Note: directions/parking information for external members has been distributed. Please convey regrets to Emily Schroeder at 519-888-4567, ext. 32749 or eschroeder@uwaterloo.ca.

<table>
<thead>
<tr>
<th>Time</th>
<th>MEETING</th>
<th>Page</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OPEN SESSION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:30</td>
<td>1. Conflict of Interest</td>
<td>Oral</td>
<td>Declaration</td>
</tr>
<tr>
<td></td>
<td>2. Remarks from the Chair</td>
<td>Oral</td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>3. Agenda/Additional Agenda Items</td>
<td>Oral</td>
<td>Input</td>
</tr>
<tr>
<td>1:40</td>
<td><strong>Consent Agenda</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motion: To approve or receive for information by consent items 4-8 below.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Minutes of the 5 June 2018 Meeting</td>
<td>4</td>
<td>Decision</td>
</tr>
<tr>
<td>5.</td>
<td>Report of the President</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Sabbatical and Administrative Leaves/Administrative Appointments</td>
<td>13</td>
<td>Decision/Information</td>
</tr>
<tr>
<td></td>
<td>b. Recognition and Commendation</td>
<td>23</td>
<td>Information</td>
</tr>
<tr>
<td>6.</td>
<td>Report of the Vice-President, Administration &amp; Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Incidental Fee Changes</td>
<td>34</td>
<td>Decision</td>
</tr>
<tr>
<td>7.</td>
<td>Reports from Committees</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Building &amp; Properties</td>
<td>36</td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>b. Executive</td>
<td>41</td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>c. Finance &amp; Investment</td>
<td>61</td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>d. Governance</td>
<td>62</td>
<td>Decision/Information</td>
</tr>
<tr>
<td></td>
<td>e. Pension &amp; Benefits</td>
<td>64</td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>a. Undergraduate/Graduate Admissions Update</td>
<td>66</td>
<td>Information</td>
</tr>
<tr>
<td>1:45</td>
<td><strong>Regular Agenda</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Business Arising from the Minutes</td>
<td></td>
<td>Input</td>
</tr>
</tbody>
</table>
### OPEN SESSION

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Page</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1:50  | 10. Report of the President  
   b. President’s Update | SharePoint/distributed by mail 68 | Information |
| 2:10  | 11. Strategic Plan Bridge to 2020 – Discussion of white paper: Internationalization (with Ian Rowlands) | 109       | Input           |
| 3:30  | BREAK                                                                   |           |                 |
   a. Student Experience Update  
   b. Memorandum of Agreement between FAUW and the University of Waterloo – Section 13 Amendment | Oral 132  | Information/Decision |
   a. Responsible Investing Working Group Recommendations | 133       | Decision        |
| 4:15  | 14. Reports from Committees  
   a. Audit & Risk  
   b. Finance & Investment  
   c. Pension & Benefits  
| 4:45  | 15. Report of the University Secretary  
   a. Pension Investment Committee | 199       | Decision        |
| 4:50  | 16. Other Business                                                      |           | Input           |

### CONFIDENTIAL SESSION

- Conflict of Interest
  - Oral
  - Declaration

**Consent Agenda**

*Motion:* To approve or receive for information by consent items 17-19 below.

- Minutes of the 5 June 2018 Meeting
  - 10
  - Decision
- Report of the President  
  a. New Appointments with Tenure
  - 202
  - Decision
- Reports from Committees  
  a. Audit & Risk
  - 203
  - Information
## CONFIDENTIAL SESSION

<table>
<thead>
<tr>
<th>Time</th>
<th>Regular Agenda</th>
<th>Page</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:05</td>
<td>21. Business Arising from the Minutes</td>
<td></td>
<td>Input</td>
</tr>
</tbody>
</table>
| 5:10 | 22. Report of the President  
   a. Donor List – FY18 Gifts and Pledges $250,000+ | 204  | Information |
| 5:20 | 23. Reports from Committees  
   a. Governance | 206  | Decision |
| 5:25 | 24. Other Business |      | Input  |

25. Next Meeting: Tuesday 5 February 2019 at 1:30 p.m.

## IN-CAMERA SESSION

<table>
<thead>
<tr>
<th>Time</th>
<th>Regular Agenda</th>
<th>Page</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:30</td>
<td>26. Conflict of Interest</td>
<td>Oral</td>
<td>Declaration</td>
</tr>
<tr>
<td>27. Minutes of the 5 June 2018 Meeting</td>
<td>12</td>
<td>Decision</td>
<td></td>
</tr>
<tr>
<td>28. Business Arising from the Minutes</td>
<td></td>
<td>Input</td>
<td></td>
</tr>
<tr>
<td>29. Other Business</td>
<td></td>
<td>Input</td>
<td></td>
</tr>
<tr>
<td>30. Adjournment</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KJJ/ees
23 October 2018
Karen Jack
University Secretary
Secretary to the Board of Governors

Members are reminded re: the President’s Reception which will be held from 5:30-7:30 p.m., in Federation Hall.
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.

Governors were notified that conflict of interest declaration forms were distributed at places, and completed forms will be collected at the break.

2. REMARKS FROM THE CHAIR
The vice-chair took the chair and welcomed the Board to the first meeting of the governance year.

Governors’ First Meeting
A number of governors were attending their first meeting. The vice-chair acknowledged them, and returning members, as follows:

- **Community-at-Large Representatives:**
  Russell Hiscock

- **Lieutenant Governor in Council Representatives:**
  Nyla Ahmad
  Jagdeep Bachher
  Murray Gamble (returning member)

- **Staff Representative:**
  Jeremy Steffler (returning member)
• **Faculty Representatives:**
  Daniel O’Connor
  Neil Randall
  Paul Fieguth
  Robert Gorbet (returning member)

• **Undergraduate Student Representatives:**
  Tyler Marques
  Maya Venters
  Richard Wu

• **Graduate Student Representatives:**
  Tia Driver
  Linda Ogechi Iheme

**Board of Governors Orientation**
The vice-chair briefly spoke to the Board of Governors orientation for new and returning governors held on Monday 4 June and earlier in the day prior to the Board meeting.

For governors who were unable to attend, the presentations have been uploaded to the Board of Governors SharePoint site.

**President’s Golf Tournament**
The vice-chair updated the Board on the 18th annual University of Waterloo President’s Golf Tournament held on Monday 4 June at Westmount Golf and Country Club. All proceeds support the “Warrior Excellence Fund” and the “Women’s Sport Initiative Fund”. These funds provide for University of Waterloo student athletes and teams to compete at major championship competitions and provide support for female student-athletes and coaches.

3. **AGENDA/ADDITIONAL AGENDA ITEMS**
   By consensus, the Board agreed to approve the agenda as distributed.

**Consent Agenda**

The Board heard a motion to approve and/or receive for information by consent items 4-9 below.

George and Swainson.

4. **MINUTES OF THE 3 APRIL 2018 MEETING**
The Board approved the minutes of the meeting as distributed.

5. **REPORT OF THE PRESIDENT**
   **Recognition and Commendation.** The Board received the report for information.

   **Sabbatical and Administrative Leaves and Administrative Appointments.** The Board heard a motion to approve the sabbatical leaves and changes as presented in the report.

   The remaining items in the report were received for information.
6. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST

Department Name Change. The Board heard a motion to approve the following name change: “Department of Drama and Speech Communication” to “Department of Communication Arts,” effective 1 September 2018.

New Academic Unit – Change of Name and Structure of the Conrad Centre. The Board heard a motion to approve the following changes: that the name of the Conrad Business, Entrepreneurship and Technology Centre be changed to the “Conrad School of Entrepreneurship and Business” within the Faculty of Engineering, and that it be granted formal status as an academic unit.

7. REPORT OF THE VICE-PRESIDENT, ADMINISTRATION & FINANCE

Incidental Fees. The Board heard a motion to approve incidental fee changes as follows:
Motion: To approve the Federation of Students Fee as presented in the report.
Motion: To approve the Orientation Fee as presented in the report.
Motion: To approve the Federation of Students Administered Fee as presented in the report.
Motion: To approve the Science Society Fee as presented in the report.
Motion: To approve the Graduate Student Association Administered Fees as presented in the report.

