemical Engineering) – NSERC New Tier 2 CRC in Multiscale Modelling and Process Systems ($500,000 over five years)
• Stephen Smith (Electrical and Computer Engineering) – NSERC New Tier 2 CRC in Autonomous Systems ($500,000 over five years)
• Lin Tan (Electrical and Computer Engineering) – NSERC New Tier 2 CRC in Software Dependability ($500,000 over five years)
• En-hui Yang (Electrical and Computer Engineering) – NSERC Renewed Tier 1 CRC in Information Theory and Applications ($1.4 million over seven years)
• Weihua Zhuang (Electrical and Computer Engineering) – NSERC Renewed Tier 1 CRC in Wireless Communication Networks ($1.4 million over seven years)

Environment
• Christine Dow (Geography and Environmental Management) – NSERC New Tier 2 CRC in Glacier Hydrology and Ice Dynamics ($500,000 over five years)

Mathematics
• Jun Liu (Applied Mathematics) – NSERC New Tier 2 CRC in Hybrid Systems and Control ($500,000 over five years)
• **Karen Yeats** (Combinatorics and Optimization) – NSERC New Tier 2 CRC in Combinatorics of Quantum Field Theory ($500,000 over five years)

Science
• **Michel Gingras** (Physics and Astronomy) – NSERC Renewed Tier 1 CRC in Condensed Matter Theory and Statistical Mechanics ($1.4 million over seven years)

(adapted from the *Daily Bulletin*, 7 November 2017)

**Howard Armitage**, founding director of the Conrad Centre, was recognized with the City of Waterloo’s highest honour, the Waterloo Award. Howard was celebrated for his contributions to the community as a trail-blazer in the education space, an active board member in the non-profit community, and an inspiring teacher. He was recognized for his leadership in the creation of the MBET program, the first business program of its kind in Canada devoted to entrepreneurs. His nominator, Tim Jackson, stated: “Howard personifies the innovation qualities inherent in the Waterloo Award. He is a holistic, big picture thinker whose creative innovations have changed the face of business education.” And, as one of Conrad’s advisory council members described his achievements, “students who come to his program will change industry, they’ll change companies, they’ll change culture.” (adapted from the *Daily Bulletin*, 21 November 2017)

St. Jerome’s University history professor **Whitney Lackenbauer** has been selected as the 2017-18 Killam Visiting Scholar at the University of Calgary. The primary purpose of the program is to support advanced education and research at five Canadian Universities, including the University of Calgary. The Killam Visiting Scholar Program annually selects a distinguished scholar to come to the University of Calgary and make “a significant contribution to academic life”, while participating in research and teaching programs of the host department, as well as engaging in their own research. In Lackenbauer’s case, this means pursuing his active research program on historical and contemporary Arctic affairs, guest lecturing in various courses in history, political science, and anthropology, as well as giving public lectures, organizing and participating in workshops, and organizing an international conference on Canada-Russia Arctic relations, which will be held in winter 2018. Lackenbauer is on sabbatical from St. Jerome’s University for the 2017-18 academic year, while in this role. “This release from my regular teaching and service obligations is facilitating an exciting range of research activities,” Lackenbauer explains, who already has nine books and sixteen articles, and book chapters either published in 2017 or slated for publication by the end of this year. Through his research program asking “What Kind of Security for the Arctic?” Professor Lackenbauer will collaborate with University of Calgary colleagues to establish new frameworks for investigating and understanding the changing security landscape in the Arctic. (adapted from the *Daily Bulletin*, 24 November 2017)

**Lyndon Jones**, professor at the School of Optometry and Vision Science and director of the Centre for Contact Lens Research, has been awarded a Fellowship of the Canadian Academy of Health Sciences (CAHS). According to the CAHS website, induction into the CAHS as a fellow is considered one of the highest honours within Canada’s academic community. CAHS fellows, who serve as unpaid volunteers, are nominated by their institutions and peers and selected in a competitive process based on their internationally recognized leadership, academic performance, scientific creativity and willingness to serve. Jones is also a fellow and diplomate of the American Academy of Optometry (AAO). He has authored over 300 refereed and professional papers, and given over 700 invited lectures at conferences worldwide. He has been awarded a number of national and international awards, including the 2014 “Glenn Fry Award” from the AAO, 2014 “Donald Korb Award” from the American Optometric Association, 2013 “Max Schapero Award” from the Cornea and Contact Lens Section of the AAO and the 2011 “George Giles Memorial Lectureship” from the British College of Optometrists. (adapted from the *Daily Bulletin*, 28 November 2017)

On December 2, the recipients of the inaugural 60th Anniversary Alumni Awards were honoured at the President's 60th Anniversary Gala. This was the pinnacle 60th anniversary celebration event for the University and celebrated the award recipients’ extraordinary citizenship to Waterloo. The 60th Anniversary Alumni Awards
recognized ten outstanding alumni for their personal commitment and citizenship to Waterloo, building on the legacy of the 50th Anniversary Alumni Award, created by the Alumni Council in 2007. The Alumni Council commissioned an alumni artist, Paul Roorda (BA ’88) to create a piece of art as a memento for each of the recipients.

Awards were given to:

- **Robert Ewen** (BA ’71)
- **Toby Jenkins** (BES ’82) and **Tom Jenkins** (LLD ’13 Honorary)
- **Brigette Lau** (BASc ’99) and **Chamath Palihapitiya** (BASc ’99)
- **Ophelia Wai Fong Lazaridis** (BMath ’85)
- **Blair McArthur** (BASc ’85)
- **David McKay** (BMath ’87)
- **John A. Pollock** (LLD ’07 Honorary)
- **Karen Wilkinson** (MAcc ’90)
- **Marta Witer** (OD ’79)
- **Danny Ying** (BMath ’80)

We thank these outstanding alumni and donors for investing in Waterloo’s future. (adapted from the *Daily Bulletin*, 4 December 2017)

In honour of the University’s 60th anniversary, the President’s Community Impact Awards were established to recognize those who embody the University’s spirit of innovation and contribute to making Waterloo Region strong and prosperous. At the President’s 60th Gala on Saturday December 2, four recipients were recognized for community excellence. Each recipient received a hand-crafted commemorative art piece by Ontario artist Tara Marsh, designed with swirls of black and gold illustrating the interconnectedness of the university with our community. There were two awards honouring community leaders, who are current University of Waterloo students, faculty or staff making a difference, and two awards for university champions, local residents or organizations championing the impact of the university in our community:

**Community Leaders:**

- **Sally Gunz** (School of Accounting and Finance)
  Sally has advocated for neighbourhood improvements such as changes to parks and property standards, lobbied against school closures, and tackled drugs, prostitution, and violence by leading a 100-person volunteer Citizens on Patrol program in partnership with Waterloo Regional Police.

- **Idrisa Pandit** (Studies in Islam, Renison University College)
  Idrisa founded Muslim Social Services, an organization that for the past 10 years has served a wide range of needs for families, particularly in light of the influx of Syrian refugees in recent years. A founding member of Interfaith Grand River, her work has been instrumental in breaking barriers to address policy and procedural gaps in service.

**University Champions:**

- **Mary Jane Patterson** (MES ’01)
  Mary Jane is a longstanding champion of the University of Waterloo, in her role as the Executive Director of the Residential Energy Efficiency Project (REEP), and beyond. She is passionate about supporting Waterloo students who are following in her footsteps as environmental stewards and advocates.

**THEMUSEUM**

By partnering with UWaterloo in its programs and exhibitions, such as *Quantum: The Exhibition* and *A Case of*
Celebration with the Waterloo Aboriginal Education Centre, THEMUSEUM aims to inspire the next generation of Innovators and leaders. THEMUSEUM CEO David Marskell accepted the award on behalf of the organization.

Nominations for the next year’s awards will be posted on the Office of the President website in spring 2018. (adapted from the Daily Bulletin, 5 December 2017)

NanoCnet, a science company developing key technology used in consumer electronics, was among the big winners at the Velocity Fund Finals, held November 30, 2017 in the Student Life Centre. Founded by two graduates of nanotechnology engineering who earned their PhDs at Waterloo, NanoCnet has been working out of the Velocity Science discovery lab on campus to develop highly flexible, conductive and cost effective nanomaterials. They are used in conductive thin films in all electronics, including touch panels, displays, and wearables. In addition to winning one of the grand prizes of $25,000, NanoCnet also won the top hardware prize, worth $10,000. “The current flexible electronics industry is facing major changes. Traditional conductive materials, which are the building blocks of electronics, have serious problems. They are either expensive, non-flexible, or degrade quickly, which limits the performance and form factors of future electronic devices,” said Hadi Hosseinzadeh Khaligh, co-founder and CEO of NanoCnet. “We’re developing a fundamentally different approach using nanotechnology to create a new generation of conductive materials that are easy to fabricate, flexible and 20 times more durable than existing materials on the market.”

The following three companies were also grand-prize winners of $25,000. They will be admitted to the Velocity Garage startup incubator.

- **Envoi** offers retailers infrastructure for same-day delivery in order to meet consumer demand that is not currently fulfilled by traditional courier services.
- **ShiftRide** is an on-demand mobility platform, giving people access to cars shared by car owners nearby.
- **Tabnex** helps businesses make smarter and faster hiring decisions, by providing real-time data and predictive intelligence on candidates who have applied to job opportunities.

An additional ten teams of University of Waterloo students competed for three prizes of $5,000. The winners of the Velocity $5K are:

- **SannTek** is developing a nanotechnology-based sensor to quantify marijuana intoxication.
- **QALM** is a smart stream trap monitoring solution that makes invisible leaks visible.
- **GreenSorbs** is designing a sorbent boom to clean up oil spills using a material made from landfill waste.

(adapted from Waterloo News, 1 December 2017)

Three people with strong links to the University of Waterloo were among the newest appointees to the Order of Canada. Her Excellency the Right Honourable Julie Payette, Governor General of Canada, announced the 125 appointees on December 29, 2017.

Raymond Laflamme, founding executive director of the Institute for Quantum Computing, was named an Officer of the Order of Canada. Laflamme received the honour “for his outstanding achievements as an administrator and researcher who has advanced quantum science and technology in Canada.” Laflamme led the Institute for Quantum Computing (IQC) at Waterloo from its inception from 2002 to 2017. Under his leadership, IQC grew into a world-class community of more than 200 researchers and became a global player in the quantum race. “I am honoured to receive this recognition,” said Laflamme, who holds the Mike & Ophelia Lazaridis John Von Neumann Chair at the Institute for Quantum Computing. “Quantum computing has the power to transform the way we approach everything from the way we conceive the world to medicine to geographical exploration, and more. Like the information revolution shaped the 20th century, the quantum revolution will define the 21st. We are really just at beginning of seeing the major impacts quantum will have on our lives.”
Keith Hipel of systems design engineering was named an Officer of the Order of Canada. Hipel was cited “for his extensive contributions to the field of environmental engineering and for his leadership within multiple academic and professional institutions.” During a career spanning decades, much of it dedicated to solving challenging problems related to conflict resolution in engineering, Hipel has taught thousands of students and supervised dozens of candidates for graduate degrees. He has a global reputation for pioneering contributions to environmental systems engineering and holds the title of University Professor, the highest academic honour at Waterloo.

Douglas Stenton, an adjunct professor of anthropology who serves as heritage director in Nunavut, was named a Member of the Order of Canada. Stenton was cited “for his enduring contributions to the preservation of Canada’s northern heritage.” “Over his career Dr. Douglas Stenton has been a scholar, educator and civil servant, devoting his exceptional energies to the archaeological heritage of what is today Nunavut,” writes Professor Robert Park of Waterloo’s anthropology department. “He introduced several generations of young Inuit to archaeology through field schools and through employing them on salvage excavations, providing those young people with unique opportunities to learn about their own heritage and about their ancestors’ lives. And since 2007 Doug planned and personally led the Government of Nunavut’s participation in the investigation of Sir John Franklin’s catastrophic 1845 Northwest Passage expedition. A major part of his contribution was ensuring that land-based investigations formed part of the search, and it was a 2014 find from that land-based research that led to the discovery of Sir John Franklin’s ship Erebus.”

Created in 1967, the Order of Canada is one of Canada’s highest civilian honours, and recognizes outstanding achievement, dedication to the community and service to the nation. The date of the investment ceremony has not yet been set. (adapted from the Daily Bulletin, 4 January 2018)
FOR APPROVAL

1. Sabbatical and Administrative Leaves
The University of Waterloo Policy 3 – Sabbatical and Other Leaves for Faculty Members [excerpts below, full text available at: http://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-3] sets out the purpose of leaves for faculty members as well as the requirements/responsibilities of faculty who are granted such leave.

The granting of a leave... depends on the University’s assessment of the value of such leave to the institution as well as to the individual, and on whether teaching and other responsibilities of the applicant can be adequately provided for in her/his absence. A faculty member who is granted a sabbatical or other leave is expected to return to duties in the University for at least one year and upon return will be expected to submit a brief report to the Department Chair regarding scholarly activities while on leave.

The purpose of a sabbatical leave is to contribute to professional development, enabling members to keep abreast of emerging developments in their particular fields and enhancing their effectiveness as teachers, researchers and scholars. Such leaves also help to prevent the development of closed or parochial environments by making it possible for faculty members to travel to differing locales where special research equipment may be available or specific discipline advances have been accomplished. Sabbaticals provide an opportunity for intellectual growth and enrichment as well as for scholarly renewal and reassessment.

... the granting of sabbatical leave is contingent upon the faculty member’s department being able to make the necessary arrangements to accommodate such an absence, and also upon the financial resources of the University in any given year. Should problems arise in any of the above, it may be necessary to postpone individual requests until such time as all the conditions can be satisfied.

- Sabbatical Leaves
  - Cai, Jun, Statistics and Actuarial Science, July 1, 2018 to June 30, 2019 at 94.7% salary
    I will be working on my current research project “Measuring, modelling, and managing insurance risks” supported by NSERC for 2016-2021 and carry out cooperative research with colleagues in different universities.

  - Collins, Andrea, Environment, Resources and Sustainability, July 1, 2018 to December 31, 2018 at 100% salary
    Undertaking field research in support of SSHRC-funded project on the G7 New Alliance for Food Security and Nutrition. This project will be examining the gendered impacts of public-private partnerships for agricultural production in sub-Saharan Africa, including how gender, food security and nutrition are conceptualized and operationalized in these partnerships.
Craik, Neil, Environment, Enterprise and Development, July 1, 2018 to December 31, 2018 at 100% salary
I will be undertaking research related to an ongoing SSHRC Insight grant related to the international law of the global commons. I have planned to spend the Fall (2018) term at the University of Edinburgh Law School as a visiting fellow, and the Winter (2019) term while on Administrative Leave as a visiting scholar at the University of Sydney Law School.

Curry, Philip, Economics, September 1, 2018 to August 31, 2019 at 90.6% salary
I will use my time to finish off some work on “A Structural Estimation of the Effect of Police on Crime”, and explore new projects. By going to Australia, I will have access to many people that I would not ordinarily get to talk to. Adelaide is home to one of the top researchers in public economics, Gareth Myles, and I will also visit other departments as well.

D’Alessio, Serge, Dean of Math Office, July 1, 2018 to June 30, 2019 at 100% salary
My plan is to strengthen my research activity and also to initiate new research projects in the areas of thin film flows, elasticity theory, and flows past hydrophobic surfaces. The leave will be spent primarily in Waterloo with short trips to visit collaborators and attend conferences. I plan to present papers at the Advances in Fluid Mechanics conference scheduled for July 10-12, 2018 and the European Fluid Mechanics conference which takes place from September 9-13, 2018.

Devaud, Cecile, Mechanical and Mechatronics Engineering, May 1, 2018 to April 30, 2019 at 100% salary
I plan to explore new research directions by reading updated literature and visiting colleagues at different universities in the world. In particular, I will visit: Professor Merci, University of Ghent (Belgium); Professor Rockaerts, Delft University (Netherlands); Professor Mastorakos, University of Cambridge (England); Professor Vervisch, University of Rouen (France), Dr. Laurent Audoin; Institute de Radioprotection et de Sûreté Nucléaire (France); Professor Cleary, University of Australia (Sydney); Professor Bushe, University of British Columbia (Canada); Professor Bernier, École Polytechnique de Montréal (Canada); Dr. Hewson, Sandia National Laboratories (US) and Professor Kuo at the California State University (US). I also plan to continue working with my graduate students for further research progress and publications, and develop my codes for computational fluid dynamics.

English, Elizabeth, Architecture, May 1, 2018 to April 30, 2019 at 85% salary
Projects related to amphibious housing research: a) completion of Global Resilience Partnership project for installing amphibious retrofits in Vietnam; b) continuation of National Research Council project for amphibious retrofits for First Nations; c) editing of International Conference on Amphibious Architecture, Design and Engineering (ICAADE) 2015 and ICAADE 2017 conference proceedings for publication by Taylor & Francis in 2018 and 2019, respectively; and d) assisting with organizing ICAADE 2019.

Graham, Kenneth, English Language and Literature, July 1, 2018 to December 31, 2018 at 85% salary
I propose to continue work on a project entitled “Saying Grace: Shakespeare’s Religious Language.” This research probes the relationship between Reformation religious culture and Renaissance rhetoric on the ground of Shakespeare’s plays, asking both how religious language differs from other forms of language and what they have in common, and considering both what religious language says and what it does.
**Hare, Kathryn**, Pure Mathematics, September 1, 2018 to February 28, 2019 at 85% salary

*I will be working with my collaborator, Professor F. Mendivil at Acadia University and the active group of fractal geometers in Atlantic Canada. I propose to continue my investigation of the dimensional analysis of fractal-like sets and measures, a very active area of current research. I also plan to consult with other experts in fractal geometry and harmonic analysis in Canada and abroad.*

**Hasan, Anwarul**, Electrical and Computer Engineering, May 1, 2018 to April 30, 2019 at 100% salary

*I will continue my ongoing research on next generation algorithms and architectures for resource constrained cryptosystems. In addition, I intend to explore joint work with select international researchers and collaborations with industry.*

**Hrynchak, Patricia**, Optometry and Vision Science, September 1, 2018 to August 31, 2019 at 100% salary

*Scholarship in assessment of clinical competence and writing a new addition of a textbook on clinical procedures.*

**Jewkes, Beth**, Management Sciences, July 1, 2018 to June 30, 2020 at 100% salary

*I plan to redevelop my Engineering Economics teaching materials for flipped classroom delivery. Problems developed as part of this will be used for a revision to an Engineering Economics textbook I’ve been co-author on for the past 20 years. Leveraging my experience collaborating with the Registrar’s Office, I plan to undertake research on scheduling that examines the complexities of myriad competing preferences.*

**Johnson, Peter**, Geography and Environmental Management, January 1, 2019 to June 30, 2019 at 85% salary

*I will be spending a portion of my time at McGill University (Montreal), working with colleagues on several areas of geographic information system science, including the use of artificial intelligence (AI) by governments, and the development of guidelines and best practices for the use of AI in governance.*

**Rice, Gregory**, Statistics and Actuarial Science, July 1, 2018 to December 31, 2018 at 100% salary

*I aim to accomplish several research projects related to: a) the analysis of functional time series data; b) motility models for motile cell populations (T-cells and Leukocytes) and; c) modelling high-dimensional time series data. The projects will have applications to finance, risk management and cell-biology.*

**Stratopoulos, Theo**, Accounting and Finance, July 1, 2018 to June 30, 2019 at 100% salary

*I will focus on my research on emerging technology adoption. I developed a methodology for predicting the adoption pace of emerging technologies and I want to create a comprehensive database of emerging technologies and predictions.*

**Thistlethwaite, Jason**, Environment, Enterprise and Development, March 1, 2018 to August 31, 2018 at 100% salary

*I will work on the data collection phase of a research project evaluating the effectiveness of Canada’s flood risk governance arrangements in achieving resilient, efficient, and legitimate flood risk management outcomes in the cities of Halifax, Nova Scotia, Vancouver, British Columbia and Toronto, Ontario.*

**Tolmie, Sarah**, English Language and Literature, January 1, 2019 to June 30, 2019 at 85% salary

*I will be working on a historical novel “True Thomas”; revising and workshopping independent screenplay “Chiaroscuro”.*
• Sabbatical Cancellation
  Nguyen, Trien, Economics, September 1, 2017 to August 31, 2018.

• Sabbatical Change
  McCulloch, Daphne, Optometry and Vision Science, January 1, 2018 to June 30, 2018, to July 1, 2018 to December 31, 2018, at 85% salary.

• Administrative Leave
  Craik, Neil, Environment, Enterprise and Development, January 1, 2019 to April 30, 2019 at 100% salary.
  I will be undertaking research related to an ongoing SSHRC Insight grant related to the international law of the global commons. I have planned to spend the Fall (2018) term while on sabbatical at the University of Edinburgh Law School as a visiting fellow, and the Winter (2019) term while on Administrative Leave as a visiting scholar at the University of Sydney Law School.
  D’Alessio, Serge, Dean of Math Office, July 1, 2019 to October 31, 2019 at 100% salary
  My plan is to strengthen my research activity and also to initiate new research projects in the areas of thin film flows, elasticity theory, and flows past hydrophobic surfaces. The leave will be spent primarily in Waterloo with short trips to visit collaborators and attend conferences. I plan to present papers at the Advances in Fluid Mechanics conference scheduled for July 10-12, 2018 and the European Fluid Mechanics conference which takes place from September 9-13, 2018.

FOR INFORMATION

2. Administrative Appointments
  Ager, Sheila, appointment as Interim Chair, Fine Arts, Faculty of Arts, November 22, 2017 to June 30, 2018.
  Collington, Tara, appointment as Interim Associate Dean, Research, Faculty of Arts, January 1, 2018 to June 30, 2018.
  Ferrer, Ana, appointment as Associate Dean, Research, Faculty of Arts, July 1, 2018 to June 30, 2020.
  Hare, Kevin, appointment as Vice-Dean, Faculty of Mathematics, January 1, 2018 to June 30, 2020.
  Hasan, Anwarul, re-appointment as Associate Dean, Research and External Partnerships, Faculty of Engineering, January 1, 2018 to April 30, 2018.
  Janes, Craig, re-appointment as Director, Public Health and Health Systems, Faculty of Applied Health Sciences, July 1, 2018 to June 30, 2022.
  O’Neill, Daniela, appointment as Assistant Vice-President, Graduate Studies and Postdoctoral Affairs, Graduate Studies and Postdoctoral Affairs, January 1, 2018 to December 31, 2019.
Power, William, appointment as Chair, Chemistry, Faculty of Science, September 1, 2018 to August 31, 2022.

- Administrative Appointment Change
  Kirton, Doug, appointment as Chair, Fine Arts, July 1, 2015 to June 30, 2019, changed to July 1, 2015 to November 21, 2017.

Feridun Hamdullahpur
President
FOR APPROVAL

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Incidental Fees

**Engineering Society Fee**

It is recommended that the Engineering Society Fee, assessed and collected each term from all full-time on-campus undergraduate engineering students, be increased effective Spring term 2018 as follows:

<table>
<thead>
<tr>
<th></th>
<th>Current Fee</th>
<th>Proposed Fee</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate full-time</td>
<td>$15.90</td>
<td>$16.15</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Comments:
- The fee was approved at the Engineering Society Joint Annual General Meeting in June 2017.
- The proposed fee was originally intended to increase in Fall 2017 but was not submitted to the University until January 2018.
- The previous fee increase from $15.75 to $15.90 (1%) was implemented Fall 2016 following the Joint Annual General meeting on June 26, 2016.
- The fee is refundable through the Engineering Society during the first three weeks of the term.

Vice President, Administration & Finance
### Student Villages
*(includes Village 1, Ron Eydt Village & Mackenzie King Village)*

<table>
<thead>
<tr>
<th>Student Villages (Two-term fee)</th>
<th>2017/18 $</th>
<th>2018/19 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dorm Style:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>6,324</td>
<td>6,437</td>
<td>1.8</td>
<td>805</td>
</tr>
<tr>
<td>Interconnecting</td>
<td>6,036</td>
<td>6,144</td>
<td>1.8</td>
<td>768</td>
</tr>
<tr>
<td>Double</td>
<td>5,673</td>
<td>5,775</td>
<td>1.8</td>
<td>722</td>
</tr>
<tr>
<td>Triple</td>
<td></td>
<td>4,620</td>
<td></td>
<td>578</td>
</tr>
<tr>
<td>Quad</td>
<td>3,754</td>
<td></td>
<td></td>
<td>470</td>
</tr>
<tr>
<td><strong>Suite-Style:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single room (4-bedroom suite style)</td>
<td>7,549</td>
<td>7,684</td>
<td>1.8</td>
<td>961</td>
</tr>
</tbody>
</table>

Recommendation: That the Student Villages 2018/19 room rates are approved effective Fall 2018 term

### UW Place

<table>
<thead>
<tr>
<th>UW Place (Two-term fee)</th>
<th>2017/18 $</th>
<th>2018/19 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suite Style:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Room (Beck Hall)</td>
<td>5,958</td>
<td>6,065</td>
<td>1.8</td>
<td>759</td>
</tr>
<tr>
<td>Triple Room (Beck Hall)</td>
<td>4,852</td>
<td></td>
<td></td>
<td>607</td>
</tr>
<tr>
<td>Quad Room (Beck Hall)</td>
<td>3,942</td>
<td></td>
<td></td>
<td>493</td>
</tr>
<tr>
<td>Single Room (2-bedroom suite style)</td>
<td>6,822</td>
<td>6,945</td>
<td>1.8</td>
<td>869</td>
</tr>
<tr>
<td>Single Room (3- or 4-bedroom suite style)</td>
<td>6,457</td>
<td>6,573</td>
<td>1.8</td>
<td>822</td>
</tr>
<tr>
<td><strong>Hybrid Dorm Style:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Claudette Millar Hall - Single Room</td>
<td>6,936</td>
<td>7,061</td>
<td>1.8</td>
<td>883</td>
</tr>
<tr>
<td>Claudette Millar Hall - Double Room</td>
<td>6,611</td>
<td>6,730</td>
<td>1.8</td>
<td>842</td>
</tr>
<tr>
<td>Claudette Millar Hall - Triple Room</td>
<td>5,384</td>
<td></td>
<td></td>
<td>673</td>
</tr>
<tr>
<td>Claudette Millar Hall - Quad Room</td>
<td>4,375</td>
<td></td>
<td></td>
<td>547</td>
</tr>
</tbody>
</table>

Recommendation: That the UW Place 2018/19 room rates are approved effective Fall 2018 term

### Columbia Lake Village

<table>
<thead>
<tr>
<th>Columbia Lake Village (Two-term fee)</th>
<th>2017/18 $</th>
<th>2018/19 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room (4-bedroom townhouse)</td>
<td>6,031</td>
<td>6,140</td>
<td>1.8</td>
<td>768</td>
</tr>
</tbody>
</table>

Recommendation: That the Columbia Lake Village 2018/19 room rate is approved effective Fall 2018 term
### Minota Hagey
Residence for VeloCity

<table>
<thead>
<tr>
<th>Minota Hagey (One-term fee)</th>
<th>2017/18 $</th>
<th>2018/19 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room</td>
<td>3,297</td>
<td>3,356</td>
<td>1.8</td>
<td>839</td>
</tr>
</tbody>
</table>

Recommendation: That the Minota Hagey 2018/19 room rate is approved effective Fall 2018 term.

### Columbia Lake Village
Single Grad Residence

<table>
<thead>
<tr>
<th>Columbia Lake Village (One-term fee)</th>
<th>2017/18 $</th>
<th>2018/19 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room (2-bedroom townhouse)</td>
<td>3,014</td>
<td>3,068</td>
<td>1.8</td>
<td>767</td>
</tr>
</tbody>
</table>

Recommendation: That the Columbia Lake Village 2018/19 room rate is approved effective September 1, 2018.

### Columbia Lake Village
Family Residence

<table>
<thead>
<tr>
<th>Columbia Lake Village (Townhouse style – Rent per Month)</th>
<th>2017/18 $</th>
<th>2018/19 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-bedroom</td>
<td>1,260</td>
<td>1,283</td>
<td>1.8</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Recommendation: That the Columbia Lake Village 2018/19 rental rate applicable to full-time University of Waterloo students is approved effective September 1, 2018.
This report is submitted following the committee’s meeting of 19 January 2018.

FOR INFORMATION

1. Carl Pollock Hall – Multi-Phase Architectural Engineering Program Renovations – Award of Tender
   On behalf of the Board, the committee awarded a stipulated price contract to PM Contracting Ltd. for $2,441,000 plus HST.
   Background: At its 13 October 2017 meeting, the Building & Properties Committee approved the $3.4 million project budget to renovate approximately 9,000 square feet of academic space in the Carl Pollock Hall building as well as agreed to review/approve the project tender award electronically in November. This project is required to support the new Architectural Engineering Program planned to commence in September 2018 and will include a first floor First Year Design Teaching Studio, a computer lab, quiet space, and a maker space. In order to meet the aggressive completion date and fit out requirements for this new program, construction was planned to commence in December 2017. Three qualified general contractors responded to the tender; PM Contracting Ltd. was low bidder, the other bidders were between 6.5% and 20% higher. The second phase to this project is a 7,100 square foot ($2.75 million) renovation to the third floor of the Carl Pollock Hall building which is currently in design and has an expected completion date of summer of 2019. The source of project funding for both phases is operating funds.

2. General Oversight
   The committee reviewed and accepted for information:
   • the capital financing commitments associated with capital projects, and advises that these commitments fall within the University of Waterloo’s board-approved debt policy
   • the work plan of the committee
   • the terms of reference of the committee
   • university real estate holdings
   • a report on the university’s greenhouse gas campus retrofit program
   • university compliance with all building codes, fire codes, safety regulations and statutory and regulatory provisions, as appropriate, in its building and properties program. Staff responsible for institutional compliance have reviewed these statutes and bylaws and have signed a declaration indicating that there are no issues of material non-compliance related to their areas of responsibility. One exception was noted with regards to training. The Safety Office provides mandatory and supplementary training courses to assist members of the university community in meeting their obligations to provide a safe, healthy work and educational environment; supervisors are accountable to ensure all required training is complete as required by Waterloo’s health, safety and environment program and not all have completed legislated mandatory training courses.

Martha George
Chair
This report is submitted following the committee’s meeting of 18 January 2018, for inclusion in the consent agenda.

FOR INFORMATION

1. General Oversight

   Operating Budget. The committee received an update from the Vice-President, Academic & Provost on performance against the 2017-18 operating budget to date, and preliminary planning for the 2018-19 operating budget.

   Responsible Investing Working Group. The committee obtained a written progress report from the working group.

   /mg

James Schlegel
Chair
This report is submitted to the Board of Governors following the meeting of the Governance Committee on 18 January 2018.

FOR INFORMATION

1. Board Orientation

   The Secretariat will host an orientation session for all new and current members on Friday and Saturday 27 and 28 of April 2018. Details re: the agenda and timing of events are to be announced, but members should plan for the program to begin during the late afternoon on Friday 27 April with dinner provided. On Saturday 28 April, the program likely will include morning and early afternoon sessions. All governors are encouraged to attend.

   Cindy Forbes
   Chair, Governance Committee
 FOR INFORMATION

1. General Oversight
The committee receives regular reports from the consulting actuary on legislative and policy changes anticipated and in force that impact public sector pensions, as well as changes implemented by other public sector pension plans. The committee discusses implications for the University’s pension plan and takes the information into account when making decisions on matters including plan design, funding and administration.

During the reporting period, this included: impact of proposed Ontario pension funding rules, and the university will have until the next required actuarial valuation filing in 2020 to adjust to the new funding rules; previous advocacy via COU to ensure that new funding rules are not punitive to universities; impact of changes to the Canada Pension Plan, with potential impacts on both contributions and benefits under the university pension plan; ongoing discussion regarding a university-sector jointly-sponsored pension plan.

Governance: The committee obtained progress updates on the work of the Responsible Investing Working Group and from the working group examining investment governance.

2. Removal Of Currency Hedge For Pension Plan Investments
In October 2017, the Finance & Investment Committee elected to remove the currency hedge for the endowment and pension plan, with the latter subject to concurrence of the committee. In November 2017, the committee passed a motion to approve of the removal of the currency hedge.

3. Indexation of Pension Benefit and Contribution Limits
The maximum pension benefits payable through the Registered Pension Plan (RPP) is governed by the Income Tax Act. Each year, the limit is adjusted based on the Average Industrial Wage (AIW) increase. The plan text for the Payroll Pension Plan (PPP) states that the maximum benefit payable through the PPP is also adjusted each year by the AIW increase. In addition to the RPP and PPP benefit limits, both plans include caps that are set at the discretion of the committee, and these caps have an impact on the valuation of the liability associated with each plan but since they are in excess of the maximum benefit limit, the caps do not have an impact on members currently. The committee has observed that the current benefit limits are approaching the established caps, and the committee intends to discuss future action on the caps in Spring 2018.

4. Indexing of Health and Dental Plan Maxima and Retiree Life Insurance Coverage
The committee agreed to adjust the benefits plan maxima and caps effective 1 January 2018 based on one year of inflation. The incremental annual cost of the increase is estimated at $50,700. Retiree life insurance coverage was increased to $5400, to adjust for inflation over the past year.

5. Report to the Community
The committee prepared a report to the University community regarding its activities in 2017. A copy of the report is appended as Attachment 1.

/MG

Marilyn Thompson, Chair
Pension & Benefits Committee
This report provides an overview of issues addressed by the Pension & Benefits Committee for the calendar year. Further information on any of these topics may be obtained by contacting the committee secretary Mike Grivicic (mgrivicic@uwaterloo.ca) or by visiting the committee webpage.

A. The Committee and its Members
The Pension & Benefits Committee is a standing committee of the Board of Governors responsible for overseeing the University’s employee pension plans, health care and dental plans, sick leave benefits, long-term disability benefit, life insurance benefit, and the Employee and Family Assistance Plan (the “Plans”). The committee consists of representatives from the University’s employee groups, administration, Board of Governors, retirees, and affiliated and federated institutions of Waterloo. The committee meets on a monthly basis (except April, July and August); meetings are open to the University community and agendas and minutes are available on the committee webpage. The committee monitors the health and oversees the administration of the Plans. Recommendations for changes and improvements to the Plans are developed, refined and approved by the committee and forwarded to the Board of Governors for approval.

B. Benefits
1. Holistic Benefits Review. A plan was developed and work initiated to review the benefits offered to employees. This review would encompass plan benchmarking, potential options for plan redesign, and marketing of benefits. The exact content of the plan is still to be determined at the upcoming committee meetings, and it is anticipated that the entire process would run until 2019-20.

2. Employee and Family Assistance Program. The committee obtained updates on the request for proposals and ultimate adoption of a new Employee and Family Assistance Program, which was put into place for active employees and their eligible dependent effective 1 September 2016. This included an annual utilization report in November 2017.

3. Provincial Pharmacare for Ontarians under 25. The committee observed that potential savings could be expected from newly-announced pharmacare program, and the committee has maintained a watching brief on this subject with the view of developing an optimized plan.

4. Annual Work Plan Items. In accordance with the annual work plan for the committee, the committee:
   • Approved the benefits plans premium renewals negotiated by Human Resources in conjunction with our consultants. Based on claims experience, the long-term disability premium paid by employees increased 7.5% on 1 May 2017. The committee directed that the insurer be notified that the University will examine the plan design and vendor landscape, and in the meantime will accept the three year proposal while not committing to continue with the insurer for that duration
   • Received reports on the benefits plan utilization rates and associated costs
   • Provided oversight to a number of other items that occur automatically according to plan provisions, e.g. movement in the dental fee guide used for calculating reimbursement and annual indexation of long-term disability benefits in pay

C. Pension Plans
5. Stage 2 Solvency Relief. The University’s pension plan previously received Stage 1 approval for solvency funding relief as provided under Regulation 178/11 to the Pension Benefits Act and based on the filed actuarial valuation report of 1 January 2014. This Stage 2 funding relief allows the University to address the solvency deficit in the pension plan over a scheduled period of time by making additional special payments and provides an intentional approach to addressing the deficit. At the committee’s June 2017 meeting, a motion was passed to file the application for solvency relief, and at the September meeting the committee considered whether to elect for one of two potential options for amortizing the solvency deficit: (1) to amortize the solvency deficit over ten (10) years starting 1 January 2018, or (2) to defer amortization for a three-year period from 2018-2021 with minimum interest-only payments over
that period, then amortize the solvency deficit at 1 January 2021 over seven years. The committee elected to proceed with the latter solvency option, while also passing a resolution that the plan shall maintain as a minimum the additional voluntary special contribution to bring University contribution to 163% of member contributions (~$2.2 million per year in 2017) over the applicable three year deferral period.

6. **1 January 2017 Actuarial Valuation.** An actuarial valuation report is required to be filed at least every three years; notwithstanding this, a valuation is completed on an annual basis for the purposes of assisting with planning and the University’s budgeting. In 2017, the committee filed an actuarial valuation, as the previous valuation was filed in 2014. The Board of Governors approved filing of the actuarial valuation of the plan as at 1 January 2017 at its June meeting.

The 1 January 2017 valuation was prepared using the same assumptions as the 1 January 2016, with the exception of a lower discount rate (5.50% vs. 5.70% in 2016, or CPI + 3.50% vs CPI + 3.70% in 2016). The registered pension plan (the “Registered Plan”) is in a deficit position; the going concern deficit position has improved since the 1 January 2014 report, though the deficit increased somewhat since the 2016 valuation. The University continues to make additional contributions to meet the unfunded liability.

The payroll pension plan (the “Payroll Plan”), which provides pension benefits (subject to plan caps) that cannot be paid from the Registered Plan because of the application of the *Income Tax Act* maximum pension, has a minor deficit.

The full actuarial report for the Registered Plan and Payroll Plan can be found on the committee’s webpage: *Actuarial Valuation Results as of 1 January 2017*.

7. **Review of and Amendments to the Statement of Investment Policies & Procedures (“SIPP”).** Following its annual review to ensure compliance with legislative requirements and also soliciting in parallel input from the Finance & Investment Committee, the committee recommended approval of the revised SIPP to the Board of Governors. The SIPP has been updated to reflect changes required/suggested by the regulator (Financial Services Commission of Ontario, or “FSCO”) in order to meet current regulations and/or best practices. All changes made in the SIPP were as a result of meeting these new regulations and best practices. Changes were also made to accommodate current objectives and governance at the University of Waterloo. No changes were made that result in a change of pension plan investment management or philosophy. The Board of Governors approved the amended SIPP at its meeting in October 2017.

8. **Asset-Liability Studies.** Over several months, the committee commissioned research from the consultant Aon Hewitt of how the University’s management of assets and liabilities within the pension plan might be optimized, including: liability awareness and matching in investing; impact of interest rates and inflation; examining how current service costs of the plan change with market shifts. The committee directed the consultant that abbreviated reports in the form of a Pension Risk Dashboard be brought forward quarterly.

9. **Examination of Investment Governance.** In early 2017, the Registered Pension Plan Investment Subcommittee was unable to retain members from the Finance & Investment Committee to serve, and administration was tasked with examining options to effectively execute the governance function for the pension plan assets. In the interim period, Finance staff will continue its regular due diligence of the University’s investments, and appropriate action on the investments will be routed through the Board governance structure where necessary. A subset of members from the Pension & Benefits Committee agreed to form a working group to help generate proposals for the Board’s consideration, and that subgroup was active through the end of 2017.

10. **Responsible Investing.** The committee has received periodic updates from the Responsible Investing Working Group, formed by the Board of Governors, and the committee was involved in the discussion that brought about the formation of the group.
11. **Removal of Currency Overlay.** The Finance & Investment Committee made the decision to remove the currency hedge for non-pension assets in October 2017, and at the same time also decided to remove the currency hedge from pension assets subject to concurrence of the Pension & Benefits Committee. The committee approved a motion in November 2017 to unwind the currency hedge on pension assets.

12. **Education and Monitoring.** The committee receives regular reports from the consulting actuary on legislative and policy changes anticipated and in force that impact public sector pensions, as well as changes implemented by other public sector pension plans. The committee discusses implications for the University’s pension plans and takes said information into account when making decisions on matters including plan design, funding and administration. Initiatives the committee has been monitoring, discussing and, where required, taking action include: discussions of a joint sector pension plan; development and commentary on proposed new pension plan regulatory regime; enhancement of the Canada Pension Plan and potential interplay of these changes with the University pension plan; investment management offerings of the recently-formed Investment Management Corporation of Ontario; philosophical considerations for managing the plan going forward; impact and timing of prospective amendments to the *Pension Benefits Act*.