8. REPORTS FROM COMMITTEES

Building & Properties. The Board received the report for information.

Executive. The Board received the report for information.

Finance & Investment. The Board received the report for information.

Governance. The Board received the report for information.

Pension & Benefits. The Board received the report for information.

9. REPORTS FROM INSTITUTE FOR QUANTUM COMPUTING

Annual Report to the Ministry of Innovation, Science and Economic Development. The Board heard a motion to approve the IQC annual report to ISED as presented in the report.

Corporate Plan 2018-19. The Board heard a motion to approve the IQC corporate plan as presented in the report.

In response to a question about the reference in the Governance Committee report about concerns raised in the self-assessment questionnaires and what information was given subsequently at the orientation, the secretary advised that some responses revealed that clearer information regarding committee mandates and how agendas are constructed needed to be conveyed.

Pristanski advised that he will not speak against the Conrad Centre becoming a school, but did recommend that the University take a more strategic approach to entrepreneurship and business activities in the future. Dean advised that a new council is being formed to discuss this issue and will welcome all Board members’ feedback.

The question was called and the motion carried with one abstention.
Regular Agenda

10. BUSINESS ARISING FROM THE MINUTES
   Update on Student Mental Health Report Implementation. Heins advised that this matter will be covered under the Report of the President.

11. PRESENTATION – VICE-PRESIDENT, UNIVERSITY RESEARCH
   The vice-chair introduced Charmaine Dean, vice-president, university research.

   The vice-president provided members with a presentation titled “An unconventional approach to education, research and commercialization”. Members heard about: transformational research and key areas of focus; awards received by University of Waterloo researchers in 2017; work being done on the interdisciplinarity front; details about specific institutes; innovation initiatives; funding; commercialization support; internationalization efforts; the research ecosystem.

   The vice-president introduced Andria Bianchi, a PhD candidate in the Department of Philosophy. Bianchi shared that she knew before she arrived at Waterloo that she likely was not looking for a career as an academic. She described how the interdisciplinary research she undertook at Waterloo, the communication skills she developed, and overall guidance that she received as a graduate student prepared her well for her chosen career.

12. REPORT OF THE PRESIDENT
   President’s Update. Following a warm welcome to new and returning members, the president expressed his thanks to Dixon, attending his last meeting as interim vice-president, academic & provost, and introduced members to Jim Rush, the incoming provost.

   The president updated the Board on a number of issues summarized in his written report, and otherwise, including: recent achievements; an update on student mental health activities; timing and consultation opportunities for the next strategic plan. With respect to the white papers that are framing some consultation activities, members were encouraged to read them and weigh in with feedback through any mechanism they preferred: attendance at a specific consultation session, direct feedback to the authors of the papers, or to him directly.

   In discussion: a description of the Innovation Summit held in Toronto and coming activities on that front; a brief discussion of the supercluster activities and Waterloo’s involvement; student mental health initiatives and activities.

   Discussion of White Paper: Student Learning Environment. The president introduced Mario Coniglio, associate vice-president, academic, to present on “Advancing Undergraduate Learning: Next Steps.” Coniglio, and Donna Ellis, director of the centre for extended learning broadly spoke to the next steps in advancing undergraduate learning. In discussion: strategic priority areas; the sources being used by the teaching and learning working group; approaches; the Waterloo teaching landscape; strengths and challenges. They concluded with a description of proposed strategic priority areas, including: innovations; student-led initiatives; assessment innovations and a variety of approaches; infrastructure needs; advancing research and discovery activities.

   In discussion: faculty turnover and retention; ways to encourage innovation in classroom activities; lessons being learned from other institutions; the proposed vision statement, and its ties to lifelong learning; ways to engage individuals with post-graduate education and provide value; the evolution of activities to reflect the changing world; the continued focus on maintaining quality at all times.

   Members were invited to reach out to Coniglio directly to provide further feedback.
Report of the Vice-President, Advancement. The president introduced Joanne Shoveller, vice-president, advancement. The vice-president reported on building a university-wide philanthropic culture. She spoke to: fiscal year end results; reasons for a new campaign; phases of that campaign, and timelines; the campaign planning committee; benchmarking; creating the case; needed infrastructure and resources.

In discussion: a suggestion to focus on the outcomes of a Waterloo education; the work Shoveller’s office does with new alumni startups.

Report of the Associate Vice-President, Graduate Studies and Postdoctoral Affairs. The president introduced Jeff Casello, associate vice-president, graduate studies and postdoctoral affairs. Referring to his written report submitted to the Board, Casello provided the Board with an update on enrollment data, funding, and ways to attract and retain exceptional graduate students.

In discussion: the value of strong relationships between graduate students and their supervisors, and of career development opportunities; coming advancements in the recruitment and application realms; advice that the applicant pool is very deep; recent increases in research funding.

13. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST
Staff Salary Recommendation. The Board heard a motion to approve the Staff Salary Recommendation as presented in the report.

Gamble and Dea. Carried unanimously.

14. CONFLICT OF INTEREST DECLARATION FORM
Governors were instructed to complete the forms, which were subsequently collected during the break.

15. REPORTS FROM COMMITTEES
Finance & Investment. The Board heard a motion to approve Fiera Capital as a global equity investment manager for the University’s endowment fund; and further that the Board of Governors approve the immediate deployment of approximately $50.5 million CAD to the global equity strategy of Fiera Capital, in accordance with the approval provided at the meeting of 6 February 2018.

Schlegel and Kennedy. Carried unanimously.

Joint Report from Finance & Investment and Pension & Benefits. The Board heard a motion to endorse the report outlining the prospective Pension Investment Committee as described in attachment #1, including the terms of reference contained therein, and further that the Board of Governors direct that such amendments as are necessary to put the Pension Investment Committee into effect be prepared for the 30 October 2018 meeting of the Board of Governors.

Schlegel and George. Carried unanimously.

Responsible Investment Working Group. The Board heard a motion to endorse the recommendations of the report of the working group as described in Attachment #1, and further that the Board of Governors direct that such actions as outlined in the report be prepared and brought forward to the Board of Governors on the timelines described.

Gamble and Kennedy.
The vice-chair invited Bruce Gordon, chair of the working group, to present to the Board. Gordon briefly spoke to his former service as a member of the Board and advised re: the working group’s activities over the last two years. Members heard: an overview of the University’s financial assets; outreach activities; the recommendation; advice that today’s decision is the start of the journey, not the end.

The vice-chair invited Truzaar Dordi, a PhD candidate in the School of Environment, Enterprise and Development and representative of “Students for a Fossil Free UWaterloo,” to present to the Board. Dordi thanked Heins for providing him with the opportunity to speak to the Board. On behalf of the group, he advised: they commend the University for its diligence and rigour in looking at the issue, but are disheartened that the recommendation does not go far enough toward divestment; the group does appreciate where the university looks to be headed on the issue; the group would like to be engaged in the future.

Dea expressed thanks to the working group for its work which she deemed to be fair and thorough, and the recommendation which she finds compelling. Dea requested the Board to consider discussing the report today and deferring a decision with respect to the recommendation until the October meeting so members would have more time to consider it. Dea moved that the motion be tabled until the October meeting of the Board.

Dea and Freeman.

In discussion: discomfort with deferring the decision; recognition that the report is a starting point; advice from a new member with some familiarity with the issue that the report represents a very good start; recognition of the hard work to come to move forward; the need for the Board to make sound fiduciary decisions; advice that the recommendation received unanimous support from the Finance & Investment committee; a reminder that circulation of the motion was in line with regular Board practice and timing; from several members a reiteration that the recommendation represents the beginning of a process, not the end.

The chair sought Dea’s thoughts on recalling her motion in light of the discussion which she declined.

The question was called and the motion was defeated with three for, 19 against, and three abstentions.

The original motion was called and carried with one abstention.

16. OTHER BUSINESS

There was no other business.

The Board convened in confidential session.