13. **Annual Work Plan Items.** In addition to the above, the committee:
   - Reviewed and approved the audited pension fund financial statements for filing with FSCO. The statements show, among other things, that there are significant assets in the fund, the change in assets over the year and drivers for that change, amounts paid out of assets, and compliance with the SIPP
   - Reviewed and approved cost of living increases to earnings of individuals on long-term disability for the purpose of calculating pension contributions, and to eligible deferred pensions
   - Received the annual report from Aon Hewitt re: the contribution and protocol caps, including the impact of indexing or removing the caps on costs and liabilities, the number of individuals who would be impacted if the caps were not indexed, and the projected date on which the cap under the *Income Tax Act* will hit the hard cap in the pension plan, if the cap is not increased. The committee monitors these numbers annually in order to make decisions about how and when to increase the caps
   - Provided oversight to a number of other items that occur automatically according to plan provisions, e.g. annual indexation of pensions and caps for the payroll pension plan

*26 January 2018*
STATUS OF UNDERGRADUATE & GRADUATE ACADEMIC PROGRAM REVIEWS
The Associate Vice-President, Academic (AVPA) and Associate Vice-President, Graduate Studies and Postdoctoral Affairs (AVPGSPA) report annually to the Board of Governors and to the Ontario Universities Council on Quality Assurance (Quality Council) on the results of academic reviews of existing programs. Reviews are carried out under Waterloo’s Institutional Quality Assurance Process (IQAP). This work moved to a centralized Quality Assurance Office in 2016/17 and hence, program reviews are now reported as one consolidated report.

The following are Final Assessment Reports received by Senate for the September 2016 – August 2017 reporting period:
- Geography and Environmental Management (BES), Geomatics (BES), Tourism (MES) and Climate Change (MCC)
- Bachelor of Knowledge Integration (BKI)
- Systems Design Engineering (MASc, MEng, PhD)
- Environment and Resource Studies (BES, MES) Social and Ecological Sustainability (PhD)
- Society, Technology and Values (Undergraduate Option)
- Accounting (MAcc, PhD)
- Mechanical Engineering (GDip, MASc, MEng, PhD)
- Economics (BA, MA), Applied Economics (PhD)
- Computational Mathematics (MA)

The following are the Two-Year Progress Reports received by Senate for the September 2016 – August 2017 reporting period:
- Music (BA)
- School of Public Health and Health Systems (BSc, BHP, MSc, PhD, MPH, MHE, MHI)
- Physics and Astronomy (BSc)
- Climate Change (MCC)
- Classical Studies (MA)
- Germanic and Slavic Studies (BA, MA, PhD)
- Development Practice (MDP)
- Physics (joint Guelph/Waterloo - MSc, PhD)
- Peace and Conflict Studies (MPACS)
- Social Work (MSW)
- Pharmacy (PhD)
- Sustainability Management (MES)
- History (Tri-University MA, PhD)
- Legal Studies (BA)
- Sociology (BA, MA, PhD)
Electrical and Computer Engineering (MEng, MSc, PhD)
Applied Language Studies (Minor and Diploma)
Political Science (BA, MA, MPS)

GENERAL OBSERVATIONS ON PROGRAM REVIEWS
There is an emerging sense amongst the departments/programs that engage in the reviews that the process, while time-consuming, offers an opportunity to engage in reflective, critical analysis of their programs. When programs are committed to the process, the results have been important enhancements to academics including significant curricular revisions, strategic hiring and informed decision-making on resource allocation. A consistent theme in the external reviewers’ reports is the enthusiasm shown by our students for their programs, and the quality of instruction delivered by their professors. The University’s substantive strength in co-op is often evident in these reports.

As the personal objectives of our graduate students change, particularly at the PhD level, these program reviews have led to the creation of more diverse and applicable academic credentials for students. The program review has also generated more specific learning outcomes for graduate programs, which reflects both a necessary and welcome change.

There are, however, several recurring issues on which programs, departments, faculties and the university need to focus to ensure the sustainability of Waterloo’s high quality academic programs.

At the undergraduate program level they include:
- Better resolution of student retention, including understanding why students change programs
- Tracking graduates once they leave the institution
- Addressing social and study space needs

At the graduate program level they include:
- Adequate resources for programs (sufficient space for graduate students, sufficient staff support)
- Times to completion

INSTITUTIONAL QUALITY ASSURANCE PROCESS
This is the sixth year the university has been operating officially under its own Institutional Quality Assurance Process (IQAP). The following was submitted and approved by the Quality Council:
- The annual report of Major Modifications for undergraduate and graduate programs are submitted in July 2018

Mario Coniglio          Jeff Casello
Associate Vice-President, Academic     Associate Vice-President, Graduate Studies and Postdoctoral Affairs
FOR INFORMATION

Report on the Status of Undergraduate Recruitment and Admissions

Admission and Registration Objectives
The fall 2017 year one full-time registration target was 6,752 and 7,279 registered (new and returning students) by the November 1 official Ministry count date. This represented 108% of the University’s enrolment objective. Registered new admits totalled 6,707 (5,531 domestic and 1,176 visa). Mathematics registered 125 students into Math/ELAS with the target being 220 and all other Faculties registered 142 in the Bridge to Academic Success in English (BASE) program – 161% of target.

Marketing and Communications to Attract Prospective Students and Confirm Applicants
An evidence-based approach continues to evolve our undergraduate recruitment strategy. For fall 2017 ‘Waterloo’s environment too stressful’ is the #1 reason for declining offers, up from #4 in 2015; our “Excellent co-op program” was the #1 reason for accepting offers, up from #3 in 2015 with 71% of incoming students reporting they would have declined our offer had it not been for co-op. With our Customer Relationship Management system, we’re able to cultivate student interest earlier, e.g. Fall 2016, 11,000 prospects in the system university bound for 2017, a 50% increase over fall 2015. Some new and enhanced initiatives included: increased travel in all markets, particularly international, USA, and Ontario winter visits to enhance conversion from markets that historically have lower conversion rates; increased use of agents to recruit in key markets (higher conversion rates than non-agent recruited students); addition of business to the Ontario Universities’ Fair booth given almost 25% of undergraduate students are enrolled in a business-related program; use of Facebook Live presentations at key points in the recruitment and admissions cycle.

Applications
An overall total of year one full-time applications received for fall 2017 (April application report) was 53,298 – a 6% increase from 50,233 applications in 2016. There was a slight decrease in domestic applications (includes Canadian Citizens and Permanent Residents) and a 27% increase in visa applications.

Admission Decisions
In total, 26,392 year one full-time offers of admission were made for fall 2017 (May offer report) up from 24,515 in 2016 (increase of 8%). The number of offers made to visa students was 5,409 for fall 2017 compared to 4,172 the year prior (increase of 30%).

Admission Standards
As a measure of “quality,” the percentage of Ontario Secondary School (OSS) students with 80% or higher (best 6 grade 12 U/M courses) was 99.3% of the total first year registered newly admitted students. 85% or higher group accounted for 81.3% of the registered students. In addition, the overall median average for first-year full-time registered students increased to 89.8%, which is one of the highest in Ontario.
Demographic Data
Visa students represented 32.7% of our applicants. The registered first year class is comprised of 21.9% visa students. The number of first-year degree registered visa students was 1,652 compared to 1,478 last year (1,299 in 2015, and 1,210 in 2014). The 12% increase reflects our continued diversification and the importance of international students to meeting enrolment targets. The registered new admits year-one class is comprised of 12.7% out-of-province students. The actual out-of-province number was 888 this year compared to 833 last year. (Out-of-Province refers to last school attended in Canada outside of Ontario). Diversification continues to grow and supports enrolment as the number of Ontario applicants begins to decrease, and competition intensifies on a global level. It is also worth noting that Non-Ontario applications accounted for almost 40% of our overall applications. These applications represent a myriad of countries and systems of study, and require individual assessment by an Admissions Officer (as opposed to the bulk Ontario applicant assessments performed using electronic uploads from the OUAC).

New in 2017
Offers of admission, letters of acceptance, and scholarship decisions were made available to students directly in their Quest accounts. This informed students of their offer decision and scholarship information within days of the decisions being made. It also permitted international students to begin the study and work permit process immediately. The reliance on a traditional hard copy package to learn of our decision was removed. Students received their information directly, faster, and thus began the conversion process earlier.

André Jardin  
Associate Registrar, Admissions

Tina Roberts  
Director, Marketing & Undergraduate Recruitment
FOR INFORMATION

STATUS OF RESEARCH POLICIES AND PRACTICES

The Office of Research (OR) provides information and assistance to the university research community on a wide variety of research-related activities including the preparation and submission of proposals and post-award management. The OR consists of a number of groups. The Institutional Research group has responsibility for overseeing applications for institutional research awards (typically those requiring nominations) from the provincial and federal governments. The International Research Partnerships Office, is the central international liaison office for Waterloo and coordinates non-industrial international research projects with foreign institutions and international funding agencies. Research Partnerships manages the administration of collaborative research contracts with industrial and government partners, as well as NSERC Research Partnership programs and Mitacs internships. The group is responsible for ensuring compliance with Industrial Security, Export Control and Controlled Goods Regulations. Research Partnerships is also responsible for university-wide research development activities through the Industrial Liaison Officers. The Funding Agencies & Non-profit Sponsors (FANS) group oversees grants and contracts from federal funding agencies and non-profit external sponsoring agencies, including the Tri-Agency. FANS supports partnerships with community groups, non-profits, NGOs through the Foundation/Public Sector Liaison Officer. The Office of Research Ethics (ORE), in conjunction with the university’s two Research Ethics Committees and its Animal Care Committee, oversees compliance with university, provincial, federal and international requirements for ethics approval of research involving human and animal participants. The ORE also supports the university’s research integrity compliance obligations and provides general management for the university’s Central Animal Facility. Research Finance provides financial administration, monitoring and reporting to researchers, university administration and external sponsors and provides the oversight to ensure adherence to university policies and to financial conditions imposed by governments, agencies and clients. The Training and Compliance section within Research Finance helps to ensure that research expenses are compliant and eligible in accordance with external sponsor requirements. The Waterloo Commercialization Office (WatCo) has responsibility for evaluating, protecting and commercializing intellectual property assigned to Waterloo by its researchers. Research Communications facilitates the communication of OR services to the Waterloo research community and, in conjunction with Communications and Public Affairs, prepares communications designed to enhance the external profile of Waterloo research. The Waterloo Awards Committee promotes and facilitates the submission of high-quality nominations of Waterloo scholars across all disciplines for prestigious awards and honorific titles.

Policies, procedures and guidelines have been established to ensure that the management of research activities is consistent with the university’s mission, meets standards required by sponsoring agencies and is compliant with applicable provincial and federal laws. Policies, procedures and guidelines bearing on the administration of research funded through grants and contracts can be found at https://uwaterloo.ca/secretariat/policies-procedures-guidelines.

Management of funding applications procedures, negotiation of grant and contract agreements with the sponsor and financial monitoring of the funds after they are awarded are conducted through the OR.

Charmaine Dean
Vice-President, University Research
CORPORATE PLAN 2018-2019

To be submitted to the
Ministry of Innovation, Science and Economic Development

February 2018
FROM THE EXECUTIVE DIRECTOR

The Next Fifteen

IQC celebrated its first fifteen years in 2017. The incredible growth and impact of the Institute for Quantum Computing is the result of vision, commitment and collaborative partnerships focused on advancing quantum information science.

During this time, we have built a world-renowned institute, attracted 29 faculty members from around the world, and grown to a community of over 250 researchers, students, postdoctoral fellows, and technical staff. We have transformed the face of the University of Waterloo campus with the construction of the Mike & Ophelia Lazaridis Quantum-Nano Centre. Our research infrastructure enables the incredibly talented minds who are making discoveries and advancements each and every day.

Thanks to the incredible support of our partners — the Government of Canada, the Province of Ontario, the University of Waterloo and Mike and Ophelia Lazaridis —IQC has grown to be Canada’s core quantum initiative. Our breadth of research, community of researchers and collaborations across the country and around the world, have made IQC a hub of quantum research and a beacon of research excellence for Canada.

As exciting as these accomplishments are, I’m more excited about what’s to come in the next 15 years. Quantum information science and technology is at a turning point. Scientific advances are truly impressive and moving at a rapid pace. We are learning to harness quantum systems, exploit their power and create technologies. We are witnessing the emergence of a quantum industry in the Quantum Valley, that will accelerate in the years to come.

I can’t wait to see how the next 15 years unfolds.

Sincerely,

Kevin Resch
Interim Director
Institute for Quantum Computing
University of Waterloo
EXECUTIVE SUMMARY

The Institute for Quantum Computing (IQC) at the University of Waterloo has grown to one of the top quantum institutes around the globe, conducting world-leading research in areas of quantum computing, quantum communication, quantum devices and quantum materials.

In the coming year, IQC will continue its research agenda, attract the world’s best faculty, students and postdoctoral fellows to Waterloo and help position Canada to take advantage of the economic and social benefits of quantum information science. A series of targeted outcomes have been set for each of IQC’s strategic objectives – all working towards IQC’s overall mission to develop and advance quantum information science and technology at the highest international level.

Objectives for 2017-2018

The following list outlines IQC’s objectives as noted in the 2017-2019 Contribution Agreement with the Department of Innovation, Science and Economic Development:

A. Increase knowledge in the various fields and sub-fields of quantum information, thereby positioning Canadians at the leading edge of quantum information research and technology;

B. Create new opportunities for students to learn and to apply new knowledge to the benefit of Canada;

C. Brand Canada as the destination of choice for conducting research in quantum technologies in order to attract the best in the world to Canada, create and strengthen partnerships with the international quantum information science community and promote world-class excellence in quantum information science and technology;

D. Enhance and expand the Institute’s public education and outreach activities to effectively promote science and quantum information science and demonstrate how research in quantum information science can be applied; and

E. Increasingly translate research discoveries into market-ready quantum-based products which will have economic and social benefits for Canada.

Expected Results for 2017-2018

The following list outlines the expected results as noted in the 2017-2019 Contribution Agreement with the Department of Innovation, Science and Economic Development:

- Increase knowledge in quantum information and technology;
- Support and create opportunities for students to learn and apply new knowledge;
- Brand Canada as a place to conduct research in quantum information technologies;
- Increase awareness and knowledge of quantum information science and technology and the Institute in both the scientific community and amongst Canadians more generally; and
- Position Canada to take advantage of economic and social benefits of quantum information science through seizing opportunities to commercialize breakthrough research.
ACHIEVEMENT HIGHLIGHTS 2016-2017

Over the past year, IQC completed the planned activities and targeted milestones as outlined in the 2016-2017 Corporate Plan to the Ministry of Innovation, Science and Economic Development Canada. The following sections highlight those milestones.

Objective A: Increase knowledge in the various fields and sub-fields of quantum information, thereby positioning Canadians at the leading edge of quantum information research and technology.

IQC’s researchers advanced quantum information science and technology research by collectively publishing 141 new papers. IQC researchers also reached a collective, cumulative total of 25,426 citations. As an additional testament to the high level of research output, in 2016-2017, faculty continued to receive grants from varying bodies were recognized with accolades including, for example:

- Raymond Laflamme, faculty member in the Department of Physics and Astronomy, received a Discovery grant for his theoretical and experimental work in the field of quantum error correction;
- Kevin Resch, Canada Research Chair in Optical Quantum Technologies was awarded an NSERC Research Tools and Instruments (RTI) grant;
- Debbie Leung, an IQC faculty member in the Department of Combinatorics and Optimization, received a Discovery grant for her research studying the quantum effects in quantum communications and entanglement manipulation;
- Vern Paulsen, a faculty member in the pure mathematics department, received a Discovery grant for his research in operator algebras and quantum information;
- Michael Reimer, a faculty member in the Department of Electrical and Computer Engineering, also received a Discovery grant for his work with nanoscale photonic devices to store, process and transfer quantum information.

IQC was successful in continuing to grow its faculty complement to 26 members including:

- K. Rajibul Islam, Assistant Professor, Department of Physics and Astronomy in the Faculty of Science, joined IQC in November of 2016. He is the Principal Investigator of the Laboratory for Quantum Information with Trapped Ions. Islam completed his Bachelor’s and Master’s degrees in India, focusing on the theory of statistical physics, quantum magnetism and the interaction of spins in frustrated systems. Motivated by the possibility of studying physical systems in a lab, Islam shifted to experimental research with laser-cooled trapped ions and moved to the University of Maryland, College Park to earn his PhD under the supervision of Christopher Monroe. His thesis, “Quantum Simulation of Interacting Spin Models with Trapped Ions,” was recognized by the University of Maryland’s Distinguished Dissertation Award in 2013. In his first three years as a postdoctoral fellow with Harvard University at the Center for Ultracold
Atoms (CUA), Islam studied entanglement in ultra-cold neutral bosonic atoms in optical potentials with Markus Greiner’s group. Returning his research focus to ions, this time in optical potentials created in a high quality optical resonator, Islam joined MIT as a postdoctoral researcher in Vladan Vuletic’s group at CUA. At IQC, Islam’s experimental research will address fundamental physics questions, concentrating on encoding and manipulating quantum information in a quantum many-body system using trapped ions.

- **Crystal Senko**, Assistant Professor, Department of Physics and Astronomy in the Faculty of Science, joined IQC in November of 2016. During her doctoral research in quantum information, Senko used trapped ions to simulate a quantum computational module and to create a spin chain experiment for manipulation in the lab. She earned her PhD under the supervision of Christopher Monroe at the University of Maryland. At the Center for Ultracold Atoms (CUA) as a postdoctoral fellow with Harvard University, Senko worked on the development of a photonic crystal waveguide that, when atoms are placed next to it, creates an interesting system for information transfer between atoms by the photons flowing through the photonic crystal. Senko’s research at IQC focuses on using trapped ions for quantum simulations and quantum computing applications. Her work also explores qudits and how to improve the efficiency of encoding a logical unit of information using the multiple levels of a qudit.

- **Jon Yard**, Associate Professor, Department of Combinatorics and Optimization in the Faculty of Mathematics, joined IQC in September 2016. He is also an Associate Faculty member with the Perimeter Institute for Theoretical Physics (PI). Yard earned his doctorate under the supervision of information theorist Thomas Cover at Stanford University, where his theoretical research was focused on core questions in quantum information theory such as determining the capacities of noisy quantum channels and networks for distributing quantum information. Gradually shifting his attention towards quantum computing, Yard moved on to postdoctoral positions at McGill University, Caltech and Los Alamos National Laboratory. At Los Alamos, Yard was awarded the Richard P. Feynman Fellowship for his work in quantum communication theory. As part of Microsoft’s Research Station Q team, Yard pursued connections between algebraic number theory and quantum computing, and also looked at the classification of topological states of matter. At IQC, Yard will tackle complex mathematical problems and look for new solutions to existing problems by combining approaches from mathematics, physics, engineering and computer science.
Objective B: Create new opportunities for students to learn and apply new knowledge to the benefit of Canada, spurring innovation and investment in R&D activities through highly qualified personnel development.

Attraction of highly qualified personnel to IQC remains a consistent priority. At the end of the fiscal 2017, IQC was home to 128 graduate students – 46 Masters and 82 PhD students – on its way to a goal of 165 students. In 2017, eleven Masters and ten PhD students graduated from the collaborative graduate program in quantum information. After fielding 65 applications for postdoctoral fellowships, IQC also added twelve new postdocs to the IQC community bringing the total to 38.

Each year, IQC programs such as USEQIP (the Undergraduate School for Experimental Quantum Information Processing) attract the best and brightest undergraduate students from around the world to consider the University of Waterloo for graduate school. IQC also offers competitive Undergraduate Researcher Awards (URA) each year which gives the opportunity for undergraduates to complete work terms and conduct research.

This past year, 296 students applied to USEQIP, a URA or a combination of both. A total of 19 students from around the world were awarded a URA and over 50 undergraduates were hired for research work terms by faculty members.

Objective C: Brand Canada as the destination of choice for conducting research in quantum technologies and attract the best in the world to Canada, creating partnerships with the international quantum information community and promoting a world-class excellence in quantum information science and technology.

Each year IQC participates in, sponsors or presents at conferences to share research and encourage opportunities for collaborative research. In 2016-2017, IQC hosted three major conferences:

- RQI-North
- Quantum Innovators
- Quantum-Safe Cryptography Workshop.

IQC researchers also participated in dozens of conferences disseminating knowledge and building collaborations across the globe.

IQC’s visitor program welcomed approximately 146 scientific visitors from 106 unique institutions to exchange ideas and research in quantum information. These visitors came to IQC from across the world including from countries like China, India, Poland, Australia, Austria, Israel, South Korea, South Africa, Spain, the United Kingdom, Singapore and the United States.
Objective D: Enhance and expand the Institute’s public education and outreach activities to effectively promote science and quantum information science and demonstrate how the research from quantum information science can be applied for the purpose of sustaining and attracting world-class talent.

This year IQC continued to offer established courses and develop new programming for young students, educators and the general public. These include the annual Undergraduate School for Experimental Quantum Information Processing (USEQIP), the Quantum Cryptography School for Young Students (QCSYS), Schrödinger’s Class (formerly Teaching Quantum Technologies), three public lectures and an open house in conjunction with Waterloo Region Doors Open.

IQC also launched its largest outreach initiative to date – a 4,000 square foot, interactive, travelling exhibition on quantum science and technology. Opening for the first time in Waterloo Region in late 2016, QUANTUM: The Exhibition will travel to seven cities across Canada throughout 2017 as part of the Innovation 150 program, a Canada 150 Signature Initiative.

Objective E: Position Canada to take advantage of economic and social benefits of research through seizing opportunities to commercialize breakthrough research.

In the heart of Canada’s Quantum Valley, IQC is uniquely situated to take advantage of the opportunities of quantum technologies. Over the past year, IQC researchers have continued to commercialize ready technologies. Two new spin-off companies have emerged from IQC research over the past year, bringing the number of total spin-off companies to seven.
ABOUT IQC

The Institute for Quantum Computing (IQC) at the University of Waterloo was founded in 2002 to seize the potential of quantum information science for Canada. IQC’s vision was bold: position Canada as a leader in research and provide the necessary infrastructure for Canada to emerge as a quantum research powerhouse. Today, IQC stands among the top quantum information research institutes in the world. Leaders in all fields of quantum information science come to IQC to conduct research, share knowledge and encourage the next generation of scientists.

IQC is leading the next great Canadian technological revolution – the quantum revolution. Quantum technologies and applications developed in IQC labs create the foundation for next generation technologies based on quantum information research conducted right here in Canada.

None of this would be possible without the visionary leadership and investments of Mike and Ophelia Lazaridis, the Government of Canada, the Government of Ontario and the University of Waterloo. This strategic private-public partnership has accelerated the advancement of quantum information research and discovery, not only in Canada, but around the globe.

Vision & Mission

IQC’s vision is to harness the power of quantum mechanics for transformational technologies that benefit society and become the new engine for economic growth in the 21st century and beyond.

IQC’s mission is to develop and advance quantum information science and technology at the highest international level through the collaboration of computer scientists, engineers, mathematicians and physical scientists.

Strategic Objectives

IQC is guided by strategic objectives developed in partnership with the Government of Canada in 2008:

1. To establish Waterloo as a world-class centre for research in quantum technologies and their applications.
2. To become a magnet for highly qualified personnel in the field of quantum information.
3. To be a prime source of insight, analysis and commentary on quantum information.
OBJECTIVES AND EXPECTED RESULTS 2017-2018

Objective A: Increase knowledge in the various fields and sub-fields of quantum information science, thereby positioning Canadians at the leading edge of quantum information research and technology.

Increasing knowledge in quantum information is at the core of IQC’s priorities. In 2017-18, IQC will continue its active research program with 26 existing faculty members while continuing to grow towards its steady-state goal of 39. Providing and maintaining state-of-the-art facilities allows for highly specialized experimentation in quantum computing, quantum communication, quantum devices and quantum materials to take place within IQC and makes IQC an attractive partner for external stakeholders.

Expected Results: Increase knowledge in quantum information science and technology.

Planned Activities 2017-2018:

• Leveraging faculty across three Faculties—Science, Mathematics and Engineering—researchers will continue IQC’s collaborative and interdisciplinary research agenda in quantum computation, quantum communication, quantum sensors and quantum materials;
• Continuing to publish research results in world-leading journals;
• Recruiting up to two new faculty members;
• Recruiting up to one new research assistant professor;
• Continuing to outfit labs in the Mike & Ophelia Lazaridis Quantum-Nano Centre as new IQC members are recruited;
• Continuing to outfit and maintain the Quantum NanoFab cleanroom facility to enable fabrication of quantum-enabled technologies;
• Continuing the update and maintenance of lab space in Research Advancement Centre (RAC) buildings;
• Continuing effective and relevant relationships with current research partners;
• Seeking out new partnerships that will advance IQC’s mission and strategic objectives.

Objective B: Create new opportunities for students to learn and to apply new knowledge to the benefit of Canada.

At the end of 2016-17, the University of Waterloo’s collaborative graduate program in quantum information, in conjunction with the Faculties of Science, Mathematics and Engineering was home to 82 PhD students and 46 Masters students. In 2017-18, IQC will continue to work to attract the world’s best talent to Waterloo and grow its programs towards the goal of 165 graduate students. In part, this will be done by hosting and sponsoring lectures, colloquia, workshops and conferences featuring leading researchers from around the world, providing students with constant resources and opportunities for collaboration.
Expected Results: Support and create opportunities for students to learn and apply knowledge.

Planned Activities 2017-2018:
• Continuing to grow and attract the best talent to IQC’s graduate programs
• Fielding at least 200 applications to the University of Waterloo/IQC graduate studies program
• Expand connections made with undergraduate programs at Ontario and Canadian universities
• Continuing to host timely, focused conferences, workshops, seminars and courses
• Hosting two major conferences
• Holding up to 10 workshops and seminars
• Jointly sponsoring up to 10 workshops and conferences with national and international partner organizations

Objective C: Brand Canada as the destination of choice for conducting research in quantum technologies in order to attract the best in the world to Canada, create and strengthen partnerships with the international quantum information science community and promote world-class excellence in quantum information science and technology.

Canada’s government was among the first to recognize the potential of quantum science and as a result was among the first to invest in a significant way to research in this area. With IQC’s leadership and dedication to international collaboration, Canada is poised to continue to be a leader in this area and be recognized on a global scale.

Expected Results: Brand Canada as a place to conduct research in quantum information technologies.

Planned Activities 2017-2018:
• Being a catalyst for collaborations of quantum information scientists across Canada and around the world
• Promoting collaborations through participation in national and international conferences
• Producing internationally recognized, high-calibre publications co-authored by IQC researchers
• Organizing at least four conferences that involve multidisciplinary participants
• Continuing to host visits to IQC by international scientists and academics
Objective D: Enhance and expand the Institute’s public education and outreach activities to effectively promote science and quantum information science and demonstrate how the research from quantum information science can be applied for the purpose of sustaining and attracting world-class talent.

Throughout 2017-18, IQC will continue to build on its exceptional communications and scientific outreach programming. A major initiative of IQC’s outreach team will be the travel of QUANTUM: The Exhibition to science centres across Canada as part of Canada’s sesquicentennial celebrations. Existing programs such as USEQIP, QCSYS and Schrödinger’s Class (formerly Teaching Quantum Technologies), along with public lectures, will continue throughout the year.

**Expected Results:** Increase awareness and knowledge of quantum information science and technology and the Institute in both the scientific community and amongst Canadians more generally.

**Planned Activities 2017-2018:**
- Host USEQIP (undergraduate) and QCSYS (high school) summer schools.
- Host the third annual high school teacher’s workshop (now called Schrödinger’s Class)
- Host public lectures.
- Travel QUANTUM: The Exhibition across Canada as part of the Canada 150 celebrations.
- Develop a pop-up exhibition to present in small venues, conferences and events
- Establish relationships with key strategic partners to further share IQC’s research discoveries.
- Continue to share IQC’s research through publications, web and social media outlets.

Objective E: Increasingly translate research discoveries into market-ready quantum-based products which will have economic and social benefits for Canada.

Technologies that emerge from quantum information science research have the potential to transform technology as we know it and shape Canada’s role in the next technological revolution. To foster the commercialization of research, IQC will continue to develop and support commercialization activities and partnership opportunities for faculty, students and postdoctoral fellows.

**Expected Results:** Position Canada to take advantage of economic and social benefits of quantum information science through seizing opportunities to commercialize breakthrough research.

**Planned Activities 2017-2018:**
- Continuing development of an industry affiliate program
- Promoting opportunities for IQC researchers to connect with Waterloo’s entrepreneurial ecosystem through networking opportunities and formal events in partnership with the broader startup networks in Waterloo Region.
## 2017-2018 Expected Activities Highlights

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<tr>
<th>Month 2017/2018</th>
<th>Activity Highlights</th>
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</table>
| April          | Continued research activities – See Objective A on page 9  
|                | Continued recruiting activities – See Objective A on page 9  
|                | Launch Quantum Pop-Up Exhibit – See Objective D on page 11  |
| May            | Continued research activities – See Objective A on page 9  
|                | Continued recruiting activities – See Objective A on page 9  
|                | Quantum Industry Lecture Series – See Objective E on page 11  
|                | USEQIP – undergraduate summer school – See Objective D on page 11  |
| June           | Continued research activities – See Objective A on page 9  
|                | Continued recruiting activities – See Objective A on page 9  
|                | Host 15th Anniversary Event – See Objective D on page 11  
|                | Open Quantum Exhibit in Calgary – See Objective D on page 11  |
| July           | Continued research activities – See Objective A on page 9  
|                | Continued recruiting activities - See Objective A on page 9  
|                | Host Quantum in Iqaluit Conference – See Objective B on page 9  
|                | Host Women In Physics Conference – See Objective B on page 9  |
| August         | Continued research activities - See Objective A on page 9  
|                | Continued recruiting activities - See Objective A on page 9  
|                | QCSYS high school summer school – See Objective D on page 11  
|                | Quantum Key Distribution Workshop – See Objective B on page 9  |
| September      | Continued research activities - See Objective A on page 9  
|                | Continued recruiting activities - See Objective A on page 9  
|                | Quantum Innovators Workshop – See Objective B on page 9  |
| October        | Continued research activities - See Objective A on page 9  
|                | Continued recruiting activities - See Objective A on page 9  
|                | Quantum Innovators Workshop – See Objective B on page 9  |
| November       | Continued research activities - See Objective A on page 9  
|                | Continued recruiting activities - See Objective A on page 9  
|                | Tour QUANTUM: The Pop-Up Exhibit through Europe – See Objective C on page 10  
|                | Attend the Canada-India Tech Summit – See Objective C on page 10  |
| December       | Continued research activities - See Objective A on page 9  
|                | Continued recruiting activities - See Objective A on page 9  
|                | Quantum Cybersecurity Forum in Ottawa – See Objective B on page 9  
|                | Second annual teacher’s workshop – See Objective D on page 11  
|                | Open Quantum Exhibit in Ottawa – See Objective D on page 11  |
| January 2018   | Continued research activities - See Objective A on page 9  
<p>|                | Continued recruiting activities - See Objective A on page 9  |</p>
<table>
<thead>
<tr>
<th>Month 2017/2018</th>
<th>Activity Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>Continued research activities - See Objective A on page 9</td>
</tr>
<tr>
<td></td>
<td>Continued recruiting activities - See Objective A on page 9</td>
</tr>
<tr>
<td></td>
<td>Ottawa PR and Stakeholder Events – See Objective D on page 11</td>
</tr>
<tr>
<td>March</td>
<td>Continued research activities - See Objective A on page 9</td>
</tr>
<tr>
<td></td>
<td>Continued recruiting activities - See Objective A on page 9</td>
</tr>
</tbody>
</table>
2017-2018 Forecasted Financial Highlights

The following table outlines IQC’s proposed spending for the period April 1, 2017 - March 31, 2018.

Institute for Quantum Computing
Summary of ISED / Enterprise Spending
for the year ended March 31, 2017
($000s)

<table>
<thead>
<tr>
<th></th>
<th>ISED</th>
<th>Enterprise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research, HQP Development</td>
<td>3,485</td>
<td>21,736</td>
</tr>
<tr>
<td>Pre-Commercialization</td>
<td>96</td>
<td>974</td>
</tr>
<tr>
<td>Outreach and Communications</td>
<td>725</td>
<td>3,054</td>
</tr>
<tr>
<td>Management, Admin &amp; Support</td>
<td>694</td>
<td>2,592</td>
</tr>
<tr>
<td></td>
<td>5,000</td>
<td>28,356</td>
</tr>
</tbody>
</table>

**Note:** Enterprise Spending represents spending from ISED and Province of Ontario government special purpose funding, IQC operating funding, and individual faculty acquired research grants.

IQC has secured additional funding for activities as outlined in the Contribution Agreement. The Province of Ontario has provided IQC with $5M per year for five years starting in 2014.
Institute for Quantum Computing

Summary of Cash Flows
for the 3 years ending March 31, 2019
($000s)

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Forecasted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F'17</td>
<td>F'18</td>
</tr>
<tr>
<td>IQC Expenditures</td>
<td>28,356</td>
<td>43,894</td>
</tr>
<tr>
<td>Sources of Funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>uWaterloo - all sources (Provost, Dean, Chair)</td>
<td>5,432</td>
<td>5,725</td>
</tr>
<tr>
<td>IQC Operating, Trust, &amp; Endowments</td>
<td>3,386</td>
<td>3,053</td>
</tr>
<tr>
<td>Government of Canada</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Government of Ontario</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Faculty research funding</td>
<td>9,420</td>
<td>24,616</td>
</tr>
<tr>
<td>Additional grant and fundraising efforts</td>
<td>118</td>
<td>500</td>
</tr>
<tr>
<td>Total</td>
<td>28,356</td>
<td>43,894</td>
</tr>
</tbody>
</table>

Anticipated cash surplus / (requirements)

- - - -

The University of Waterloo has no amounts owing to the Federal Government under legislation, under this agreement or any other agreement.
## Appendices

### Risk Assessment & Mitigation Strategies

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Impact Score</th>
<th>Likelihood Score</th>
<th>Risk Rating</th>
<th>Explanation of Score</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQC may not be able to attract high quality researchers</td>
<td>High</td>
<td>Medium</td>
<td>8</td>
<td>The market for world-class researchers is increasingly competitive with many countries making significant investments.</td>
<td>Pursue recruits from a wide breadth of areas of research. Offer competitive job offers/package. Adequately promote the world class researchers and the cutting-edge facilities/equipment at IQC. Further invest in cutting edge laboratory facilities.</td>
</tr>
<tr>
<td>Transformational technologies may render current research less relevant</td>
<td>High</td>
<td>Low</td>
<td>6</td>
<td>If IQC research is rendered less relevant, HQP and data seekers will go elsewhere</td>
<td>Ensure a wide breadth of research to investigate (this would differentiate IQC from its competitors) Continue applications for research funds to support leading edge equipment</td>
</tr>
<tr>
<td>IQC may not be able to recruit enough HQPs</td>
<td>High</td>
<td>Low</td>
<td>6</td>
<td>Many international HQPs come from potentially politically unstable countries (top three are Iran, China, India)</td>
<td>Promote IQC sufficiently. Ensure excellent research. Diversify markets/countries from which students are recruited.</td>
</tr>
<tr>
<td>Operating constraints limit IQC’s efforts to brand itself</td>
<td>High</td>
<td>Low</td>
<td>6</td>
<td>Operating constraints include limited resources (including staff), degree of flexibility</td>
<td>Recruit the right people/talents/skills Develop and deliver a branding project plan Foster close working relationships with appropriate units within the university</td>
</tr>
<tr>
<td>Risk Factor</td>
<td>Impact Score</td>
<td>Likelihood Score</td>
<td>Risk Rating</td>
<td>Explanation of Score</td>
<td>Mitigation Measures</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------------</td>
<td>------------------</td>
<td>-------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Search for new Executive Director</td>
<td>Medium</td>
<td>Low</td>
<td>6</td>
<td>Candidate may decline employment offer</td>
<td>Continue hiring process with exceptionally strong candidates; Maintain search for other eligible candidates until offer made and accepted. Promote and support Interim Director in the running of IQC.</td>
</tr>
<tr>
<td>Global Competition</td>
<td>Medium</td>
<td>Medium</td>
<td>5</td>
<td>Canada is faring well vis-à-vis global competition but advantages of being a first mover on quantum is starting to dissipate as more countries are spending vast amounts of research dollars in order to catch up</td>
<td>Pursue and attract highest calibre researchers. Increase efforts to establish IQC as an authoritative source for quantum information world-wide. Continue collaborations and strengthen relationships with other quantum leaders (domestically and internationally) through academic and industry partnerships.</td>
</tr>
<tr>
<td>Government funding renewal declined or reduced significantly</td>
<td>High</td>
<td>Medium</td>
<td>9</td>
<td>Government quantum fatigue and unaligned priorities may result in funds being invested elsewhere. This would have a devastating impact on IQC’s ability to operate and position Canada as a quantum leader on the world stage</td>
<td>Underscore relevance of IQC in addition to performance. Increase focus on methods of bringing in funds from private investors. Continue to build strong relationships with all levels of government.</td>
</tr>
</tbody>
</table>
FOR APPROVAL

Executive Compensation Framework
Motion: That the Board approve the University of Waterloo’s Executive Compensation Program as distributed, subject to the program’s approval by the Minister of Advanced Education and Skills Development which is anticipated to be received within the next two months.

Rationale: The public consultation period ended in late January, and the University’s final submission of the program has gone to the Ministry of Advanced Education and Skills Development (MAESD) for final approval, along with a summary of feedback and description of the public consultation process itself. The consultation period did not result in any changes to the framework that the Board considered in November 2017.

Cindy Forbes
Chair
Introduction

The University of Waterloo’s (the “University”) Executive Compensation Program has been designed to support our strategic goal of being recognized as one of the top innovation universities in the world. In addition, the Executive Compensation Program has been designed to be compliant with the Broader Public Sector Executive Compensation Act, 2014 (BPSECA).

Canada’s Innovation University

With six faculties, four federated institutions, 11 faculty-based schools, and an overriding emphasis on teaching and research excellence, the University is home to the world’s largest co-operative education system of its kind. Our unmatched entrepreneurial culture, combined with an intensive focus on research, powers one of the top innovation hubs in the world.

As of October 31, 2017, we have 32,467 undergraduate 5,465 graduate full-time and part-time students, 1,233 full-time faculty, 354 term limited full-time and part-time sessional instructors, an academic support staff of 2,377, and 195,000 alumni. Our 2016-2017 operating revenue is $748.7 million, with $1.82 billion in net assets as of 2015-2016, and $205.7 million in sponsored research funding as of 2016-2017.

Executive Leadership

The value we place on teaching, research and entrepreneurial excellence is evident in the collective strength of the members of our executive leadership team. ¹ The President and Vice Chancellor is responsible for administering the affairs of the University, including operational management, policies and academic leadership. The Vice President, Academic and Provost, the Vice President, University Research, the Vice President, Administration and Finance, the Vice President, University Relations and the Vice President, Advancement work closely with the President in achieving the University’s goals.

Executive Compensation Governance

The Governance Committee of the Board of Governors is responsible for administering the compensation of the President and the five Vice President positions. As such, final approval of the Executive Compensation Program, and any updates to the framework and guidelines, will be made by the Governance Committee on behalf of the full Board of Governors.

¹ For purposes of the Broader Public Sector Executive Compensation Act, 2014, these senior positions are considered “designated executives”.

1
To ensure compliance with the BPSECA and to draw on the most up-to-date market compensation data, the compensation consulting firm Gallagher McDowall Associates was engaged by the University to assist in the development of the University’s Executive Compensation Program.

Executive Compensation Philosophy

As a public institution, the overall policy of the University is to pay competitive salaries to our employees within the limits of our financial situation.

In this context, the Executive Compensation Program of the University is intended to:

- attract, retain and motivate high caliber senior executives,
- maintain internal pay equity,
- compensate employees fairly relative to their responsibilities,
- encourage high performance as a team,
- provide an appropriate balance between cash compensation and non-cash compensation, including pension benefits, group insurance benefits, paid time off, work/life balance, and personal development opportunities,
- take into account the value of the security provided to faculty members who accept administrative positions when setting compensation for non-faculty member executives,
- be transparent, both internally and externally, and
- comply with the applicable federal and provincial government legislation.

These practices are governed by our desire to provide competitive and fair compensation, while considering the University’s current financial requirements and longer term goals.

Performance-related pay is provided through the annual merit programs (i.e. the Faculty Salary Increase process for positions in the academic stream and the Staff Salary Increase process for positions in the non-academic stream), which take into account performance ratings as factors in salary adjustment calculations; we do not pay bonuses to our executives, nor do we have annual or long-term incentive plans.

Executive Compensation Frameworks

Under the Executive Compensation Program, each executive’s remuneration will be administered within a set of compensation frameworks. As required by the Regulation 304/16 under the BPSECA, and as amended by Regulation 187/17, the compensation frameworks will be subject to annual maximums or caps which will not exceed the 50th percentile of the comparator organizations – that is, the median, which is no greater than the point in the range below which half the values fall.