20 September 2018

Karen Jack
University Secretary
The confidential minutes have been removed.
The confidential minutes have been removed.
IN-CAMERA SESSION

The *in-camera* minutes have been removed.
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
     Abukheir, Nasser Mohieddin, Chemical Engineering, March 1, 2019 to August 31, 2019 at 85% salary
     I will focus on developing strategic collaborations in the area of adaptive liquid crystal (LC) devices. My research primarily involves multiphysics simulations of LC domains and would benefit synergistically from collaborations with experimental researchers who could validate, prototype, and optimize adaptive LC devices guided by these simulations.

     Barnett-Cowan, Michael, Kinesiology, September 1, 2019 to August 31, 2020 at 85% salary
     I will collaborate with researchers and industry partners in Europe, Australia, the United States and Canada on research projects related to multisensory integration, virtual reality, motion simulation and artificial intelligence. Time will also be used to present research outcomes as an invited speaker at colloquia and conferences and networking with other researchers to develop new industry collaborations and grant proposals.

     Beazely, Michael, Pharmacy, January 1, 2019 to December 31, 2019 at 100% salary
     I will be preparing grants and manuscripts on my research which examines the role of growth factor receptor signaling in brain cells and how they interact with classic neurotransmitter receptors such as serotonin and dopamine receptors. I will also develop new research techniques, focusing on
electrophysiology techniques. I will also focus on teaching and course and content development in relation to the intersection between substance use and primary and community healthy care.

Blowes, David, Earth and Environmental Sciences, January 1, 2019 to June 30, 2019 at 100% salary
I plan to prepare manuscripts based on major research projects on the application of non-traditional isotopes to hydrogeochemical studies and remediation programs and the application of novel synchrotron-based techniques to environmental problems and remediation that are currently underway including the Diavik waste rock project and the Detour Lake waste rock project. I will visit with collaborators at University of British Columbia, University of Ottawa, US Geological Survey in Colorado, Lulea University of Technology in Sweden and the US Geological Survey in California.

Carvalho, Emanuel, Economics, January 1, 2019 to December 31, 2019 at 100% salary
I will continue to work in the area of local development with a focus on a) measuring the performance of sectors/industries at the local level; b) assessing the development prospects of communities varying in size and economic structure according to various policy prescriptions; c) focus on the socioeconomic development issues of smaller rural and indigenous communities.

Chandrashekar, Naveen, Mechanical and Mechatronics Engineering, May 1, 2019 to October 31, 2019 at 100% salary
I will update my knowledge in computational biomechanics through external professional training; rewrite and update various course material; and submit a CIHR grant application related to knee biomechanics. I am planning short visits to several research labs, specifically the Centre for Orthopaedic Biomechanics at Denver University, the Joint Biomechanics Lab at University of Ulm, Germany and Flinders University in Australia which will result in future collaborations.

Chaurasia, Ashok, Public Health and Health Systems, January 1, 2019 to June 30, 2019 at 100% salary
I will complete/submit my current (methods and application) papers in the areas of model selection and missing data and devote the majority of my time towards projects proposed in my NSERC Discovery Grant that deals with power calculations for new data collection designs that take advantage of missingness. Additionally, I will reconvene with my current international collaborator, Dr. Bhargab Chattopadhyay at the Indian Institute of Information Technology Vadodara in Gujarat, India, and present my research at different venues to explore potential for future collaborations and grants. I will continue mentoring my students virtually.

Chen, Tao, Economics, January 1, 2019 to June 30, 2019 at 85% salary
I will focus on quantifying the impact of environmental quality on children’s health and cognition in their development stage through a general social welfare perspective.

Coleman, Beth, English Language and Literature, January 1, 2019 to June 30, 2019 at 85% salary
I will complete my SSHRC funded field research on Smart Cities & Smart Citizens and finish the manuscript Hello Data (MIT Press).

Coleman, Thomas, Combinatorics and Optimization, January 1, 2019 to December 31, 2019 at 94.7% salary
My research will focus on optimization and machine learning methods for computational finance. I will make several short trips to Columbia University in New York to collaborate with Emanuel Derman and Agostino Capponi who are quantitative finance experts. I will also visit the Hong Kong University of Science and Technology and the Shanghai Institute of Advanced Finance to work with Professors Kwok and Li respectively.

Collington, Tara, French Studies, January 1, 2019 to June 30, 2019 at 100% salary
I will write three articles in the field of contemporary French literature (post 1985). The first is on Amelie Nothomb, an author on whom I regularly publish. The second examines the correspondence between author Anny Duperey and painter Nina Vidrovitch. The third will analyze two recent novels (by Philippe Jaenada and Jean-Luc Seigle) set in occupied France.

Cooke, Martin, Sociology and Legal Studies and Public Health and Health Systems, January 1, 2019 to June 30, 2019 at 85% salary
I am the Principle Investigator for the Canadian Student Tobacco Alcohol and Drugs Survey. This national survey will be in the field in 2018/2019 and I will be working with the team in Waterloo to supervise data collection. I will also continue to work on several manuscripts from the 2016/2017 cycle of the survey.

Cooper, Andrew, Political Science, January 1, 2019 to June 30, 2019 at 85% salary
My research will tackle the question about why, despite a high degree of stigmatization, informality as a set of practices in global politics has made a comeback and what is the impact of this revival on global politics. Accepted explanations are either power or problem solving based. This study expands the boundaries, looking not only at the motivations of the established countries but the shifting attitudes of countries beyond the West.

Cormack, Gordon, Computer Science, January 1, 2019 to June 30, 2019 at 85% salary
I intend to collaborate with the Library of Virginia and other institutions to evaluate the efficacy of Technology-Assisted Review for the curation of public records, including but not limited to, the records from the administration of former Virginia Governor Tim Kaine.

Coskun, Altay, Classical Studies, January 1, 2019 to June 30, 2019 at 85% salary
I shall focus on my SSHRC funded project “Ethnic Identities and Diplomatic Affiliations in the Bosporan Kingdom” (Crimea and Taman Peninsula). I shall continue co-organizing international workshops (Iasi 2017, Wroclaw and Waterloo 2018, Valenciennes, London and Waterloo 2019) and produce two co-edited volumes. Part of the time will be spent on fostering the work of the international Seleukid Study Group.

Culham, Richard, Mechanical and Mechatronics Engineering, January 1, 2019 to December 31, 2020 at 100% salary
I will work to develop practical, e-based teaching resources to support online course content for MME 309: Introduction to Thermodynamics and Heat Transfer and ME 354: Thermodynamics 2. The teaching modules will provide graphical and analytical reinforcement of core content as it relates to practical examples encountered in engineering applications.

Elhedhli, Samir, Management Sciences, January 1, 2019 to December 31, 2019 at 100% salary
I plan to explore the emerging research areas of Data Analytics, Artificial Intelligence and Optimization and their application in key areas such as Logistics and Supply Chain Management. A research program involving industrial partners, government funding, and graduate students will be put in place within the Waterloo Analytics and Optimization Lab (WanOpt).

Fedy, Bradley, Environment, Resources and Sustainability, July 1, 2019 to December 31, 2019 at 85% salary
I will devote the majority of my time to working on the integration of demographics and genetics to understand wildlife responses to changing habitats, climate, and human disturbance. This work involves extensive collaborations with all levels of government and non-government agencies in Canada and the United States.
Freeman, George, Electrical and Computer Engineering, March 1, 2019 to August 31, 2019 and March 1, 2020 to August 31, 2020 at 95% salary
I am striving to apply ideas from modern scholarship on teaching and learning to the design of a first-year course in computer programming for biomedical engineers. Topics include motivating self-efficacy and metacognition in learning, presentation materials free of cognitive conflict, effective use of flipped-classroom delivery, outcomes to encourage collaborative self-learning, and improvement of computer support tools for progress monitoring.

Gauthier, Nicolas, French Studies, January 1, 2019 to June 30, 2019 at 85% salary
I plan to 1) complete the next phase of an online database of newspaper fiction; 2) participate in two international conferences; and 3) work on a book on 19th century newspaper fiction in France.

Grindrod, Kelly, Pharmacy, September 1, 2019 to August 31, 2020 at 100% salary
I will spend the year at the Université Laval with colleagues in the Department of Family and Emergency Medicine. I will focus on grant and paper writing relating to the design, implementation, and evaluation of the Pharmacy5in5.ca platform. I will also develop a commercialization plan to expand Pharmacy5in5 internationally and to professions outside pharmacy.

Gzara, Fatma, Management Sciences, January 1, 2019 to June 30, 2019 at 85% salary
I will work on research related to two ongoing industry projects funded by an OCE VIP 2 grant and NSERC Collaborative Research and Development grant in collaboration with partner Dematic Limited. The first project focuses on data analytics for warehouse management and the second focuses on optimization of mixed-case palletisation for warehouse management systems. I plan to spend most of the time at the University of Waterloo.

Haldenby, Eric, Architecture, January 1, 2019 to June 30, 2019 and January 1, 2020 to June 30, 2020 at 100% salary
My research carries on the exploration of the dominance of industrial architecture in Waterloo Region and its influence on the adoption of modern architecture in the period after World War II. The study examines rebuilding of the cities and their institutions as well as the creation of a new educational infrastructure.

Henderson, Heather, Psychology, January 1, 2019 to June 30, 2019 at 100% salary
My leave is organized around three scholarly goals: 1) data analysis and writing for ongoing SSHRC and NIH funded studies of temperament and social development; 2) coordination of CFI funded infrastructure development in Developmental Science; and 3) obtaining advanced statistical training in longitudinal and dyadic data analysis.

Hunt, Andrew, History, January 1, 2019 to June 30, 2019 at 100% salary
I will write a book that is now under contract. It is tentatively titled Beatle Wars: Beatlemania and the Birth of Modern Culture Wars in America, and will be published by Oxford University Press. The research has been completed for the book, so all that remains to tackle is the writing portion.

Kazerani, Mehrdad, Electrical and Computer Engineering, March 1, 2019 to August 31, 2019 at 100% salary
This leave will be dedicated to reshaping my research in the following areas: 1) distributed control of hybrid AC/DC microgrids; 2) high-efficiency conversion systems for off-shore wind farms; 3) energy storage systems for DC and hybrid AC/DC microgrids; and 4) affordable technologies for providing electricity access to last mile communities. I plan to make short visits to a few universities in Canada and abroad that could include: University of Oxford, England, Prof. Malcolm McCulloch; Aalborg
McGregor, Ian, Psychology, July 1, 2019 to June 30, 2020 at 85% salary
I will apply for a SSHRC grant and focus on helping my graduate students and post-doctoral fellows publish findings on motivational bases of religious extremism, political populism, meaning in life, boredom, and self-control. I will publish the book I have been working on for several years that is now in draft form: “Whole Life: Stories and the Science of Personality”.

McWebb, Christine, Interaction Design and Business, January 1, 2019 to June 30, 2019 at 100% salary
The web-based annotation software “imagemat” is now in its beta phase. I intend to complete the development and user testing of the software and its publication. My second project is to continue the writing of my current monograph on the symbolism of alchemy in French medieval literature.

Moraru, Ruxandra, Pure Mathematics, January 1, 2019 to June 30, 2019 at 85% salary
I will continue my research on moduli spaces of sheaves on Hermitian manifolds. I plan to visit Andrei Teleman at the Institut de Mathématiques de Marseille, and occasionally collaborate with Vasile Brînzănescu at the Institute of Mathematics of the Romanian Academy from January to April 2019. I then plan to visit Jeff Streets at University of California, Irvine from May to June 2019.

Murphy, Graham, Chemistry, January 1, 2019 to June 30, 2019 and January 1, 2020 to June 30, 2020 at 94.7% salary.
I will update the content for my Natural Products Synthesis course, Chem400. I will write and submit the backlog of results from completed research on halogenation reactions. Further, I will research organic materials synthesis, a new area of investigation, and write a funding application to the New Directions Grant from the Petroleum Research Fund of the American Chemical Society.

Murphy, Paul, Optometry and Vision Science, January 1, 2019 to June 30, 2019 and January 1, 2020 to June 30, 2020 at 100% salary
I will complete the submission of several research papers (ocular surface shape; impression mould making of the eye; research ranking matrices in optometry), work on two research grants (biochemical analysis of tear samples combined with tear ferning image analysis; corneal epithelial thickness and corneal sensation in contact lens wear), and visit collaborating scientists in the Netherlands, Australia and New Zealand.

Musselman, Kevin, Mechanical and Mechatronics Engineering, January 1, 2019 to June 30, 2019 at 100% salary
I will develop my research program in the area of low-cost, stable, metal halide perovskite solar cells. This will involve potential visits to collaborating laboratories within Europe (2-4 weeks each) to learn new approaches and establish collaborative research projects. Possible collaborators include: Dr. Lukas Schmidt-Mende, University of Konstanz, Germany; Dr. Bruno Ehrler, AMOLF, Netherlands; and Dr. Judith Driscoll, University of Cambridge, United Kingdom. I will also use this time to prepare my tenure package.

Nayak, Ashwin, Combinatorics and Optimization, January 1, 2019 to June 30, 2019 at 85% salary
I will be pursuing long-term research projects in quantum information and computation. The projects encompass fundamental problems related to efficient quantum communication and computation. I also could possibly visit Henry Yuen at the University of Toronto, Frederic Magniez and Iordanis Kerenidis at IRIF, CNRS and Universite Paris-Diderot, and Rahul Jain and Miklos Santha at CQT (The Centre for Quantum Technologies, National University of Singapore).
Ng, Flora, Chemical Engineering, August 1, 2019 to July 31, 2020 at 100% salary
I will carry out research and technology transfer on energy efficient processes for the production of clean fuels. I plan to be a visiting professor at the Chinese Academy of Sciences, the East China University of Science and Technology, and the University of Petroleum. I will give invited lectures at various universities and research institutions in China and Japan.

Nilsen, Elizabeth, Psychology, January 1, 2019 to June 30, 2019 at 100% salary
I will write up the results of my SSHRC-funded research in children’s communicative perspective-taking and cognitive skills and will develop and foster collaborations with researchers at the University of Calgary (S. Graham), the University of Auckland (A. Henderson) and the University of Manitoba (M. Glenwright).

Pawliszyn, Janusz, Chemistry, September 1, 2019 to August 31, 2020 at 100% salary
I plan to expand the application of Solid Phase Microextraction in the medical field by designing appropriate devices suitable for personalized medicine.

Ptacek, Carol, Earth and Environmental Sciences, January 1, 2019 to June 30, 2019 at 85% salary
I will expand my research activities on the fate and remediation of toxic substances in the environment, prepare manuscripts for publication and upgrade skills related to environmental geochemistry and hydrogeology. I plan to collaborate with colleagues at external universities in North America and Asia.

Quilley, Stephen, Environment, Resources and Sustainability, July 1, 2019 to June 30, 2020 at 91.9% salary
I will work on traditional music and dance as a foundation for more sustainable and resilient communities through: 1) social capital formation; 2) patterns of mutual identification and local affiliation; 3) more place-bound forms of economy and place-marketing; and 4) the oral transmission of craft skills. Interviews and videography in Eastern Canada, Northumberland (UK) and Ireland (counties Galway, Clare and Limerick).

Ramahi, Omar, Electrical and Computer Engineering, January 1, 2019 to December 31, 2019 at 93.3% salary
I will focus extensively on two major research thrusts currently pursued in my research group. The first is electromagnetic energy harvesting in the infrared frequency regime and the second thrust is breast cancer detection and imaging using microwaves and artificial intelligence. Collaboration with international institutions will be pursued to address the multi-disciplinary aspects and complexity of these research areas.

Rus, Horatiu, Economics and Political Science, January 1, 2019 to June 30, 2019 at 100% salary
I plan to finalize, revise, and submit three papers with local co-authors related to ongoing projects dealing with climate change adaptation, innovation and water policy. I will explore a new research direction and will also continue to advise two PhD students as a committee member. Occasional conference or short time research travel are to be determined.