In developing the University compensation frameworks, the following 5-step process was used:

1. groups of potential comparator organizations were first selected based on student enrolment, academic programs, research profile, and international alliances,
2. for each of the selected comparator groups, an assessment was made based on past hiring practices of the probability of recruiting a future incumbent, or retaining a current incumbent, from that group for each executive position,
3. at least eight positions comparable to each executive position were identified from within each of the selected comparator groups,
4. maximum cash compensation levels were determined for each of the comparable positions, and
5. the 50th percentile of the maximum cash compensation was then determined for each University position. For illustration purposes, the table below shows possible salaries for the same position across 5 comparator universities. The 50th percentile across the five salaries equates to $295,000 and this would be the maximum salary cap for the equivalent executive position at Waterloo:

<table>
<thead>
<tr>
<th>Comparator University</th>
<th>Executive Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$350,000</td>
</tr>
<tr>
<td>B</td>
<td>$300,000</td>
</tr>
<tr>
<td>C</td>
<td>$295,000 = 50th Percentile (median)</td>
</tr>
<tr>
<td>D</td>
<td>$250,000</td>
</tr>
<tr>
<td>E</td>
<td>$100,000</td>
</tr>
</tbody>
</table>

*Note: with an even number of values, the average of the two middle numbers is the 50th percentile*

The following criteria were used in Step 1 to select the comparable organizations:

- universities located within Ontario and across Canada
- research intensive Canadian universities, based on membership within the Ontario (U6) or Canada (U15) consortia plus comparably sized research revenue and total student enrolment

The U15 Group of Canadian Research Universities (U15) is a collective of Canada’s leading research-intensive universities. Although each institution advances its own research and education mandate, the U15 works for the collective interest of their members by participating in national discussions concerning research enterprise and government programs supporting research and development. Although not as formal in its structure, as a subset of the U15, the U6 represents a similar collective of research intensive universities in Ontario.

Sixteen research intensive Canadian universities were selected based on availability of compensation data, their level of research funding and student enrolment:

<table>
<thead>
<tr>
<th>Organization</th>
<th>U6 and/or U15 Consortia Member</th>
<th>Annual Total Sponsored Research*</th>
<th>Total Student Enrolment**</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Toronto</td>
<td>Yes</td>
<td>$974,438,000</td>
<td>86,709</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Yes</td>
<td>$512,158,000</td>
<td>61,472</td>
</tr>
<tr>
<td>McGill University</td>
<td>Yes</td>
<td>$472,512,000</td>
<td>36,948</td>
</tr>
<tr>
<td>University of Montreal</td>
<td>Yes</td>
<td>$438,010,000</td>
<td>49,600</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Yes</td>
<td>$414,379,000</td>
<td>37,299</td>
</tr>
<tr>
<td>McMaster University</td>
<td>Yes</td>
<td>$323,585,000</td>
<td>29,865</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Yes</td>
<td>$316,596,000</td>
<td>30,518</td>
</tr>
<tr>
<td>University of Ottawa</td>
<td>Yes</td>
<td>$314,231,000</td>
<td>43,345</td>
</tr>
<tr>
<td>Western University</td>
<td>Yes</td>
<td>$238,923,000</td>
<td>38,274</td>
</tr>
<tr>
<td>University of Waterloo</td>
<td>Yes</td>
<td>$182,600,000</td>
<td>36,670</td>
</tr>
<tr>
<td>Queen's University</td>
<td>Yes</td>
<td>$174,312,000</td>
<td>23,456</td>
</tr>
<tr>
<td>University</td>
<td>Sponsored Research</td>
<td>Student Enrolment</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>University of Manitoba</td>
<td>Yes</td>
<td>$157,292,000</td>
<td></td>
</tr>
<tr>
<td>University of Guelph</td>
<td>No</td>
<td>$149,158,000</td>
<td></td>
</tr>
<tr>
<td>Dalhousie University</td>
<td>Yes</td>
<td>$145,034,000</td>
<td></td>
</tr>
<tr>
<td>University of Saskatchewan</td>
<td>Yes</td>
<td>$124,984,000</td>
<td></td>
</tr>
<tr>
<td>Memorial University of Newfoundland</td>
<td>No</td>
<td>$98,725,000</td>
<td></td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>No</td>
<td>$87,970,000</td>
<td></td>
</tr>
</tbody>
</table>

*Total sponsored research source: 2014/2015 financial information of universities and colleges [www.caubo.ca](http://www.caubo.ca)

**Total student enrolment source: 2017 Council of Ontario Universities Executive Compensation Survey**

Although a member of the consortia, the University's level of research funding in comparison with other members is lower. As such, in addition to the national (U15) and provincial (U6) research universities’ consortia, three universities (i.e. University of Guelph, Memorial University of Newfoundland, and Simon Fraser University) were selected as appropriate comparators to add balance within the comparator group; the impact places the University closer to the median of all comparators with respect to research funding.

In addition, the requirement to have at least eight position matches (i.e. similarity of the nature of the job based on responsibilities and overall accountability) for each designated executive position necessitates the inclusion of both the largest two consortia members as well as the two comparator universities with the least amount of research funding. Each of these comparator institutions is considered a competitor for executive talent.

Although institutions outside of Canada are also competitors for our executive talent, we limited our review to Canadian post-secondary institutions.

It should be noted that Laval University was considered as a comparator due to its U15 consortium membership, but could not be included as they chose not to disclose their executive compensation arrangements through the 2017 Council of Ontario Universities Executive Compensation Survey.

In Step 2, the selected organizations were grouped into potential markets for executive talent. These markets were then weighted based on an assessment of the probability that a future incumbent could be recruited from or a current incumbent could be lost to one or more of these markets. The University’s hiring history suggests that the probability of recruiting (or losing) a designated executive from within Ontario versus outside of Ontario is equal and therefore, regardless of the number of comparators within, a 50/50 weighting was used for the two markets.

Positions comparable to the University’s designated executive positions were then identified in Step 3 for the organizations within each comparator group, based on the scope of their responsibilities.

In Step 4, maximum potential cash compensation levels were determined for each of the comparable positions, based on the maximums of their salary ranges (if applicable) and the maximum potential performance-related compensation payouts (if applicable). In most of the universities, no salary ranges and no performance-related pay apply. In these situations, the current annual salaries were used as the maximums. All comparator salary data is effective January 1, 2017 and sourced from the Council of Ontario Universities Executive Compensation survey conducted by Gallagher McDowall Associates.
The 50th percentile of the maximum potential cash compensation for each comparator group in Step 4 was determined in Step 5 for each University position. The comparators used for each position, and the position-to-position comparisons, are as follows:

<table>
<thead>
<tr>
<th>Weighting</th>
<th>Organization</th>
<th>President and Vice Chancellor</th>
<th>Vice President, Academic &amp; Provost</th>
<th>Vice President, University Research</th>
<th>Vice President, Advancement</th>
<th>Vice President, Administration &amp; Finance</th>
<th>Vice President, University Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>University of Toronto</td>
<td>President</td>
<td>VP &amp; Provost</td>
<td>VP Research</td>
<td>VP Advancement</td>
<td>VP University Operations</td>
<td>VP Communication</td>
</tr>
<tr>
<td></td>
<td>McMaster University</td>
<td>President &amp; Vice Chancellor</td>
<td>Provost &amp; VP Academic</td>
<td>VP Research</td>
<td>VP University Advancement</td>
<td>VP Administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Ottawa</td>
<td>President &amp; Vice Chancellor</td>
<td>VP Academic &amp; Provost</td>
<td>VP Research</td>
<td>VP External Relations</td>
<td>VP Resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Western University</td>
<td>President &amp; Vice Chancellor</td>
<td>Provost &amp; VP Academic</td>
<td>VP Research</td>
<td>VP External</td>
<td>VP Finance &amp; Operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Queen's University</td>
<td>President &amp; Vice Chancellor</td>
<td>Provost &amp; VP Academic</td>
<td>VP Research</td>
<td>VP Advancement</td>
<td>VP Finance &amp; Admin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Guelph</td>
<td>President &amp; Vice Chancellor</td>
<td>Provost &amp; VP Academic</td>
<td>VP Research</td>
<td>VP External</td>
<td>VP Finance &amp; Administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of British Columbia</td>
<td>President &amp; Vice Chancellor</td>
<td>VP Development &amp; Alumni Engagement</td>
<td>VP Finance &amp; Operations</td>
<td>VP External Relations &amp; Communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>McGill University</td>
<td>Principal</td>
<td>Provost &amp; VP Academic</td>
<td>VP Research &amp; Innovation</td>
<td>VP University Advancement</td>
<td>VP Administration &amp; Finance</td>
<td>VP External Relations</td>
</tr>
<tr>
<td></td>
<td>University of Montreal</td>
<td></td>
<td>VP Research &amp; Relations</td>
<td>VP Graduate Relations &amp; Philanthropy</td>
<td>VP Finance &amp; Infrastructure</td>
<td>VP International Affairs</td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>University of Alberta</td>
<td>President &amp; Vice Chancellor</td>
<td>Provost &amp; VP Academic</td>
<td>VP Advancement</td>
<td>VP Finance &amp; Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Calgary</td>
<td>President &amp; Vice Chancellor</td>
<td>Provost &amp; VP Academic</td>
<td>VP Development &amp; Alumni Relations</td>
<td>VP Finance &amp; Services</td>
<td>VP University Relations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>University of Manitoba</td>
<td>VP Academic &amp; Provost</td>
<td>VP Research &amp; International</td>
<td>VP External Relations</td>
<td>VP Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dalhousie University</td>
<td>Provost &amp; VP Academic</td>
<td>VP Research</td>
<td>VP Advancement</td>
<td>VP Finance &amp; Administration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Salary and Performance-Related Pay Frameworks

Based on the foregoing process and analysis, the following maximums or caps apply, as of the date the Executive Compensation Program becomes effective on September 1, 2017, to the salary of the University’s designated executive positions:

<table>
<thead>
<tr>
<th>Stream</th>
<th>Executive Position</th>
<th>Total Cash Compensation Framework Maximum as of September 1, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>President and Vice Chancellor</td>
<td>$500,000</td>
</tr>
<tr>
<td></td>
<td>Vice President, Academic and Provost</td>
<td>$346,663</td>
</tr>
<tr>
<td></td>
<td>Vice President, University Research</td>
<td>$320,207</td>
</tr>
<tr>
<td>Non-academic</td>
<td>Vice President, Administration and Finance</td>
<td>$281,885</td>
</tr>
<tr>
<td></td>
<td>Vice President, University Relations</td>
<td>$277,065</td>
</tr>
</tbody>
</table>

Going forward, the cash compensation maximums or caps may be increased by the Board of Governors, as delegated to the Governance Committee, in subsequent years by a rate that does not exceed the lesser of the following:

1. The average rate of increase in salary and performance-related pay of the non-executive managers that report to the designated executives, or
2. The public sector wage settlement trend in Ontario as set out in public documents.

Salary and Performance-Related Pay Envelope

All current and future salary increases to the designated executive team (including any competitive adjustments related to the compensation caps) will be subject to an annual “pay envelope” maximum rate of increase, which in turn will be based on the total annualized cash compensation of the executive team in the previous year. The pay envelope is currently $1,821,036 and the proposal is to increase the pay envelope by 3.70% to $1,888,437 for the 2017-2018 (May to April) pay year and then by 4.61% to $1,976,638 for the 2018-2019 pay year. After the proposed increases, the resulting pay envelope will still be 8% and 3% below the overall sum of the framework maximum compensation caps for the 2017-2018 and 2018-2019 pay years, respectively.

The pay envelope will be recalculated no earlier than May 1, 2019.
The proposed increases are required to facilitate the University’s ability to continue to attract and retain the caliber of leadership and to address talent pool competitive pressures required to ensure the continued success of the University and its important research initiatives. The total cash compensation of five of the six designated executives is currently between -6% to -20% below the comparator market, before any adjustments; the proposed adjustments to the pay envelope enable this differential to change to between -5% to -13% effective September 1, 2017.

It is anticipated that increases will decrease in subsequent years as compensation issues are addressed and salaries move closer to or reach the salary maximums or caps; however, increases will still be required to address compensation issues such as salary compression and inversion that have resulted from the previous executive compensation constraint legislation. In particular, because salaries for designated executive positions have been frozen for several years as per legislation, the salaries of some non-designated executives have surpassed some of the salaries of designated executives.

As required per the Regulation, the following factors that were considered in determining the proposed increases to the pay envelope:

- **Ontario’s financial and compensation priorities** – As indicated in the April 2017 Provincial Budget, the Government of Ontario wishes to ensure that broader public sector organizations are accountable for compensation decisions and are able to attract and retain the necessary talent to deliver high-quality public services, while managing public dollars responsibly. The proposed pay envelope increase balances these important Government priorities.

- **Canadian universities’ trends in executive compensation** – Based on published salary planning surveys conducted by Gallagher McDowall in addition to other consulting firms, the average salary increase budget is projected at 2.6% for 2018 within the public sector in Canada. It should be noted that competitive adjustments, such as those which we have included in our proposed increases to the pay envelope, are normally over and above salary survey estimates. It is also our understanding that other Ontario universities are proposing to increase their pay envelopes by 5% in order to become more competitive at the executive level through their programs.

- **Pay envelope as a percentage of operating budget** – The current pay envelope of $1,821,036 represents 0.24% of the $748.7 million in operating revenue for the University for the 2016-2017 fiscal year. In the unlikely event of no changes to the operating budget, the proposed increases in the pay envelope result in an increase to 0.25% and 0.26% for the 2017-2018 and 2018-2019 pay years, respectively.

Due consideration could not be given by us to this particular factor in developing the proposed pay envelope increase, as the required information across other universities in our comparator group is not currently available. Data related to this factor is expected to be more readily available in the future, as more information regarding pay envelopes becomes provided in public-facing executive compensation programs.
• **Effect on the Ability to Attract and Retain Talent** – The rate of turnover of executives amongst Canadian universities is very high at the present time, as evidenced for example by the number of appointments reported by *University Affairs* on a regular basis.

In this market for key talent, it is extremely important for us to be able to provide compensation that will be sufficient to attract qualified candidates from within our University, and make us less reliant on costly external hires.

Further, as the salaries of the positions in the management levels below the designated executives have continued to increase while the designated executives’ salaries have remained frozen, the differential between the executives and the level below has continued to erode leading to difficulties in filling executive roles from within the University. Between 2011 and 2017, the average rate of increase through the annual increase processes has ranged between 1.57% and 5.53% per year. The proposed increases to the pay envelope are necessary to avoid further compression between management roles and mitigate inversion between executives and bargaining unit faculty members.

• **Expansion of our operations** – We have not experienced a significant expansion of our operations in recent years that is the result of a significant organizational restructuring. However, both the size, as measured by student enrolment, and complexity, as measured by research funding, of the University has increased significantly between the 2012-2013 and 2016-2017 fiscal years. Student enrolment has increased by 9% during this time, and research funding has increased by 6%.

As required by the Regulation, the maximum rate of increase of the executive team pay envelope going forward shall be determined by the Board of Governors as delegated to the Governance Committee by taking into account only the following criteria:

• The financial and compensation priorities of the Government of Ontario as expressed in its public documents,
• Recent executive compensation trends amongst Canadian universities with which we compete for executives,
• A comparison of the percentage of our operating budget that our pay envelope represents with the corresponding percentages of the universities that are in our comparator group;
• The effect on attracting and retaining the executive talent that we need based on the difference between the salary ranges of our executives and the salary ranges of the employees who report directly to them, and
• Any significant expansion of our operations that is not the result of a significant organizational restructuring.

Effective May 1, 2019, the University plans to apply the annual salary increase programs (i.e. Faculty Salary Increase for positions in the academic stream and Staff Salary Increase for positions in the non-academic stream) to the designated executives with the understanding that the aggregate calculated adjustments cannot exceed the lesser of the provincial public sector wage settlement trend and the average rate of increase that applies through the University’s annual salary increase programs.

Notwithstanding the foregoing, the maximum rate of increase in the pay envelope shall not exceed 5% per annum after April 30, 2019 for the duration of the Program.
All designated executive salary adjustments require the approval of the Board of Governors as delegated to the Governance Committee.

Other Elements of Compensation

With the exception of the President, each of the executives participates in the University’s benefit and pension programs on the same basis as all of our faculty and staff, including:

- Group life insurance benefits
- Group extended health and dental benefits
- Sick leave and long term disability benefits
- Pension benefits
- Vacation, leaves of absence, and holiday pay
- Tuition benefit

As is a present and common practice in the higher education sector, the President is entitled to supplementary retirement income benefits which is considered a necessary compensation component in order to attract talent to a very challenging role. Since it is a challenge for an individual to resume a regular faculty position after holding this top executive role, capable and interested individuals tend to be approaching their retirement and as such, are focused on their pension at the time of appointment. The special arrangement is not unlike the pension plan that is extended to employees within the government and as such, is not considered to be overly generous. Under this arrangement, the President is credited with benefits over and above those provided to him under the University’s pension plans with respect to his period of service as President. The President’s supplementary retirement formula for each year of his service as President is 2% of his final average salary as determined under the University’s Registered Pension plan (RPP), less the annual pension benefits credited to him with respect to that period of service under the RPP and the Payroll Pension Plan (PPP). No additional retirement income benefits over and above those received by all staff under the RPP and the PPP are provided to the other designated executives.

Special Arrangements for Incumbents of Positions in the Academic Stream

Designated executives within the academic stream hold faculty positions during their period of administrative appointment. As such, these individuals are faculty members and qualify for administrative leave credits that they can take at the end of their terms in order to provide them with an opportunity to update their research and prepare to resume their regular faculty duties. The maximum rate of administrative leave accrual is 10.4 paid weeks per year.

Perquisites

Perquisites are privileges that are not generally available to other employees. The use of perquisites is subject to the requirements of the August 2, 2011 Broader Public Sector Perquisites Directive. They are only provided by the University where it can be demonstrated to be a business-related requirement for the effective performance of an individual’s job.

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2 Perquisites not allowed by the Broader Public Sector Perquisites Directive include club memberships for personal use, seasons tickets, clothing allowances, access to private health clinics, and professional advisory services for personal matters, such as tax or estate planning.
In this context, the University provides the President and the Vice President, Academic & Provost with car allowances, as their roles frequently require them to travel to many meetings and functions on the University’s behalf as a critical business requirement. It is estimated that the President and Vice Chancellor spends 50% of his time traveling, with frequent trips to Toronto to manage responsibilities and to ensure representation within the sector. Both incumbents need to be able to travel on University business often with short notice. Providing these executives with a car allowance is a more efficient manner of managing the cost in comparison with a mileage reimbursement process.

In addition, the President is provided with a $705,000 housing loan at a 1% interest rate in recognition of the need to make his home available on an ongoing basis for University functions for the purposes of Advancement and other important initiatives. The University of Waterloo does not have a comparable venue on campus for those functions.

It should be noted that, as required by Regulation 304/16, the University’s Executive Compensation Program shall not provide any of the following elements to the executives (even though they might be provided by some of the organizations in the University’s comparator group):

- Payments or other benefits provided in lieu of perquisites
- Signing bonuses or retention bonuses
- Cash housing allowances
- Insured benefits that are not generally provided to non-executive managers.

Other Limits

Under the Executive Compensation Program, the following elements of executive compensation are capped:

- Subject to any entitlement under the Employment Standards Act, 2000, termination pay to an executive shall not exceed two years’ base salary, and shall not be payable in the event of termination for cause.
- No paid administrative leave shall be provided to an executive (unless provided to an executive who is part of or will return to the University’s faculty, in which case the paid administrative leave cannot exceed 10.4 paid weeks per year of service as an executive), nor shall the executive receive pay in lieu of administrative leave that is not taken.

Effective Date

The Executive Compensation Program shall become effective once it has been finalized, approved by the Ministry of Advanced Education and Skills Development of the Province of Ontario and posted on the University’s website. The target is for this to occur by February 28, 2018 and in which case, the Program shall be effective on September 1, 2017 as allowed per the November 1, 2017 amendment to Regulation 304/16.

The Program will continue to be in effect for a period of three full pay years ending on April 30, 2021, at which time it will be reviewed by the Board of Governors, as delegated to the Governance Committee to ensure that it supports the total compensation strategy of the University.

If an existing element of a current designated executive’s compensation on the Effective Date exceeds the maximum compensation applicable compensation framework for the designated executive’s
position, or is otherwise inconsistent with such limits as are mandated by regulation under the BPSECA, the excess or inconsistency shall be brought in line with the 50\textsuperscript{th} percentile salary caps no later than three years after the Effective Date (i.e. on September 1, 2020).
OVERVIEW

I am pleased to provide you with a summary of major achievements, initiatives and updates since our last meeting in October, and am happy to discuss any items in further detail.