Rybczynski, Kathleen, Economics, January 1, 2019 to December 31, 2019 at 90.6% salary
I plan to 1) complete revisions on two current working papers; 2) advance my research on inequality and human trafficking; 3) develop a new line of research on minimum wage (investigating the impact on labour market outcomes beyond simple employment ratios); and 4) explore three potential projects, joint with co-authors, which focus on women’s income and life-course experiences.

Rynnimeri, Valerio, Architecture, January 1, 2019 to December 31, 2019 at 100% salary
I will complete my book (work in progress) on the founding of Don Mills, Ontario, Canada’s first master-planned suburban community on Toronto’s periphery and designed and built for the baby boom generation after World War 2.

Sachdev, Manoj, Electrical and Computer Engineering, March 1, 2019 to August 31, 2019 and January 1, 2020 to June 30, 2020 at 100% salary
I intend to work on new types of circuits and devices for emerging technologies such as Magnetic Tunnel Junction Memories and Physically Unclonable Functions for cyber-security applications.

Sanita, Laura, Combinatorics and Optimization, March 1, 2019 to February 29, 2020 at 94.7% salary
My research activity focuses on algorithms and optimization problems originating from the areas of theoretical computer science and applied mathematics. I plan to 1) develop new algorithmic results for network design problems – a hot topic in theoretical computer science, and 2) provide new bounds for diameter of polytopes – a central research area in discrete mathematics.

Sbardellati, John, History, January 1, 2019 to June 30, 2019 at 85% salary
I will conduct research for my project “A Double-Edged Sword: Confronting the Colour Line in American Cold War Culture”. This project received a four year SSHRC Insight Grant in 2017. Principal research will take place in New York City and Washington, D.C.

Scott, Matthew, Applied Mathematics, January 1, 2019 to December 31, 2019 at 85% salary
I will visit the University of Edinburgh to use their excellent experimental facilities to study the interplay between bacterial physiology, DNA repair, and mutation rate (with Meriem el Karoui).

Simakov, David, Chemical Engineering, July 1, 2019 to December 31, 2019 at 100% salary
My activities will include 1) publications of manuscripts; 2) development of proposals for NSERC CRD and OCE VIP; 3) attending the AIChE Annual meeting in Orlando; and 4) giving invited talks at Polytechnique Montreal and Technion (Israel). My area of research is heterogeneous catalysis and reactor design applied to CO₂ conversion into synthetic renewable fuels.

Smyth, Heather, English Language and Literature, January 1, 2019 to June 30, 2019 at 85% salary
I will 1) complete a book manuscript (Coalition and Canadian Literature); 2) prepare publications and reports for “The 24 Hour Drop-In at Sistering” research project; 3) work on a new research area (Community Based Research) with SSHRC IDG application.

Waite, Michael, Applied Mathematics, January 1, 2019 to June 30, 2019 at 100% salary
I will continue my research on turbulence in the atmosphere, which uses both idealized and comprehensive numerical simulations to investigate the physics of stratified turbulence and its influence on atmospheric mixing, dissipation, and predictability. I plan to visit collaborators at the National Center for Atmospheric Research.

Wood, Joanne, Psychology, January 1, 2019 to June 30, 2019 at 85% salary
I will concentrate on three research programs involving two personality traits: agreeableness and self-esteem, and their effects on romantic relationships. I will examine the roles of agreeableness and self-esteem in predicting: 1) negative self-disclosures (e.g. complaining, expressing unpleasant emotions); 2) negative reciprocity - escalating cycles of anger and hostility between partners; and 3) overall romantic relationship quality. I will work with my graduate students to analyze the large amount of data we have collected on these topics, write articles based on this work to submit for publication, and design new data collection for these projects.

Zhu, Mu, Statistics and Actuarial Science, March 1, 2019 to August 31, 2019 at 100% salary
I will advance my NSERC funded research on “Networks: estimation in protein molecules, modeling of transactional data, and application to ensemble learning”, to finish off some outstanding manuscripts and to explore some new directions.

**Zhuang, Weihua**, Electrical and Computer Engineering, July 1, 2019 to December 31, 2019 at 100% salary

I will spend most of the time on campus working on various research projects and supervising graduate students. I plan to initiate new research directions in information security and artificial intelligence for wireless communication networks. In addition, I will make short visits to universities and research institutes in United States, Japan, and China for research collaboration in wireless communication networks.

**Sabbatical Change**

- **Fowler, Michael**, Department of Chemical Engineering, July 1, 2016 to December 31, 2016 and July 1, 2018 to December 31, 2018 changed to July 1, 2016 to December 31, 2016 at 85% salary.

- **McMahon, Terrance**, Department of Chemistry, September 1, 2017 to August 31, 2019 changed to September 1, 2017 to August 31, 2018 at 100% salary.

**Administrative Leaves**

- **Hare, Kathryn**, Pure Mathematics, March 1, 2019 to June 30, 2019 at 100% 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.

**Administrative Leave Cancellation**

- **McMahon, Terrance**, Chemistry, September 1, 2019 to December 31, 2019 at 100% has been cancelled.

- **Servos, Mark**, Biology, January 1, 2019 to April 30, 2019 at 100% salary has been cancelled.

**FOR INFORMATION**

2. **Administrative Appointments**

- **Douglas, Peter**, re-appointment as Associate Dean, Undergraduate Studies, Faculty of Engineering, July 1, 2018 to June 30, 2020.

- **Edwards, David**, re-appointment as Director, School of Pharmacy and Associate Dean of Pharmacy, Faculty of Science, January 1, 2019 to December 31, 2020.

- **Fortin, Steve**, appointment as Director, School of Accounting and Finance, Faculty of Arts, September 1, 2018 to August 31, 2022.

- **He, Qi-Ming**, appointment as Chair, Department of Management Sciences, Faculty of Engineering, September 1, 2018 to August 31, 2022.
Hellinga, Bruce, re-appointment as Associate Dean, Graduate Studies, Faculty of Engineering, July 1, 2018 to August 31, 2018 and October 1, 2018 to July 31, 2019.

Hulan, Shelley, appointment as Chair, Department of English Language and Literature, Faculty of Arts, July 1, 2018 to June 30, 2022.

McWebb, Christine, appointment as Director, Stratford School of Interaction Design and Business, Faculty of Arts, July 1, 2018 to December 31, 2018.

Moffatt, Barbara, re-appointment as Associate Dean, Student Relations, Faculty of Science, September 1, 2018 to August 31, 2021.

Müller, Kirsten, appointment as Assistant Vice-President, Graduate Studies and Postdoctoral Affairs, November 1, 2018 to December 31, 2020.

Seljak, David, appointment as Chair, Religious Studies, Faculty of Arts, July 1, 2018 to June 30, 2022.

Spafford, Marlee, re-appointment as Associate Dean, Undergraduate Studies, Faculty of Science, April 1, 2019 to March 31, 2022.

Tan, Zhongchao, appointment as Associate Dean, International, Faculty of Engineering, January 1, 2019 to December 31, 2021.

Tang, Xiao-Wu (Shirley), appointment as Associate Dean, Research, Faculty of Science, September 1, 2018 to August 31, 2021.

Wettig, Shawn, appointment as Associate Dean, Graduate Studies, Faculty of Science, October 1, 2018 to September 30, 2021.

Administrative Appointment Change

Barnett, James, appointment as Interim Director, School of Accounting and Finance, Faculty of Arts, April 1, 2017 to June 30, 2018, changed to April 1, 2017 to August 31, 2018.

Duncker, Bernard, appointment as Associate Dean, Research, Faculty of Science, January 1, 2016 to December 31, 2018, changed to January 1, 2016 to August 31, 2018.

Esselment, Anna, appointment as Interim Chair, Political Science, Faculty of Arts, July 1, 2017 to August 31, 2018, changed to July 1, 2017 to August 31, 2019.

Fenn, Mavis, appointment as Chair, Religious Studies, Faculty of Arts, July 1, 2017 to June 30, 2021, changed to July 1, 2017 to June 30, 2018.

Lawson, Kate, appointment as Chair, English Language and Literature, Faculty of Arts, July 1, 2015 to June 30, 2019, changed to July 1, 2015 to June 30, 2018.

MacLeod, Colin, appointment as Chair, Psychology, Faculty of Arts, July 1, 2016 to June 30, 2018, changed to July 1, 2016 to June 30, 2019.

Müller, Kirsten, appointment as Associate Dean, Graduate Studies, Faculty of Science, September 1, 2018 to August 31, 2021 changed to September 1, 2018 to October 31, 2018.
Ravenhill, John, appointment as Chair, Political Science, Faculty of Arts, September 1, 2018 to August 31, 2022, changed to September 1, 2019 to August 31, 2022.

Feridun Hamdullahpur
President
FOR INFORMATION

Recognition and Commendation

The Ubiquitous Health Technology Lab (UbiLab), headed by School of Public Health and Heath Systems professor Plinio Morita, was one of three $25,000 winners in a national competition aimed at generating new methods to collect and use data in public health monitoring. UbiLab’s entry, “Smart Home Tech for Public Health Surveillance,” will enable 24-hour data collection by leveraging information from more than 10,000 smart thermostats to help the Public Health Agency of Canada gain real-time insights into health behaviours such as physical activity, sedentary activity, and sleep. The Healthy Behaviour Data Challenge is a partnership between the MaRS Discovery District, the Public Health Agency of Canada and the Canadian Institutes of Health Research. It was launched one year ago, with more than 30 research teams and companies applying. MaRS and its partners are now working with the winning teams on their prototypes.

(adapted from the Daily Bulletin, 24 May 2018)

Former Vice-President, Academic & Provost George Dixon announced the winners of the 2017 Outstanding Performance Award earlier this year in June. The University of Waterloo established an Outstanding Performance Fund to reward faculty members for outstanding contributions in teaching and scholarship. The award came into effect in May 2005 in accordance with the 2003 Faculty Salary Settlement. The 2017 winners are:

Applied Health Sciences: Lisbeth Berbary; Mark Ferro; Shannon Majowicz; Joe Quadrilatero; Paul Stolee; Chris Vigna

Arts: Greg Andres; Joel Blit; Mathieu Doucet; Valerie Cecile Dusaillant-Fernandes; Riemer Faber; Jonathan Fugelsang; Nicolas Gauthier; Jasmin Habib; Dorothy Hadfield; Kathryn Henne; Suzan Ilean; Ronald Kroecker; Colin MacLeod; Aimée Morrison; Lennart Nacke; Elizabeth Nilsen; Evan Risko; Pamela Seeds; Mikal Skuterud; Imre Szeman; Bojana Videkanic; Linda Warley; Sarah Wilkins-Laflamme

Engineering: Hossein Abouee Mehrizi; Rania Al-Hammoud; Anne Bordeleau; Slim Boumaiza; Wayne Chang; David Clausi; Ramadan El Shatshat; Ehab El-Saadany; Paul Fieguth; Kamyar Ghavam; Maud Gorbet; Jason Grove; Anwarul Hasan; Carol Hulls; Yuning Li; William Melek; Mary Robinson; Xuemin Shen; Michael K.C. Tam; Neil Thomson; Robert Van Pelt; Alexander Wong; Serhiy Yarusevych

Environment: Jennifer Clapp; Goretty Dias; Robert Gibson; Heather Mary Hall; Leia Minaker; Prateep Nayak; Jonathan Price

Mathematics: Ilham Akhundov; Jason Bell; Lori Case; Robin Cohen; Kenneth Davidson; James Geelen; Mark Giesbrecht; Ian Goldberg; Ihab Ilyas Kalda; Srinivasan Keshav; Pengfei Li; Anna Lubiw; Eduardo Martin-Martinez; Zoran Miskovic; John-Paul Petti; Gregory Rice; Ken Seng Tan; Levent Tunçel

Science: Michael Balogh; Kristine Dalton; Vivian Dayeh; Andrew Charles Doxey; Richard Epp; Kelly Grindrod; Roland Hall; David Hawthorn; John Honek; Linda Nazar; Carol Ptacek; Andre Stanberry; Scott Taylor; Philippe Van Cappellen; Shawn Wettig

(adapted from the Daily Bulletin, 1 June 2018)
The Canadian Association for Graduate Studies (CAGS) announced that University of Waterloo’s Gregory Lui is the national **Three Minute Thesis (3MT) competition People’s Choice award winner**, as well as the second place winner overall in this year’s national 3MT. Lui is a PhD candidate in the Department of Chemical Engineering. His research involves the synthesis of nanomaterials that can be used in multi-functional, photo electrochemical systems, including photocatalytic wastewater treatment, energy production in photo electrochemical cells, and photo-assisted energy storage. The Three Minute Thesis (3MT) competition at the University of Waterloo is the largest in Canada. The competition cultivates University of Waterloo graduate students’ presentation and communication skills, and provides them with invaluable networking opportunities. Winners also have the potential to win thousands of dollars in prizes.

(adapted from the *Daily Bulletin*, 6 June 2018)

Associate Vice-President, Government Relations Rob Esselment was honoured by his peers at a reception on Wednesday 30 May 2018. Esselment was awarded the **Gillian A. Wood Award** at the opening reception of the annual Government Relations Officers conference. Former Vice-President, Academic & Provost George Dixon was on hand at the reception, held at the Art Gallery of Guelph, and gave remarks. The award was established in 2012 by the Government Relations Officer Network for Canadian Universities (GRO Network) to honour the commitment of Gillian A. Wood, assistant vice-president government relations at Dalhousie University, a founding member and stalwart supporter of the GRO Network. Award recipients must, in the opinion of the GRO Executive Committee, have furthered the standing of the university government relations profession in Canada. The award is presented annually at the yearly gathering of the GRO Network, an association of higher education government relations officers from universities across Canada. “Congratulations Rob, on being recognized by your colleagues and peers from across Canada, for your leadership and contribution to public affairs in the university sector,” wrote Vice-President, University Relations Sandra Banks in a memo circulated to University Relations staff.

(adapted from the *Daily Bulletin*, 7 June 2018)

PhD student Michael Abebe is one of six recipients worldwide and the only recipient from Canada to receive a prestigious 2018 **Facebook Emerging Scholar Award**. Launched in 2017, Facebook’s Emerging Scholar Awards support talented students from under-represented groups in the technology sector to encourage them to continue their PhD studies, pursue innovative research, and engage with the broader research community. “This year we received over 800 applications from promising and talented PhD students from around the world,” said Sharon Ayalde, Fellowship Program Manager at Facebook. “We are pleased and excited to award 17 Fellows and six Emerging Scholars — a significant increase from last year.” Supervised by Khuzaima Daudjee, Abebe is a member of the David R. Cheriton School of Computer Science’s Data Systems Group. His research interests are at the intersection of distributed systems, data systems and machine learning, specifically designing and building large-scale data systems that are elastic, scalable and self-managing. “I’m delighted to see Facebook recognize Michael’s contributions to distributed data systems and for the organization to support his research and studies through this significant award,” said Khuzaima Daudjee. In addition to receiving a 2018 Facebook Emerging Scholar Award, Abebe is currently supported by an NSERC Alexander Graham Bell Canada Graduate Scholarship.