However, I plan to use our time at the February meeting to summarize the December 1st Board Retreat notes and feedback, provide an overview of the framework for the next strategic plan and have some initial discussions around the 7 Issue Papers that will be developed over the next five months.

I am also enclosing a discussion document (Disrupting the 21st-Century University: Imagining University of Waterloo @ 2025) as Appendix A. As we begin discussions around the next strategic plan, I wanted to share my thoughts and observations on how the university has progressed over the past 60 years, how these experiences have shaped our current institution and how I believe we will help to fundamentally shape the future through groundbreaking research and by educating the best students in the world.

ACHIEVEMENTS/CONGRATULATIONS

- Literature professor Vinh Nguyen honoured with the prestigious Polany Prize for his research that challenges traditional narratives of the refugee experience. The John Charles Polanyi Prizes are awarded annually to five researchers who are in the early stages of their careers and pursuing post-doctoral research at an Ontario university.
- For the second year in a row, UW was named one of Canada’s Top 100 Employers and was specifically cited for its pension and benefit offerings, retirement preparation programs, vacation allotment, and onsite amenities.
- Waterloo entered into two agreements in November with Hong Kong University of Science and Technology (HKUST), a strategic partnership agreement and a memorandum of understanding to increase collaboration. Waterloo also signed an agreement with Hong Kong’s Lingnan University where the two institutions have agreed to start an undergraduate program.
- UW through Renison University College launched the first Indigenous language course geared to both Indigenous and non-Indigenous students
- UW launched a new undergraduate degree in architectural engineering that will focus on skills and knowledge required to design energy and structurally efficient buildings
- School of Pharmacy celebrated 10 years in downtown Kitchener on January 7, 2018. The initial class in 2008 had 90 students, six faculty members, and only a handful of staff. A decade later, Pharmacy has over 60 faculty and staff, 476 pharmacy students, 120 PharmD bridging students, 38 graduate students, and 766 alumni.
- Waterloo Engineering is the first beneficiary of a $1.8-million fund launched by GM Canada to encourage students in STEM fields and inspire the next generation of innovators. Announced at the official opening of the car company’s new Canadian Technical Centre for software development in Markham, the GM Canada STEM Fund will provide $200,000 for scholarships for engineering master’s students at Waterloo.
60th ANNIVERSARY CELEBRATIONS

December wrapped up a full year of 60th anniversary celebrations on our campus and in the community. We held several special events including:

- Beyond 60 kick off lecture featuring Edward Snowden and University of Waterloo experts on artificial intelligence and quantum computing
- President’s 60th reception in Vancouver, welcoming alumni and partners as part of the kick off of the Innovation 150 quantum exhibit
- President’s Community Breakfast
- 60th anniversary convocation lecture, featuring Aboriginal thought leader Roberta Jamieson
- Canada Day celebrating Canada 150
- 60th anniversary reunion concert
- Hong Kong 60th anniversary gala
- President’s 60th anniversary gala, featuring the presentation of the inaugural President’s Community Impact Awards and ten alumni award winners

At the President’s Townhall on November 14, the winner of the Celebration 2017 Legacy Project, Team Interlace was announced. The project was launched in 2017 to establish an enduring legacy that provides a visual connection between the 60th and Canada 150 milestone celebrations. The result will be an innovative and creative student space that will transform the Arts Quad. Design is underway with a launch anticipated this fall.

UNIVERSITY RELATIONS

President’s Annual Report

The first part of the 2017/18 President’s Report was launched in November and production of the second part – the Global Impact Report will be published in March. It will focus on large-scale global challenges and UW’s role in addressing those challenges, underscoring the creativity, innovation and collaboration upon which Waterloo prides itself. The report will also launch a year of communications, events and activities, all centred on the University’s global impact. Events will take place in Toronto, Ottawa and Waterloo throughout the year.

Waterloo Innovation Summit

We are using 2018 to reset the Summit model to ensure relevance, thought leader engagement, and response to changes in the regional landscape with the introduction of True North Waterloo, hosted by Communitech in May. The 2018 model will include:

- Sponsoring True North Waterloo, and hosting an exclusive UWaterloo innovation activation on May 29, 2018; and
- Presenting Beyond Impact; a series by the Waterloo Innovation Summit; the first event will take place on March 23 and will be presented in partnership with the Globe and Mail. A second event is anticipated in fall 2018.

Convocation Redesign

A convocation leadership team has been established to create a high-impact, unified brand experience in all convocation communications, ceremonies, and overall campus experiences during convocation. This group is looking at all aspects of convocation from redesigning creative concepts, special events, signage, engaging campus volunteers and creating a
celebration across the university over the entire period of convocation for students, faculty and staff. In addition, the number of Arts graduates has grown significantly to require an additional evening ceremony in June. This means that there will now be 12 ceremonies.

**GRADUATE AND POSTDOCTORAL AFFAIRS**

At the October Board meeting, members asked for additional updates with respect to increasing domestic graduate enrollment. This has been a priority for the University of Waterloo for a number of years. In the most recent negotiations with the Province under SMA2, the University successfully recovered spaces to accommodate up to 89 additional PhD students and approximately 300 Masters students.

To support the Faculties and the Departments in achieving this growth in domestic enrollment, Graduate Studies and Postdoctoral Affairs (GSPA) analyzed five years of applicant data for PhD, research Masters, and coursework Masters programs. The data suggested that there are three categories of programs:

- Those programs that generate only a modest number of (domestic) applicants relative to the number of offers made. These programs need support in marketing – generating more, high quality applicants;
- Those programs that receive sufficient applications, but are constrained in the offers they make to (domestic) students. These programs may need support in funding for researchers – motivating increased supervisory rates and enrollments; and
- Those programs that make a large number of (domestic) offers, but have relatively low confirmation rates. These programs may need support in generating more competitive offers – higher value packages to confirm the strongest students.

GSPA continues to work with Faculties to develop strategies for each of these categories of programs. These include comprehensive and thematic marketing; education and incentives for researchers related to increased supervisory loads; assessing the development of new course-based graduate programs; and revisiting funding available to confirm more exceptional candidates.

In the shorter term, GSPA has worked with Faculties to prepare a number of domestic-specific incentives for the fall 2018 admissions cycle.

- Beginning in the Spring of 2018, Engineering will offer 100 scholarships and fellowships for domestic students. PhD fellowships are valued at up to $160K over 4 years and MASc fellowships are valued at up to $55K over two years.
- The Faculty of Environment has established 35 funded doctoral opportunities, $100K over four years.

**CENTRE FOR EXTENDED LEARNING**

There was some discussion at the last Board meeting around extended/online learning activities at the University. Below is an update with key facts and figures:

**Course Offerings**

- **319 unique online courses**
- **515 offerings** (359 undergrad, 156 grad) in 2016-17\(^1\)
- **23 fully online programs** (11 undergrad, 12 grad)\(^2\)

**Enrolment**\(^3\)
- **43,165 enrolments** (37,863 undergrad, 5,302 grad); 17% growth over last 3 years
- 25% of undergrad students enrol in at least one online course in a given term on average; this peaks at over **34%** in the spring term
- 5% of undergrads are “fully online”\(^4\) students in fall and winter; this rises to **14%** in spring term

**Comparators**
- Within the **U15** Group of Universities, we are **1st** in the number of fully online courses and programs we offer\(^5\)
- Within Ontario, we are:
  - **1st** in number of master programs,
  - **2nd** overall in terms of number of fully-online programs,\(^6\)
  - in the **top 3** for number of unique courses

**Centre for Extended Learning – now and looking forward**
- Waterloo has one of the most well-supported online programs in the country
- 60 development projects supported in 2017, and over 250 instructors supported in course development, revision, delivery and technology-use
- new **Climate Risk Management** Graduate Diploma coming online in 2018
- national awards\(^7\) for both credit (e.g., **Master of Mathematics for Teaching**) and non-credit (e.g., **Pharmacy Opioid Course**) offerings
- a study on the full impact of online learning at Waterloo is being released in Spring 2018
- launched CEL Course Design and Online Instructor awards last year to promote quality online course design and instruction
- constantly evolving instructional practices, development strategies, and technology to increase student learning, development capacity and efficiency
- actively investigating open learning (direct course enrolment\(^8\)) to increase enrolment in the non-traditional learner demographic\(^9\)

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1 online offerings would require an estimated 12-15 classrooms of various sizes each term if taught on campus
2 note this counts 3- and 4-year degrees as unique programs
3 2016/2017 data; includes WatPD courses; does not include CEL Professional Development non-credit programs
4 i.e., taking online courses exclusively; the spring spike is likely due to on-campus students taking online courses exclusively during the summer
5 English-language instruction
6 2nd to Laurentian, if counting both French and English programs
7 **Canadian Association of University Continuing Education** (CAUCE)
8 this would allow students to apply directly to a pre-selected list of courses at Waterloo
9 e.g., mature students, not traditional “direct from high school” graduates
Entrepreneurship/Velocity

Competitions & Awards

- Velocity hosted the 20th Velocity Fund Finals in November, which celebrated the Velocity Fund awarding more than $2 million in funding across 80 companies.
- Vidyard (video platform for business) and Sortable (ad optimization via machine learning) were named to Deloitte’s 2018 Fast 50 companies list. Vidyard was ranked #16 with revenue growth of 2,140% and Sortable ranked #28 with growth of 802%.
- Sortable also ranked #12 on Canadian Business’ Profit 500 list of the fastest growing companies in Canada. Sortable employs 80 people in downtown Kitchener.
- ExVivo Labs (non-invasive patch-based allergy test) co-founder, Moufeed Kaddoura, was named to Forbes 30 Under 30 list for the health care category.
- Smarter Alloys (enables the creation of smart memory materials) is a semi-finalist for the Solutions 2030 challenge, an Ontario Centres of Excellence competition, which offers winning companies a share of up to $7 million in funding.
- ApplyBoard (helps international students apply to universities/colleges in North America) awarded “China Outstanding International Education Award” by Tower 2017.
- MAjIK Systems (real-time manufacturing monitoring & analytics) was named one of top 10 Manufacturing Execution Systems by Manufacturing Technology Insights.
- Voltera (desktop circuit board printer) received Best Product Award at iDTechEx.

Funding, Growth, Scaling

- Velocity led Corridor Demo Day (a collaboration between Waterloo-Toronto incubators and accelerators (MaRS, Communitech, DMZ, CDL, RICC, Next, AC, OneEleven, etc) to identify the most investment-ready startups in the Waterloo-Toronto corridor and assemble them for investor demo-day events in Toronto and Bay Area). This initiative showcased UWaterloo’s entrepreneurial culture. Highlighted outcomes:
  - ~49 follow-up meetings with investors (specifically scheduled post-event)
  - So far... 5 commitments to invest (verbal or written) resulting from the event
    - >$1.5M for 3 deals, remaining 2 investment value TBD
    - Many continuing investment conversations ongoing
- Adhawk Microsystems (develop headsets and eyeglasses for eye-tracking use in virtual and augmented reality) raised $5 million investment, led by Intel Capital.
- Bridgit (construction punch list software) raised $2 million investment from a Toronto-based fund for their mobile platform to help manage construction projects.
- EMAGIN (AI powered tools/systems for water infrastructure operators) secured significant investment (amount confidential, however >$1M) to support their rapid growth and customer demand
- Gamelynx (social mobile gaming) & HelpWear (wearable ECG) both raised significant seed investment rounds (confidential, however in the $1 to 2M range) to support their development.
- Embark (self driving semi-trucks) successfully (autonomously) hauled refrigerators 650 miles from Texas to California. This is double the world record for the longest autonomous drive of a semi-truck.
- TritonWear (wearable tech for competitive swimmers) announced a project with Swimming Canada, to prepare olympic swimmers for the 2020 Olympic Games.
- Kik (messaging app with 300+ million users) is investing $12 million over the next 18 months towards improving user safety for its Kin crypto currency.
- Sitata (alerts travellers to travel disruptions and safety information) partnered with Travel Insured International, a Fairfax company to launch a travel app.
Globally Competitive

- **4 Velocity companies** accepted into the Winter 2018 Y-Combinator Batch (140 companies accepted into the batch of thousands of applications).
- **H2nanO** (harnessing nano-tech + solar to treat contaminated water) was accepted into Imagine H2O’s 2018 Accelerator (from among 200 applicants from 36 countries). H2nanO is conducting research in collaboration with Dr. Frank Gu at UWaterloo.
- **Amina Health, Applyboard, Qidni Labs, QuantWave, Salient Energy, and O2 Canada** pitched at an investor demo day in Hong Kong on Nov. 23 resulting in a variety of follow-up conversations around partnerships & investment.

**SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK FOR CANADA**

On September 28, 2017, the United Nations Sustainable Development Solutions Network (SDSN) approved the Faculty of Environment, University of Waterloo as host of the SDSN National Network for Canada under the umbrella of the global SDSN.

The UN Sustainable Development Solutions Network (SDSN) brings together leading global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.

As a host of the SDSN, University of Waterloo will use its position as home to Canada’s largest Faculty of Environment to share knowledge, activate research and help solve the interconnected economic, social, and environmental challenges confronting the world. The SDSN works closely with United Nations agencies, multilateral financing institutions, the private sector, and civil society, thus opening up exciting new opportunities of collaboration for Waterloo.

The official launch of SDSN Canada will take place in May 2018 on campus.

**RESEARCH UPDATE**

**NRC Collaboration**

The University of Waterloo and the National Research Council (NRC) have been in discussions on the establishment of a NRC-UWaterloo Collaboration Centre on campus that combines a critical mass of NRC and UWaterloo researchers to accelerate research and commercialization impacts of mutually agreed-upon areas of research. The Centre will serve as a platform that facilitates shared research, commercialization, and demonstration infrastructure/equipment. All parties involved in the Centre would publish results according to IP and NDA agreed to in advance on a per project basis, with desired impacts articulated and monitored for each project. The Centre would also jointly link with industry for NRC and UW mutual benefit.

The Centre's activities would be informed by UWaterloo and NRC strategic plans with topics related to the Internet of Things including artificial intelligence, quantum science, nanotechnology, additive manufacturing, cybersecurity; and with an initial focus on 2-3 topics, with 5-10 researchers from each of UWaterloo and NRC as inaugural members of the Centre. A focus group meeting is being planned for early February to serve as a connector event between UWaterloo and NRC researchers, with an intention that joint initiatives and collaborating researchers would be identified at or immediately after the event. It is expected that the MOU...
outlining the Centre’s framework of operation would be completed and signed after this focus group discussion, in March.

Interactions with Transnational Corporations

CooperVision Inc

CooperVision Inc. is an international manufacturer of soft contact lenses and has had a long standing relationship with the Centre for Ocular Research & Education at the University of Waterloo. From 1 May 2017 to 31 December 2017, CooperVision provided $600,775 to the University of Waterloo for research projects with the Centre for Ocular Research & Education.

Huawei

The founder of Huawei visited Canada and the University of Waterloo for the first time in October 2017. From 1 May 2017 to 31 December 2017, Huawei has provided $2,750,820 in research funding. Huawei and the University are discussing a number of significant research initiatives as well as individual research projects.

Research Leaders Council

With a view to enhancing collaborative research of an interdisciplinary nature, the senior leadership of research has been broadened through the establishment of a Research Leaders Council. The Council meets monthly and comprises:

- The Vice-President, Research who serves as Chair;
- The Associate Dean, Research for each Faculty;
- University Research Center/Institute Executive Directors;
- The Associate Vice-Presidents, Research; International; and Commercialization and CEO of the Accelerator Centre.

The Council is tasked with disseminating information about research opportunities and issues widely across the University, and engaging the research community and external partners in broader and deeper discussion on all matters pertaining to research. Council’s mandate also includes developing interactive linkages among University Research Centers/Institutes and between Centers/Institutes and the Faculties.

It is envisaged that this senior-level Council will be a vibrant and effective entity in driving Waterloo’s research agenda forward, particularly from the perspective of interdisciplinarity which is a hallmark of the research conducted by University Centers/Institutes. It also provides Centre and Institute Directors an active role in governance of research matters at Waterloo, and recognizes such contributions.

Waterloo’s Corporate Innovation Ecosystem

The Office of Research is facilitating the development of a Corporate Innovation Ecosystem, which will be comprised of external partners as well as functional groups across campus that have innovation in their mandates.

A major focus for the Corporate Innovation Ecosystem will be the development of robust interactive linkages among those functional units across the University that have innovation as
part of their mandates, as well as building on these linkages to develop synergies and to enhance activities across all portfolios. Some examples of units that can link better together include:

- Corporate Research Partnership Managers in the Office of Research
- Tech Transfer Managers in WatCo
- The Accelerator Center
- Velocity
- Co-operative Education
- Conrad
- GEDI

We expect that this will also support the development of strategic initiatives and attendant metrics for enhancing the translation of new innovative research findings into the public and private sectors and for enhancing strategic research alliances with external partners seeking to innovate.

The Vice-President University Relations, the Vice-President Advancement and the Vice-President Research meet regularly to discuss major corporate partnerships that cut across these three portfolios. The Vice-President Research and the Vice-President University Relations has a new shared (temporary) staff member to support these linkages; similarly the Vice-President Research and the Vice-President Advancement are expecting to secure a similar temporary staff member to support linkage with respect to a specific portfolio of activity that bridges these two leaders.

**Waterloo Startup Fund Initiative - Update**

The Office of Research, through the leadership of the Waterloo Commercialization Office (WatCo), has been advancing the creation of a Waterloo startup fund that is targeting a raise of $100M in investment capital. The fund model is inspired by what is referred to as the “patient capital” model that has been embraced in the UK over the past ten years with dedicated investment partnerships with such notable institutions as University College London, Cambridge University and Oxford University. The patient capital model operates under the philosophy that providing more significant levels of early seed capital, approaching $1.5M, enables university based startups to attract and secure professional management, build out products, and scale business development much sooner and with a higher degree of likelihood of success. The University has been developing the startup fund model in partnership with a European based investment advisory firm, Nova Lux Capital LLC, whose managing partners have past experience with fund creation and management in the university sector.

Currently, a highly qualified team of proponents have committed to supporting the University to create a unique startup investment model to further drive Waterloo research excellence towards innovative private sector applications. These parties are in the process of incorporating an investment management company under the name of Forum Technology Ventures Inc. (“Forum”). Forum will act as the management company for the eventual fund (“Fund”) to be created by raising the targeted $100M from Limited Partners (LPs). Two highly reputable and successful Waterloo Alumni entrepreneurs have agreed to co-invest with the University in providing seed capital to Forum so that it can incur legal costs for preparing offering documents to targeted investor Limited Partners and other ancillary expenses (eg. insurance, marketing, etc). The University shall have a significant equity position in Forum as well as a carried interest in the Fund investment returns. Further, four high profile and deeply experienced individuals covering international legal, investment, university fund management, and entrepreneurial experiences have committed to providing governance support as Board members to Forum.
There will likely be 3 or so more Board seats available and the University reserves a right to a Board seat, or right to appoint a designate, or to simply retain observer status as it feels may be appropriate. Once Forum is formally structured and its seed funding secured, the next activities will be to hire a Chief Fund Manager and to begin raising investment from LPs for the creation of the Fund.

**Canada 150 Chair Program**

The Canada 150 Research Chairs Program, announced in Budget 2017, invests $117.6 million to enhance Canada’s reputation as a global centre for science, research and innovation excellence, in celebration of Canada’s 150th anniversary. It provides Canadian institutions with a one-time investment to attract top-tier, internationally based scholars and researchers to Canada. Waterloo received 3 Canada 150 Chairs out of 25 positions in the country. We are in the process of filling these chairs with top quality international talent.

**Canada Excellence Research Chair Program**

Out of a total of 54 applications to this program, Waterloo was recently invited to nominate another world-leading research to fill one of the 11 proposed new CERC chairs. The proposed chair will be the area of Human-Centred Robotics and Machine Intelligence. Currently, there are 26 CERC holders in Canada and two at Waterloo (David Cory and Phillipe Van Cappellen)

**Supercluster Updates**

Waterloo has three partners who were short-listed for final submissions November 24th with winners announced in early 2018.

- **Next Generation Manufacturing (NGM Canada) Supercluster**
  - Waterloo is the lead PSE Partner (Toronto-Waterloo Corridor) in this bid which also includes 140 supporting partners including MNEs, SMEs, Industry associations and alliances, municipalities, Government of Ontario, NRC, Western, and McMaster. NGM Canada has raised $743M in private sector funding with a request for $250M from ISED.
  - The Chair of the Steering Committee for this supercluster is Linda Hasenfratz from Linamar. It was announced on January 15th that the federal and provincial governments will be investing almost $100M into Linamar’s advanced manufacturing R&D capabilities through the first Strategic Investment Fund (SIF) award, and the Ontario Jobs and Prosperity Fund. SIF has been viewed by many as the alternative source of funding for unsuccessful supercluster bids.