(adapted from the *Daily Bulletin*, 21 June 2018)

Phoebe Stephens has been named one of Canada’s **Pierre Elliott Trudeau Foundation** scholars for her project investigating the need for sustainable food systems. “Increasingly we are seeing food being treated as a financial product, vulnerable to stock market volatility. This is dangerous for something everyone needs to survive,” said Stephens. “On top of this, the financialization of the food system tends to favour an industrial model of production.” Stephens is as a PhD candidate in social and ecological sustainability in the School of Environment, Sustainability and Resources at the University of Waterloo. She is also a researcher for Sustain Ontario’s Food Enterprise Network, a member of the Waterloo Food Interest Group, and co-founder of Natural Interest, a consultancy geared towards supporting the growth of social finance in Ontario’s food sector. “I am honoured to be given this amazing opportunity to study a topic of great importance by the Pierre Elliott Trudeau Foundation,” said Stephens. “Deepening our understanding of the viability of impact investing as a means of promoting food system sustainability will contribute to the advancement of knowledge necessary to build a more sustainable...
future for Canada. My research is poised to make both theoretical and practical contributions.”
(adapted from the Daily Bulletin, 25 June 2018)

University of Waterloo Library's digital archivist, Danielle Robichaud, has received the James J. Talman Award, named in honour of the second Archivist of Ontario. Given by the Archives Association of Ontario (AAO), the award is presented when an individual “has demonstrated an outstanding level of imagination and innovation in contributing to the profession, his/her institution, or the archival community, or who has pioneered any aspect of archival work.” Danielle was chosen largely for her work in implementing Calls to Action from the Truth and Reconciliation Committee (TRC), through increasing Indigenous representation on Wikipedia by: improving existing articles (with more than 4,250 edits to her credit), training archivists on editing Wikipedia, and leading Wikipedia edit-a-thons. Danielle has helped organize multiple edit-a-thons at Waterloo and local public libraries, giving staff, students and community members the skills and empowerment to improve the representation of Indigenous peoples and women on the popular crowd-sourced site. After Danielle contributed 434 edits to the Wikipedia page on the Canadian Indian Residential School System, it was designated a Featured Article by Wikipedia’s editors, placing it among the best Wikipedia has to offer. Danielle also created a webpage for the AAO, giving archivists the tools they need to help implement the Calls to Action in working Towards Truth and Reconciliation.
(adapted from the Daily Bulletin, 9 July 2018)

On Thursday 28 June 2018, the Government of Italy announced the appointment of Michele Mosca as a Knight of the Order of Merit for his significant contributions in quantum computing and cybersecurity, including research, training, outreach, and commercialization efforts. Giuseppe Pastorelli, Consul General of Italy in Toronto, who conferred the Knighthood, explained, “President Mattarella was deeply impressed by his thought leadership in cybersecurity and quantum computing and the strong connection to his Italian heritage which was apparent from their discussion. I was delighted to learn of his decision to appoint Professor Mosca to the Order of Merit of the Italian Republic.” His contributions to the theory and practice of quantum information processing include the first experimental implementation of a quantum algorithm, techniques for studying the limitations of quantum computers, quantum self-testing, private quantum channels, and methods for compiling quantum circuits. Beyond research, Mosca has contributed to outreach and training programs including the ETSI-IQC workshop series in quantum-safe cryptography and CryptoWorks21, a training program for building the quantum-safe cryptography workforce and supported by RBC. He is also a co-founder of evolutionQ Inc., a company that provides services and products that enable organizations to evolve their quantum-vulnerable systems and practices to quantum-safe ones, and softwareQ Inc., a company that offers quantum software products and services to enable organizations to benefit from quantum computing. “I am honoured and humbled to be recognized with this distinction,” said Mosca. “I am grateful for the support of many colleagues and friends in together developing this tremendous opportunity to use quantum computers to solve important problems for humanity, and at the same time better protect the world from powerful cyber attacks of the future”.
(adapted from the Daily Bulletin, 11 July 2018)

Waterloo Engineering professors and graduates were inducted into the Canadian Academy of Engineering (CAE) on 18 June 2018. The new fellows include faculty members Fakhri Karray, electrical and computer engineering, Susan Tighe, civil and environmental engineering, John Yeow, systems design engineering, and adjunct professor Mary Wells, mechanical and mechatronics engineering. Also inducted were Waterloo Engineering alumni Catherine Booth (BASc ‘88, SD, MASc ’90, ManSci), Jim Estill (BASc ’80, SD), Fraser Forbes (BASc ‘82, MASc ‘84 Chem), Dianne Freeman (BASc, ’92, Civil), Josephine Hill (BASc ‘91, Masc ’92, Chem) and David Ross (BASc ’91, Comp). CAE President Eddy Isaacs inducted a total of 57 new Fellows and two new International Fellows into the academy during its annual general meeting and symposium held in Calgary. “The new fellows are engineers of outstanding abilities and of widely varying backgrounds, from industry and academe and government,” said Isaacs during the ceremony. “What they all have in common is the demonstrated desire and ability to go beyond the normal practice of engineering and contribute in exemplary ways towards their fields and to their communities.” Founded in 1987, the CAE is the national institution through which Canada’s most distinguished and experienced engineers provide strategic advice on matters of critical importance to Canada. (adapted from the Daily Bulletin, 13 July 2018)
The Canadian Network of Asset Managers (CNAM) gave two Waterloo researchers awards at their recent 2018 CNAM Conference. Mark Knight, the executive director of the Centre for the Advancement of Trenchless Technologies (CATT), received the 2018 CNAM Pioneer Award. This award honours individuals who have played an integral role in advancing the asset management industry in Canada and celebrates their long-term commitment and unwavering dedication to the asset management industry. Professor Knight accepted the award on behalf of his fellow researchers colleagues (Andre Unger in the Department of Earth Sciences, Carl Haas in the Department of Civil and Environmental Engineering, Neil Brisley in the School of Accounting and Finance, and Rizwan Younis at CATT), PhD and master’s graduate students at the University of Waterloo, and industry partners (City of Waterloo, City of London, Region of Waterloo, City of Niagara Falls, and City of Cambridge). Over the past ten years, Knight and the team have been working with industry partners to develop innovative water asset management tools that allow water utilities to develop long-term sustainable financial plans and to use existing utility data to determine inflation rates in water projects.

In addition, Civil and Environmental Engineering PhD candidate Hamed Mohammad Fardi was given the 1st place award for the 2018 CNAM Student Research Symposium. Hamed’s presentation focused on Sustainability Assessment of Asset Management Plans of Wastewater Collection Network Systems. His research supervisors are Professor Mark Knight in the Department of Civil and Environmental Engineering and Professor Andre Unger in the Department of Earth Sciences. Hamed’s research is focused on implementing sustainability assessment to the Systems Dynamic model developed by his supervisors. He has successfully developed a novel decision-making tool to coordinate asset management plans of linear and non-linear water and wastewater infrastructures at the strategic level. His research shows that the high cost of building and operating of wastewater treatment plants can be reduced if the utility implements cost saving pipeline renovation programs that will reduce inflow and infiltration into the pipe networks.

(adapted from the Daily Bulletin, 19 July 2018)

James Skidmore, a faculty member in Germanic and Slavic Studies and director of the Waterloo Centre for German Studies, received a national award for innovative teaching, the Innovate German Award, at the 2018 Congress of the Humanities and Social Sciences. The German Academic Exchange Service (DAAD) and the Canadian Association of University Teachers of German sponsor the award. It recognizes new courses, curriculum and program development, and the implementation of new approaches to teaching and learning. Skidmore was honoured for GER 271 (German Thought and Culture - Objects). The jury recognized this online course for its “truly interdisciplinary and innovative” methodologies that contextualize student learning within larger frameworks, such as material culture and engaged learning. “(His) expertise in structuring this authentic inquiry with an online platform, readings, and meaningful assignments that draw attention to the students’ commitment to their own performance and curiosity for the world is exemplary.” GER 271 is one of a suite of three online courses Skidmore authored that use a modular approach in their course design. Unlike most online courses that require significant budget resources whenever content needs updating, modules in these courses can be added or deleted from term to term, ensuring that the courses won’t require significant investment to remain current. The Department of Germanic and Slavic Studies has been heavily involved in online course design and delivery for well over a decade.