- **CLEER Innovation Supercluster**
  - This bid supports the Ontario Mining sector to be based in Toronto and includes 162 partners (18 large, 6 medium and 70 small enterprises plus 17 academic institutions). The budget for this supercluster is $700M including a $185M ask from ISED (Innovation, Science, and Economic Development Canada)
  - As a partnering postsecondary institution and the host and administrative institutional member of the Southern Ontario Water Consortium, the University of Waterloo is seen as a leader in research activities concentrated on developing effective solutions to the severe environmental degradation associated with abandoned mine sites, and developing
innovative approaches for preventing similar problems at active and future mines. The proposed application aligns with University of Waterloo’s research strategies and provides leverage for our entrepreneurial culture and the opportunity for expansion of 60 years’ worth of successful collaborations/close ties with Canadian and international industry partners in these areas. CLEER and the VPR office have been engaged regularly in discussions about Waterloo’s contributions and expertise.

- **AI Powered Supply Chain Supercluster**

  - Waterloo has been identified as the lead for the Ontario node of this supercluster (located in Montreal/Quebec City) and includes 60 partner companies.

  - The other six supercluster proposals moving to the next stage are: Digital Technology (B.C.), Protein Innovation/Agriculture (Saskatchewan), Aerospace Simulation (Montreal), Ocean Technologies (Halifax), Agriculture/Quality Food (Calgary), Infrastructure Technology (Alberta)

  - Waterloo’s Dean of Engineering has been actively engaged in developing this initiative. Additionally, Charmaine Dean has been in discussions with leaders of the initiative to bring greater attention to Waterloo as a major site of activity, and will be inviting leaders to campus, including personal contacts who have been leading the initiative at Montreal. Charmaine has also been engaged in bridging the 3 major AI institutes in Canada encouraging team work across these units for the benefit of Canada’s development and profile as a leader in AI.

  - Quantum has not specifically been identified as a standalone Supercluster initiative. However, it will likely be moving seriously into the additive manufacturing realm over the life of the superclusters. In addition, IQC will be putting forward a continuity budget request of $10 M to be included in the 2019 Federal Budget

**ADVANCEMENT UPDATE**

A new collaborative focus on fundraising and alumni relations among the Central University and the Faculties has created a substantive shift in the University’s philanthropic culture.

The President’s Q1-Q3 advancement activities in 2017/18 represent a 200% increase over the same period last year including the dramatic increase in special events. Advancement has increased their top priority individual and corporate pipeline by 20%. In addition to closing an increased number of 6- and 7-figure gifts (18 this year to date compared to 12 at the close of the third quarter last year) to achieve greater philanthropic fundraising results, the President, the Vice President Advancement, Deans and advancement teams are focusing on growing the longer term pipeline substantially to work towards a campaign with a potential start date around 2020. A new Campaign Planning Committee is being struck for the 2018 and 2019 calendar years.

This year’s philanthropic results of gifts under $5 million are $9,887,781 compared with $9,274,566 at the close of the third quarter last year with several gifts in the pipeline to close before year end. Board and volunteer involvement in the University’s advancement strategy is crucial. Board and university leadership giving is at 91% participation, and board members’ matching contributions helped Giving Tuesday results increase by 220% over last year, achieving a record of $160,000. We are on track to reach our $50M goal for 2017-18.
Almost 4600 alumni and friends attended Reunion 2017, 575 alumni and friends attended the Hong Kong Gala in November and 230 alumni attended a panel in Toronto on artificial intelligence.

**STRATEGIC MANDATE AGREEMENT**

Waterloo finalized a new Strategic Mandate Agreement with the provincial government, signing on October 4, 2017. It will be posted publicly as soon as MASED approves its release.

The SMA is the result of negotiations with the Ministry’s SMA Special Advisor throughout the spring and summer. The SMA operationalizes elements of the new provincial funding formula and sets in place parameters to guide the university’s enrolment growth plan and overall funding for the next three years. Waterloo was very successful in negotiating funding to support growth in graduate programs, at both the Masters and PhD level. Significant work will be required in order to achieve the targets negotiated, but the associated funding for those enrolments will enable Waterloo to continue to build its strength as a graduate-intensive research institution. Given Waterloo’s performance relative to its graduate targets in SMA1 (Waterloo fell short of both its Masters and PhD targets), the successful negotiation of additional growth funding in SMA2 is a significant accomplishment.

The SMA process also included discussions with the Ministry regarding Waterloo’s differentiated role within the Ontario postsecondary system. The Ministry responded very positively to UWaterloo’s profile and was supportive of our proposed goals and trajectory. The Ministry accepted UWaterloo’s identified program areas of strength, including Entrepreneurship (initially proposed in SMA1) and Sustainable Societies and Technologies. Waterloo reiterated the five areas of program strength initially established in SMA1, and the Ministry endorsed this proposal.

Waterloo also established performance metrics and targets in the SMA for five different differentiation priorities set by the provincial government - Student Experience, Innovation in Teaching and Learning Excellence, Access and Equity, Research Excellence and Impact, and Innovation, Economic Development and Community Engagement. Waterloo will report on its performance on each of these metrics through its annual SMA report backs each year. Waterloo is currently working to finalize targets for a small number of performance metrics with MAESD after which Waterloo will be able to share the finalized SMA2 with the broader community.

**STUDENT SATISFACTION**

Analysis and follow-up of the 2017 National Survey of Student Engagement (NSSE) is in progress. To date, results have been shared with all stakeholders, including students. Results are mostly consistent with previous feedback from this survey completed in 2013. Next steps already underway include forming a group with representatives from Faculties, students and academic support units in an effort to prioritize a few key initiatives across campus that will improve the experience of our students.

Separate efforts to prioritize initiatives that we anticipate will improve the experience of graduate students are ongoing. These include coordinating efforts and communications on wellness for graduate students, conducting a review of the approach to graduate student funding, continuing the successful graduate student speaker series, GradTalks that began in 2017, building additional capacity for graduate student experiential learning, and improving the attractiveness of and experience for Postdocs at Waterloo.
There have been significant service adjustments in Counselling and Health Service in response to concerns about availability of mental health services. Adjustments to the intake process have been made to ensure that individuals with acute need are seen as soon as possible. A recent analysis showed that 97% of individuals seeking a crisis appointment are seen within 1 hour of attending the Counselling Centre. Individuals who self-report as “urgent” are seen within 3 business days, and 92% of individuals with non-urgent requests are seen within 3-5 weeks. In addition to changes in the intake process, mental health services were adapted to include walk-in services for two days/week. This adjustment reflects the reality that the model number of sessions for students is one. In other words, much of our student population is looking for a brief, solution-oriented consultation with professional staff. Satisfaction ratings for walk-in sessions are routinely reported for 95% of the recipients.

In November, a new unit was created, Student Service Centre. This unit will combine front-line services of the Registrar’s Office, Graduate Studies & Postdoctoral Affairs, Student Success Office, Finance/Student Financial Services. This until will provide more online services for students and a consolidated, efficient location for in-person services housed in Needles Hall.

**PRESIDENT’S ADVISORY COMMITTEE ON STUDENT MENTAL HEALTH**

The President’s Advisory Committee on Student Mental Health has been working toward a report submission date of January 15, 2018. In a final review by committee members, they reflected on the challenge of distilling the nearly 140 recommendations brought to them by the supporting panels.

To permit for these additional revisions, I have approved the Committee’s request for a new submission date of February 16, 2018. Some initial recommendations include:

- The need to develop a system to improve mental health literacy that targets all members of the community. Faculty, staff and students have expressed the need for more training. We foresee a coordinated effort where different kinds of training are easily available based on the role of the trainee on campus.

- The need to continue to develop health promotion themes on campus, hopefully joining those Canadian post-secondary institutions who have adopted the Okanagan Charter, a framework for healthy campus, which commits us to reviewing policy, values, and practices as they relate to wellness. There is a lot of interest among the participants in creating cross-disciplinary, cross-functional wellness coordinating body.

- With respect to services, there has been much discussion about capacity, both in terms of increasing staff dedicated to prevention and intervention, but also opportunities to leverage technology such as therapist-assisted on-line service. The advantage of moving in this direction is that hours of coverage go beyond the traditional office hours of our services, and there may be new opportunities for off-campus members (i.e. co-op).

**WATERLOO BUDGET MODEL**

During the 2017-2018 fiscal year, the Waterloo Budget Model (WBM) was introduced to the University of Waterloo community. The WBM is designed to ensure the University of Waterloo excels in education, research and student experience and to encourage growth and innovation. It is a resource allocation tool to inform strategic decisions by providing clarity and transparency and has been derived from the responsibility centre management concept whereby revenue is allocated to the budget planning unit or Faculty, which is responsible for its generation. The
Faculty also then shares administrative and any other costs. Part of the revenue is allocated to create the University Fund to support university-wide strategic initiatives and plans. The University Fund covers expenses such as current year salary increases, benefit changes, research support funds, and a portion of Affiliated and Federated Institutions of Waterloo (AFIW) costs and to fund strategic initiatives.

The initial implementation of the WBM has resulted in increased clarity and transparency for all units. It is also resulting in community wide awareness of expenses and revenues as each unit prepares budgets and plans. Current internal efforts are focusing on ensuring data is available so that resource allocation is properly informed. Emphasis is being placed on ensuring that data is available and presented in a clear and understandable way so that forecasting can be done using impactful information such as enrollment, tuition, grants, interfaculty teaching, and academic support unit expenses. Communication between all units is also a priority to ensure the WBM supports the financial health and strategic plan of the university. Some of the initial assumptions and internal processes will be reviewed in the context of corridor funding models and more broadly in the context of planned growth and revenue changes to manage any potential risks.

**STRATEGIC PLAN – BRIDGE TO 2020**

Waterloo is in the final stage of the implementation of the 2013-2018 Strategic Plan in each of the eight theme areas. Theme leads are continuing to implement initiatives for the final year of the plan. A robust final report on strategic plan outcomes will be presented to the Board in October 2018. This report will include both the most relevant key indicators of success, showing progress over the last five years, and a descriptive report of the outcomes on key initiatives in each theme area.

Over the last six months, we have begun to develop a framework for Waterloo's plan for the next Strategic Plan, 2020-2025 with the support and guidance of Deans and senior leadership.

Two foundational stages of the development process will be taking place. These stages are:

**Evidence Gathering**

- This is a reflective, self-study stage geared toward identifying and providing evidence about strategic issues facing the University (Fall 2017 – Summer 2018)

**Consultations**

- This stage will be a broad and robust opportunity to engage with the University community (May/June 2018 – December 2018).

With respect to the evidence-gathering phase, the Deans have worked together with executive leadership to identify vital areas for exploration such as: undergraduate learning; graduate studies; student environment; research excellence and crossing disciplines and institutional boundaries; internationalization; empowering people through advancing equity, diversity, inclusion, indigenization and organizational development; and finding new ways of leveraging our resources.

Seven advisory groups composed of students, faculty, and staff have been established. These groups will provide vital guidance on the development of corresponding issue papers that will
explore current thinking, evidence and strategic opportunities in these specific areas. My plan is to also explore these 7 issue papers at Board meetings starting in June.

In the coming months, we will keep you informed on the progress of our evidence gathering phase and further preparations in the lead up to the consultation. We are also preparing a dedicated internal website, Bridge to 2020, which will provide details on our progress in developing the new strategic plan.

As you can see, it has been a busy four months, further contributing to the reputation and well-being of our University and specifically to our students, faculty and staff. This will further intensify as we enter into the next strategic plan phase. I look forward to our discussions in February.

Feridun Hamdullahpur
President and Vice-Chancellor
University of Waterloo

BOARD OF GOVERNORS RETREAT
Friday 1 December 2017
3rd Floor, Needles Hall Extension, Room 3407

DISRUPTING THE 21ST CENTURY UNIVERSITY: Imagining UW @2025

Attendees: Upkar Arora, Kathy Bardswick, Peter Barr, Hannah Beckett, Antonio Brieva, Jennifer Clapp, Andrew Clubine, Shannon Dea, Cindy Forbes, George Freeman, Martha George, Feridun Hamdullahpur, Thorsten Heins, Sheryl Kennedy, William Pristanski, Bruce Richter, John Saabas, James Schlegel, Ted Scott, Jeremy Steffler, John Swainson, Kate Windsor, Marta Witer

Regrets: Robert Bruce, Dave Jaworski, John Lounds, David Porreca, Mark Seasons, Ken Seiling, Berry Vrbanovic

Guests and support: Jean Andrey, Sandra Banks, Youngsuk Chi, Glenn Craney, Charmaine Dean, George Dixon, Rob Esselment, Robert Gorbet, Mike Grivicic, Dennis Huber, Karen Jack, Komal Javed, Warren Kong, Robert Lemieux, David Lindsay, Robert Park, Neil Randall, Chris Read, Ian Rowlands, James Rush, Emily Schroeder, Daniela Seskar-Hencic, Joanne Shoveller, Allan Starr, Ken Steele, Pearl Sullivan, Jessica Thompson, Marilyn Thompson, Susan Tighe, Stephen Watt

DISCUSSION NOTES

Welcome and Introductory Comments

Speakers: Cindy Forbes, chair, Board of Governors
           Feridun Hamdullahpur, president and vice-chancellor

The chair welcomed everyone to the retreat, thanked the president for the agenda he prepared, and invited members to participate actively in the discussion which she indicated will inform the Board’s work in the coming year.

The president thanked attendees for their commitment and expressed his hope that members will find the day worthwhile in thinking about the University’s future. He noted that discussions today will help inform the University’s next strategic planning process and the plan’s content.

Session I – Ontario Universities in the Knowledge Based Economy: What has to change? What will be needed to differentiate?

Speakers: Glenn Craney, assistant deputy minister, postsecondary education division, MAESD
           David Lindsay, president and CEO, Council of Ontario Universities (COU)
Craney provided members with the provincial perspective on key principles of the knowledge based economy, key areas of disruption, tasks at risk in employment due to automation and accelerated adoption of technology, resilient skills for the future, policies, and shared priorities with universities. Lindsay offered some historical perspective, COU’s research and key areas of focus and future work helping with the conversation of the critical skills needed by university graduates. Broadly, in discussion: the need to partner with employers to learn what they are looking for in new employees; considerations re: developing “readiness” in our students; ways the government can enable universities to work toward career readiness for university graduates; the merits of a mixture of “hard” and “soft” skills in employees.

Session II – Higher Education in 2025: Emerging Trends and Future Directions

Speaker: Ken Steele, chief futurist, Eduvation Inc.

Steele walked members through a presentation in which he considered the next eight years in eight words: digital, virtual, fluid, global, collaborative, extroverted, responsive and entrepreneurial. He spoke to the various drivers of change, the shifts in government funding and priorities, blended learning approaches, and his sense that the University of Waterloo is well positioned on these fronts over the next eight years.

Session III – Leveraging the Impact Potential of Collaboration between Academia and Industry

Speaker: Youngsuk Chi, chairman, Elsevier (via video)

Chi shared his thoughts on the changes on the horizon and what they will mean to the University of Waterloo, particularly in terms of partnerships with the private sector. He spoke to: the benefits of academic and corporate collaborations, interdisciplinary research, drivers of innovation, institutional culture considerations, and what he sees as opportunities at Waterloo.

Session IV – Panel: Digitally Intensive, Interdisciplinary Rich, Global, Student Focused Research University

Moderator: Charmaine Dean, vice-president, university research
Panelists: Robert Gorbet, chair, Knowledge Integration
           Neil Randall, director, the Games Institute
           Jessica Thompson, assistant professor, Hybrid Media, Stratford/Fine Arts
           Komal Javed, undergraduate student, Global Business and Digital Arts
           Warren Kong, graduate student, Digital Experience Innovation

Dean introduced the panel, and moderated a broad ranging discussion which included: the benefits and challenges to collaborative efforts, areas of success and opportunity for interdisciplinarity at Waterloo, ways to broaden such opportunities for all students. Members also discussed opportunities for the University’s centres and institutes; ways to foster an interdisciplinary, digital, global and student-focused environment; the role of the Stratford campus; enabling inter-Faculty and external collaborations.

Session V – Governors’ Roundtables

Members divided into five roundtables to discuss areas of strategic importance. Discussion at each table was facilitated by a member of executive administration.

Table 1 – Building a Student Rich Experience

A high quality learning environment is fundamental to Waterloo’s mission. Waterloo’s approach to education wraps the student experience in three enriching layers: entrepreneurship, research and experiential/co-operative education, all solidly connected to a foundation of academic excellence. To attract
the best and the brightest, and provide a rewarding learning experience, Waterloo must also offer a dynamic campus experience, including more supports in areas like student mental health, gender equity, indigenization, as well as improved spaces for social activities and study.

Guiding questions

- How can we build on our foundations in entrepreneurship, research, and academic excellence, and broaden to the new areas above in an innovative and creative way?
- What are we doing well? What is standing in our way?
- What supports / resources are need to advance this priority?

Moderator: Chris Read, associate provost, students
UW Participants: George Dixon, Jim Rush
Governors: Hannah Becket, James Schlegel, Kate Windsor, Marta Witer

Commentary/discussion with whole group:

- Recognition of importance of student wellness and how to provide information to students about options for assistance
- Real pressures that students face, and perceptions re: competition
- Co-op’s benefits and challenges
- Ways to reinforce options, non-conventional paths, and the notion that it is OK to change your mind

Table 2 – A Front Door to Innovation

Waterloo’s ultimate purpose is to generate and mobilize research and technology to enhance quality of life and blaze new trails for industry and society and contribute to the development of Canada’s national science and innovation public policy. Waterloo strives to be a nationally and globally recognized source for new talent as well as a destination for ambitious leaders who want to make a difference. At the same time, Waterloo needs to increase investment to support Waterloo’s innovation capacity, engagement with national and international innovation opportunities, and build additional transformative innovation infrastructure.

Guiding questions

- What factors are facilitating success in this area? What is standing in our way to becoming a front door to innovation?
- What can we do to advance this priority?
- What supports / resources are needed to advance this priority?

Moderator: Charmaine Dean, vice-president, university research
UW Participants: Pearl Sullivan, Stephen Watt
Governors: Antonio Brieva, Jennifer Clapp, Thorsten Heins, John Saabas, John Swainson

Commentary/discussion with whole group:

- The group focused on discussion of escalating innovation and connecting solutions with relevant problems
- Real problems are inherently interdisciplinary
- Transferability of skills is needed
• Collaborations are needed; all Faculties should be engaged; physical space to enable this will help
• Waterloo’s activities should be “pushed out”

Table 3 – Finding New Ways to Leverage Resources

Waterloo must continue its commitment to financial sustainability. Waterloo draws on funding from students, government and industry to serve our students, Faculties and the institution. A new budget resource allocation model is being fully implemented over the next five years to address shifts in demographics and government funding by increasing efficiencies and looking for ways to fund new initiatives through the allocation of existing resources. Waterloo’s community of donors, volunteers and alumni are integral to this process. In the coming years, this university will continue to build its alumni base and maximize its fundraising potential so that we can expand our human resources, gain greater financial sustainability and enable faster achievement of our goals and objectives. At the same time, Waterloo is continuing to evolve our enrolment management strategy to continue to attract and retain top students from around the world.

Guiding questions

• What are some new/emerging ways of leveraging and enhancing resources that would contribute to Waterloo’s growth?
• What can we do to advance this priority?
• What supports / resources are need to advance this priority?

Moderator: Susan Tighe, deputy provost, integrated planning and budgeting
UW Participants: Dennis Huber, Jean Andrey
Governors: Peter Barr, George Freeman, Sheryl Kennedy, William Pristanski

Commentary/discussion with whole group:

• Research funding should be a focus, with a broad perspective
• The University should leverage its co-op base
• Discrete, meaningful examples of success to share are important
• Interdisciplinarity should be encouraged
• Targeted full cost recovery programs should be explored further
• Opportunities exist in extended education and post-degree studies, as long as they fit within the University’s academic mission

Table 4 – Growing the University’s Influence and Reputation

Waterloo has been consistently ranked as the most innovative university in Canada in the Maclean’s magazine survey of Canadian universities, and in 2017, the top three in Canada for the best overall and highest quality categories. The annual Pitchbook University’s report ranks Waterloo first in Canada for venture capital-backed entrepreneurs and the top university nationally for unicorns. Internationally, a growing number of Waterloo’s subjects have been ranked in the top 100 in the prestigious QS rankings. Prestigious awards and honours continue to recognize the range and quality of Waterloo’s faculty research and scholarship. In the coming years, Waterloo needs to continue to grow its impact and influence internationally, by strengthening our research prominence, global reputation, and internationalization efforts.
Guiding questions

- What factors and trends promote Waterloo’s reputational goals? What is hindering Waterloo’s reputational goals?
- What can we do to advance this priority?
- What supports / resources are need to advance this priority?

Moderator: Sandra Banks, vice-president, university relations
UW Participants: Rob Esselment, Daniela Seskar-Hencic, Allan Starr
Governors: Upkar Arora, Kathy Bardswick, Andrew Clubine, Cindy Forbes, Bruce Richter

Commentary/discussion with whole group:

- Ways to measure success are important
- A suggestion that constituency groups be engaged in discussion of innovation opportunities and challenges
- The value of building stronger networks, and harnessing relationships that exist with industry, employers and alumni
- The benefits of telling the University’s story re: early adoption of technology
- Finding a balance in focusing on and developing the University’s strengths in academics and research while paying attention to external rankings
- The need to not rest on past success, but innovate and stay on top

Table 5 – Empowering our People

Talent comes from every corner of the world, from every culture, race, religion and gender. The University strives to make Waterloo as inclusive as possible, to develop the potential that surrounds us. Priorities are gender equity, increased supports for indigenous peoples of Canada, improving mental health initiatives and outreach for students, and making facilities more accessible. Waterloo has made important steps towards building an inclusive community, but more needs to be done.

Guiding questions

- What opportunities are in place to empower Waterloo’s people in continuing to build an inclusive environment? What is in our way?
- What can we do to advance our priority?
- What supports / resources are need to advance this priority?

Moderator: Marilyn Thompson, associate provost, human resources
UW Participants: Joanne Shoveller
Governors: Shannon Dea, Martha George, Ted Scott, Jeremy Steffler

Commentary/discussion with whole group:

- Discussion of things Waterloo does well, and recognition that there is more work to be done
- Why diversity is important, and ways to support this focus in a decentralized environment
- Bright spots like the HeForShe initiative, and the work on student mental health provide tangible successes which might be replicated in other activities
- Institutional support, both financial and more broadly is critical
- Data and metrics will help inform actions
Session VI – Conclusion

The chair and president thanked attendees for their time, input and for a productive day.

10 January 2018

Karen Jack
University Secretary
Secretary to the Board of Governors
## UNIVERSITY OF WATERLOO

### 2017/18 Operating Income Budget

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### NOTES TO 2017/18 OPERATING INCOME

1. The provincial government modified the university funding formula in 2017/18. The new consolidated Enrolment Grant includes revenues previously reported as Basic Grant, Graduate Growth, Undergraduate Growth, and Policy Levers. The increase relates to increased enrolment and changes to related grants.
2. The Special Purpose Grant consolidates funding previously provided through Clinical Programs, Grant in Lieu of Taxes, and Access for the Disabled. The provincial government committed additional funding for Mental Health Strategies.
3. The change results from an increase in international enrolment.
4. Affiliated and Federated Institutions of Waterloo (AFIW) are Conrad Grebel, Renison, St. Paul's, and St. Jerome's. The change is a result of higher than estimated undergraduate enrolment.
5. The province’s tuition framework has been extended until 2018/19. Increases in undergraduate tuition revenue are the result of increased enrolment in higher-fee programs and continued overall enrolment growth.
6. Increases in graduate tuition revenue are the result of continued graduate enrolment growth.
7. Miscellaneous income includes: application processing fees, other student related fees, rental income and other general revenues.
**UNIVERSITY OF WATERLOO**  
2017/18 Operating Expense Budget  

Board, 6 February 2018  

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<td>343</td>
<td></td>
<td>343</td>
<td>0.1</td>
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</tr>
<tr>
<td>Total salary and wages</td>
<td>416,199</td>
<td>2,628</td>
<td>418,827</td>
<td>57.3</td>
<td></td>
</tr>
<tr>
<td>Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Current benefits</td>
<td>91,538</td>
<td>1,000</td>
<td>92,538</td>
<td>12.7</td>
<td>[2]</td>
</tr>
<tr>
<td>Faculty professional expense reimbursement plan</td>
<td>2,477</td>
<td></td>
<td>2,477</td>
<td>0.3</td>
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</tr>
<tr>
<td>Parental leave supplement</td>
<td>1,411</td>
<td></td>
<td>1,411</td>
<td>0.2</td>
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<tr>
<td>Total benefits</td>
<td>95,426</td>
<td>1,000</td>
<td>96,426</td>
<td>13.2</td>
<td></td>
</tr>
<tr>
<td>Total salaries and benefits</td>
<td>511,625</td>
<td>3,628</td>
<td>515,253</td>
<td>70.5</td>
<td></td>
</tr>
<tr>
<td>Student Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate incentive fund</td>
<td>401</td>
<td></td>
<td>401</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Graduate student support</td>
<td>8,351</td>
<td></td>
<td>8,351</td>
<td>1.1</td>
<td></td>
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<tr>
<td>Senate matching scholarships</td>
<td>160</td>
<td></td>
<td>160</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Support for international graduate students</td>
<td>8,635</td>
<td>717</td>
<td>9,352</td>
<td>1.3</td>
<td>[3]</td>
</tr>
<tr>
<td>Tuition set aside</td>
<td>25,254</td>
<td>511</td>
<td>25,765</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Undergraduate scholarships/bursaries</td>
<td>11,012</td>
<td></td>
<td>11,012</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Total student support</td>
<td>53,813</td>
<td>1,228</td>
<td>55,041</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>Income Sharing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterloo budget model allocation to faculties</td>
<td>10,190</td>
<td>85</td>
<td>10,275</td>
<td>1.4</td>
<td>[4]</td>
</tr>
<tr>
<td>Total income sharing</td>
<td>10,190</td>
<td>85</td>
<td>10,275</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>575,628</td>
<td>4,941</td>
<td>580,569</td>
<td>79.4</td>
<td></td>
</tr>
<tr>
<td>Accessibility fund for students with disabilities</td>
<td>1,045</td>
<td></td>
<td>1,045</td>
<td>0.1</td>
<td>[5]</td>
</tr>
<tr>
<td>Research overhead</td>
<td>3,966</td>
<td>(3,649)</td>
<td>317</td>
<td>0.0</td>
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</tr>
<tr>
<td>Insurance</td>
<td>1,800</td>
<td></td>
<td>1,800</td>
<td>0.2</td>
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</tr>
<tr>
<td>Library acquisitions</td>
<td>8,519</td>
<td></td>
<td>8,519</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Municipal taxes</td>
<td>2,576</td>
<td>83</td>
<td>2,659</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Strategic resource fund</td>
<td>32,410</td>
<td>5,518</td>
<td>37,928</td>
<td>5.1</td>
<td>[6]</td>
</tr>
<tr>
<td>Utilities</td>
<td>21,720</td>
<td></td>
<td>21,720</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>72,036</td>
<td>1,952</td>
<td>73,988</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Supplies and expenses</td>
<td>84,457</td>
<td>3,929</td>
<td>88,386</td>
<td>12.1</td>
<td>[7]</td>
</tr>
<tr>
<td>Gross expenses</td>
<td>732,121</td>
<td>10,822</td>
<td>742,943</td>
<td>101.5</td>
<td></td>
</tr>
<tr>
<td>Cost recoveries and chargeouts</td>
<td>(12,789)</td>
<td>(12,789)</td>
<td>(1.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manageable allowance</td>
<td>(500)</td>
<td>(500)</td>
<td>(0.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated net expenses</td>
<td>718,832</td>
<td>10,822</td>
<td>729,654</td>
<td>99.7</td>
<td></td>
</tr>
<tr>
<td>Estimated income</td>
<td></td>
<td></td>
<td>731,712</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess income over expenses</td>
<td></td>
<td></td>
<td>2,058</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTES TO THE 2017/18
OPERATING EXPENSE BUDGET

[1] The net increase in current salaries and wages includes reallocations of budget between non-salary and salary accounts by academic and academic support units, funding for new positions and salary increases and other salary cost adjustments.

[2] The increase relates to known regulatory funding increases required for the pension.

[3] The increase is the result of graduate international enrolment growth.

[4] This is the allocation of net revenue to faculties based on the Waterloo Budget Model.

[5] The revised base reflects the overhead income shared directly with institutional research centres. The base amount was reduced by $3.6M to reflect its inclusion in the Waterloo Budget Model allocation to faculties.

[6] Based on the Waterloo Budget Model, the strategic resource fund represents funds available to be distributed by the Provost for strategic initiatives and priorities. The increase relates to the overall increase in 17/18 total income.

[7] The amount reflected as supplies and expenses is the total of non-salary budgets in faculties and academic support units that are not specifically identified elsewhere in the budget. The net increase in supplies and expenses results from reallocations of budget between non-salary and salary accounts by academic and academic support units, allocations by the Provost from the strategic resource fund to miscellaneous expenses and other miscellaneous adjustments.
RECOMMENDATION

1. Recommended Tuition Fee Increases

Motion: That the Board of Governors approve tuition increases for the 2018/19 (international) and for 2019/20 (domestic) as follows:

1. Undergraduate Students (Domestic) 2019/20
   - Core (Arts and Science) programs 3.0% (all years)
   - Professional programs unless otherwise stated below 4.29% (all years)
     - AFM, Biotech/CPA, CFM, Math/CPA 2.0% (all years)
     - Global Business & Digital Arts 3.0% (all years)
     - Pharmacy 2.0% (all years)
     - Computer Science/Double Degree, Math/Business Double Degree (5.0%)

2. Graduate Students (Domestic) 2019/20
   - Research Master & PhD programs 1.0%
   - Specifically-identified Master and Diploma programs 1.0% - 5.0%

3. International Students 2018/19
   - Undergraduate programs unless otherwise stated below: 8.5% (year 1); 5% (years 2 to 4)
     - Global Business & Digital Arts 10.0% (year 1); 5.0% (years 2 to 4)
     - Engineering 15% (year 1); 5.0% (years 2 to 4)
     - Environment 9.0% (year 1); 5.0% (years 2 to 4)
     - AFM, Biotech/CPA, CFM, Math/CPA 2.0% (all years)
   - Research Master & PhD programs 3.0%
   - Specifically-identified Master and Diploma programs 3.0% - 15.0%

See attached tabulation of certain identified undergraduate and graduate plans

Rationale: The current tuition framework from the Ministry of Advanced Education and Skills Development (MAESD) expires at the end of 2018/2019. In February 2017, the Board of Governors approved domestic tuition fees for 2017/18 and 2018/19. With the continuing implementation of net tuition billing (which provides students with a summary including tuition fees, financial support in the form of both loans and grants, and the resultant net tuition owing), MAESD requires universities to provide domestic tuition fees two years in advance. Consequently, the University is currently seeking to set its domestic tuition fees for 2019-2020 and its international tuition fees for 2018-19. Given the expiration of the current tuition framework in 2019/20, these rates are provisional and may need to be changed subject to future MAESD announcements and decisions.

MAESD’s current tuition framework limits annual tuition fee increases for domestic students in core (Arts and Science) programs at 3%, and in professional and graduate programs at 5%, with an additional requirement that the overall average tuition fee increase for domestic students does not exceed 3%. International tuition fees are not currently restricted by MAESD. Waterloo’s practice has been to review and set international fees annually for the subsequent year (in this case, 2018-19).
The recommended international tuition increase for the majority of undergraduate programs is 8.5% for year 1 and a net increase of 5% for years 2 to 4. Due to tuition assessment system limitations, the tuition increase in years 2 to 4 will be assessed at 2018/19 first year rates, however, each undergraduate student in years 2 to 4 will automatically receive an award to reduce the net tuition increase to 5% over the previous year’s assessment.

The variability in tuition increases is driven by:

- Existing limits imposed by MAESD for domestic tuition include an overall cap of 3%, a 3% limit for Core (Arts and Science) programs, and a 5% limit for professional and graduate programs
- The relative competitiveness of our current tuition rates with our Canadian and international peers
- International undergraduate and masters programs tuition includes an amount to offset the MAESD imposed $750/student International Student Recovery and the $75/student Grant-in-lieu of Taxes reduction
- Continued high demand from both domestic and international applicants
- A targeted and specific approach to identify and address anomalous rates, while continuing to offer considerable value to students with a very high quality of education

/mg

James Schlegel
Chair
### 1. Graduate Plans, Effective Spring Term

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
<th>Domestic [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Years</td>
<td>All Years</td>
<td>All Years</td>
</tr>
<tr>
<td>All Master research graduate plans</td>
<td>1.0%</td>
<td>3.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Master of Science tuition per term</td>
<td>$2,506</td>
<td>$6,838</td>
<td>$2,530</td>
</tr>
<tr>
<td>All PhD research graduate plans</td>
<td>1.0%</td>
<td>3.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate PhD of Science tuition per term</td>
<td>$2,506</td>
<td>$6,770</td>
<td>$2,530</td>
</tr>
</tbody>
</table>

### 2. Special Graduate Plans, Effective Spring Term

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
<th>Domestic [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Years</td>
<td>All Years</td>
<td>All Years</td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Architecture</td>
<td>5.0%</td>
<td>8.5% - 15%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Master of Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition range per term</strong></td>
<td>$1,535 - $3,070</td>
<td>$5,004 - $10,008</td>
<td>$1,611 - $3,222</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Management Sciences</td>
<td>2% - 5%</td>
<td>3% - 8%</td>
<td>2% - 5%</td>
</tr>
<tr>
<td>Master of Taxation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition range per term course</strong></td>
<td>$649 - $4,386</td>
<td>$649 - $4,386</td>
<td>$668 - $4,605</td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Public Health</td>
<td>1.0%</td>
<td>5% - 8.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Master of Climate Change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition per term</strong></td>
<td>$2,506</td>
<td>$7,146 - $7,384</td>
<td>$2,530</td>
</tr>
</tbody>
</table>

### 3. Special Graduate Plans, Effective Fall Term

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
<th>Domestic [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Years</td>
<td>All Years</td>
<td>All Years</td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Business, Entrepreneurship and Technology</td>
<td>3% - 5%</td>
<td>5% - 10%</td>
<td>3% - 5%</td>
</tr>
<tr>
<td>Master of Public Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition range per term</strong></td>
<td>$2,666 - $13,130</td>
<td>$4,695 - $16,776</td>
<td>$2,766 - $13,786</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Environment and Business</td>
<td>3% - 5%</td>
<td>3% - 5%</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Tuition range per term course</strong></td>
<td>$1,206 - $3,636</td>
<td>$1,206 - $3,636</td>
<td>$1,266 - $3,817</td>
</tr>
</tbody>
</table>

### 4. Special Graduate Plan, Effective Winter Term

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
<th>Domestic [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Years</td>
<td>All Years</td>
<td>All Years</td>
</tr>
<tr>
<td>Master of Accounting</td>
<td>3.0%</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td><strong>Tuition per term</strong></td>
<td>$7,905</td>
<td>$15,637</td>
<td>$8,142</td>
</tr>
</tbody>
</table>

*Domestic tuition fees for 2018/19 were approved in February 2017
5. Undergraduate Plans, Effective Spring Term 2019/20

<table>
<thead>
<tr>
<th>Program</th>
<th>Domestic All Years [1, 2, 3]</th>
<th>International All Years [1, 2, 3, 4]</th>
<th>Domestic All Years [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>5.0%</td>
<td>8.5% - 15%</td>
<td>4.3% - 5%</td>
</tr>
<tr>
<td>Computer Science/Business Administration, Double Degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering, including Nanotechnology &amp; Software Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics/Business Administration, Double Degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics, Financial Analysis &amp; Risk Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optometry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition range per term</td>
<td>$4,747 - $8,484</td>
<td>$15,823 - $24,327</td>
<td>$4,984 - $8,883</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>$7,761</td>
<td>$22,307</td>
<td>$8,094</td>
</tr>
<tr>
<td>Global Business &amp; Digital Arts</td>
<td>3.0%</td>
<td>10.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Tuition per term</td>
<td>$6,315</td>
<td>$16,248</td>
<td>$6,504</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>1.0%</td>
<td>8.5%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Tuition per term</td>
<td>$9,461</td>
<td>$26,713</td>
<td>$9,650</td>
</tr>
<tr>
<td>Accountancy and Financial Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotechnology/Chartered Professional Accountancy (CPA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computing and Financial Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics/Chartered Professional Accountancy (CPA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition per term 2A &amp; B, 3A &amp; B, 4A &amp; B</td>
<td>$8,354</td>
<td>$18,651</td>
<td>$8,521</td>
</tr>
<tr>
<td>All other undergraduate plans not specifically listed</td>
<td>3.0%</td>
<td>8.5% - 9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, All faculties</td>
<td>$3,405</td>
<td>$3,507</td>
<td></td>
</tr>
<tr>
<td>Tuition, Environment international per term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Arts &amp; AHS international per term</td>
<td>$14,682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Science international per term</td>
<td>$14,615</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Mathematics international per term</td>
<td>$15,281</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Domestic tuition fees for 2018/19 were approved in February 2017

6. Undergraduate Plan, Effective Winter Term 2019/20

<table>
<thead>
<tr>
<th>Program</th>
<th>Domestic All Years [1, 3]</th>
<th>International All Years [1, 3]</th>
<th>Domestic All Years [1, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting Diploma Program</td>
<td>3.0%</td>
<td>15.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Tuition per term course</td>
<td>$1,976</td>
<td>$3,909</td>
<td>$2,036</td>
</tr>
</tbody>
</table>

*Domestic tuition fees for 2018/19 were approved in February 2017
Notes to the Recommended Tuition Fee Increases:
[1] Plus applicable incidental fees.
[2] Plus co-op fees and work report marking fees where applicable.
[3] All tuition amounts are for a four-month term and are the maximums that can be charged in any term.
[4] For those undergraduate programs where the international tuition increase is more than 5%, students in upper years will be assessed the full increase on their fee bill; however, they will automatically receive an award to offset a portion of their tuition resulting in an effective net increase of 5% over the previous year’s tuition. The necessity to handle upper year fees in this way is due to current limitations within the QUEST student system.
[5] The international tuition increases for 2019/20 will be presented at a future Board of Governors meeting.

Background Notes:
1. The Board of Governors has the power (as given in the University of Waterloo Act) to set tuition fees at any level it wishes. In practical terms that power is constrained by the provincial government, which will deduct from its grants any tuition charges in excess of the amount stipulated by the government. On March 28, 2013, MAESD (formerly MTCU) announced a new four-year tuition framework effective 2013-14 to 2016-17. This framework has been extended to 2018/19.
   The proposed rates for 2019/20 were calculated under the assumption that the current tuition framework will be extended.
   Should there be a change in the tuition framework applicable to 2019/20, we will need to revisit and potentially update the tuition rates for this year.

   Subject to the approval of the Board of Governors
FOR APPROVAL

Co-op Fee 2018/19

The undergraduate Co-op Fee assessed to students registered in co-operative education programs is recommended to increase 2.8% from $709/term to $729/term effective Spring term 2018. The graduate Co-op Fee assessed during a co-op term to students in selected programs is recommended to increase 2.8% to $729 effective Spring term 2018.

Vice-President, Academic & Provost
This report is submitted following the committee’s meetings of 10 November 2017, 8 December 2017 and 19 January 2018, and is recommended for inclusion in the regular agenda.

FOR INFORMATION

1. Holistic Review of the Benefits Plan
The committee approved a plan to undertake a holistic review of the benefits offerings for University employees. The scope of the review contemplates: benchmark current benefits and pension against comparator institutions; potential for plan redesign in light of offerings at comparators; going to market for insurance carrier for specific coverages as well as for the sick leave early referral assessor. The university’s benefit consultant, Aon Hewitt, was assigned the task of supporting the holistic review. Similar reviews were undertaken previously in 2005 and 2012.

The committee approved the list of relevant comparators from those largely available from Aon Hewitt’s database and focusing on three groupings: universities, private sector, and public/not for profit entities. The list represents a cross-section of organizations drawing from the aforementioned three groupings from the local area as well as further afield within Ontario, and universities outside of Ontario.

The plan benchmarking exercise is expected to be completed in early 2018, and larger overall exercise is anticipated to run until Fall 2019, with the objective to have any applicable changes (including benefits coverage and/or supporting vendors) effective May 1, 2020.

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Marilyn Thompson, Chair
Pension & Benefits Committee