(adopted from the Daily Bulletin, 24 July 2018)

SheLeads, a software company that enables female-focused organizations to better assess their programs, was one of the big winners at the 22nd staging of the Velocity Fund Finals (VFF). Velocity, which celebrated its 10-year anniversary on 28 September 2018, is a comprehensive entrepreneurship program at Waterloo providing the resources and mentorship to help founders initiate and incubate high-growth startups. SheLeads helps non-for-profit organizations geared towards assisting females 18 and under to assess their programs to fund initiatives, evaluate efforts, and influence policy changes. The all-female company was founded by Cassandra Myers, who last year graduated from the University of Waterloo with an undergraduate degree in Peace and Conflict Studies and is an alumna of the Greenhouse entrepreneurship program. “Organizations that work with young females and all non-for profits, in general, are just like real businesses; they do have the same problems,” Myers said. “They have a lot of money flowing through them, but they don’t have a lot of solutions that apply to some of the unique problems that they’re facing. So, our overall mission is to provide new and innovative solutions for the not-for
profit space.” During the competition, 10 companies pitched their businesses to a panel of judges representing the investment, startup and business communities. Judges considered innovation, market potential, market viability and overall pitch.

**Micromensio**, which is developing a platform technology for low-cost, disposable, wireless biosensor microchips for bacterial identification, was among the other three grand-prize winners of $25,000. Micromensio also copped the top hardware company prize, worth $10,000.

All four winning VFF$25K startups took home an extra $5K in intellectual property services from local firm, PCK | Perry + Currier. They will also be admitted to the Velocity Garage startup incubator. The other two grand-prize winners of $25,000 were:

- **Hodlbot** - puts your cryptocurrency investing on autopilot. Users can create, share, discover and execute any portfolio strategy on its platform.
- **HITCH** - is a locally relevant education platform designed for African schools

(adapted from the *Daily Bulletin*, 26 July 2018)

**Colin MacLeod**, chair of Psychology, received the highest honour from the Canadian Psychological Association with the presentation of its **Gold Medal Award for Distinguished Lifetime Contributions to Canadian Psychology**. The award celebrates outstanding Canadian psychologists who have dedicated their careers to advancing the field nationally and globally. He also holds the Donald O. Hebb Distinguished Contribution Award from the Canadian Society for Brain, Behaviour, and Cognitive Science, and the Donald O. Hebb Award for Distinguished Contributions to Psychology as a Science from the Canadian Psychological Association. In 2016, MacLeod was elected as a Fellow of the Royal Society of Canada.

(adapted from the *Faculty of Arts News*, 28 July 2018)

Three faculty members have been awarded the **2018 Faculty of Mathematics Golden Jubilee Research Excellence Award**. **Jason Bell**, **Luke Postle**, and **Daniel Vogel** are each awarded $2,500. This honour is conferred to early or mid-career faculty members who have made outstanding research contributions, was established in 2017 to mark the 50th anniversary of the Faculty of Mathematics. The award is based on the quality of a candidate’s research over the past five years or for an influential paper published within the past five years as assessed through its quality and impact. Bell, a professor in Pure Mathematics, has published about a wide range of mathematics including algebra, combinatorics, number theory and dynamics, with 15 papers in 2017. His most recent work is a joint project on the growth of algebras with Efim Zelmanov, a Fields Medal winner. A member of the Department of Combinatorics and Optimization, Postle's research in structural graph theory, has earned him a strong international reputation through his use of a very broad and innovative range of tools to solve old and deep problems in combinatorics. Postle has made significant contributions to important and long-standing open problems in graph colouring. An associate professor with the David R. Cheriton School of Computer Science, Vogel’s research focuses on human-computer interaction in combination with computer graphics and visual art to develop better experiences for people using computers. Vogel is a member of the Human-Computer Interaction Research Group.

(adapted from the *Daily Bulletin*, 7 August 2018)

Human Rights, Equity and Inclusion has announced the **2018 Gender Equity Research Grant** recipients. The grant winners are as follows:

- **Hilary Bergsieker**: Gender stereotyping by romantic partners constrains women's career, relationship, and mental health outcomes;
- **Karla Boluk**: Back to work: Exploring the experiences of pre-tenured women negotiating the transition to and from maternity leave;
• Sherilyn Houle: Gender, wage, and geography: Exploring co-op placement gender wage gaps and geographic placement gaps in health-related programs at University of Waterloo;
• Corey Johnson: Creating and improving Trans Affirming Health Resources in the Waterloo Region;
• John Mielke: How might gender, work strain, and perceived social support interact to affect the way that stress 'gets under the skin' of professors at the University of Waterloo
• Bessma Momani: Assessing gender equity in senior administration at UW;
• Sean Peterson: What attracts and retains girls and women in science, technology, engineering, and math (STEM)? Identifying success in a national entrepreneurial program;
• Andrea Quinlan: Barriers to Gender Equity: Teaching Evaluations and the Career Trajectories of Marginalized Academic Women; and
• Nancy Worth: Counting ourselves in: media engagement and pre-tenure women.

These grants were established in 2016 as part of the HeForShe IMPACT 10x10x10 initiative. Individual grants of up to $10,000 are funded to support research that investigates and addresses gender equity with preference given to projects that advance Waterloo’s three IMPACT 10x10x10 commitments or of demonstrated relevance to the University.

(adapted from the Daily Bulletin, 9 August 2018)

Ten researchers from the University of Waterloo received more than $15.6 million from the Natural Sciences and Engineering Research Council of Canada (NSERC) to fund two networks and eight projects that will further research efforts through academic and industry collaborations. The Honourable Kirsty Duncan, Minister of Science and Sport, announced the Strategic Partnerships Grants at Promation in Oakville, Ontario, one of the industry partners Waterloo is currently working with to further additive manufacturing. These grants help bring together expertise from academia, Canadian-based companies, government institutions, and international entities to collaborate on innovative research with commercialization potential. With these grants, two networks have been funded to explore timely research: Ehsan Toyserkani’s “Network for Holistic Innovation in Additive Manufacturing” (mechanical and mechatronics engineering), and Monica Emelko’s “Network for Forested Drinking Water Source Protection Technologies” (civil and environmental engineering). Professor Toyserkani’s network is quite promising as it is the first national academic additive manufacturing (AM) initiative in Canada. Professor Emelko is leading the “forWater” network in identifying new source water protection technologies for climate change adaptation.

(adapted from the Waterloo Stories, 10 August 2018)

The four students are winners of Schulich Leader Scholarships, the largest scholarships for science, technology, engineering and mathematics (STEM) programs in Canada, each between $80,000 and $100,000. The incoming Schulich Leaders distinguished themselves with high grades, leadership roles in their communities, and participation in entrepreneurial ventures.

Read more about the four University of Waterloo winners below:

David Gu launched a startup called LearnVR that helps beginner programmers learn about Virtual and Augmented reality. Gu also created a smartphone-based augmented reality platform to help train health professionals. He has spoken at conferences about his products and has won hackathons. He created a virtual reality software platform to improve exercise for seniors, winning a Grand Prize at the MIT Reality Virtually Hackathon. At high school, Gu started two clubs, became the first student at his school to take four Higher Level IB courses concurrently and wrote programs to help visualize molecular structures and practise second languages online — all while maintaining a 98 per cent average. He achieved the highest graduating average in his year, and received the Governor General’s Academic Medal. When asked about future career prospects, Gu responded: “I am passionate about innovation and changing the world with technology. With the help of the Schulich Leader Scholarship, I can bring my entrepreneurship to next level. My goal for my future career is to solve the world's most pressing problems with technology and innovation.”
As a high school student, **Atif Mahmud** explored academic opportunities that most undergraduates don’t get to experience. Mahmud completed a full-time undergraduate level research assistantship, and also collaborated with members of multiple faculties on his own personal projects. He is CEO and lead developer for Flowi, a startup based in Waterloo that is an advertising solution for businesses located in dense city centres. It allows local businesses to send push notifications for deals from nearby stores if the user is connected to the free Wi-Fi network. Mahmud also developed a machine learning model to predict harmful algal blooms in fresh and saltwater ecosystems. This project, called NeurAlgae, has been recognized by the Canada-Wide Science Fair and is currently being considered for adoption in national waters through cooperation with the National Oceanic and Atmospheric Administration. When asked how he balances all of these many responsibilities, he responded “For me, balance comes down to finding enjoyment in everything you do, I try to be an optimist and focus on intrinsic metrics for my own success. That way I can always gauge how I’m doing without focusing on what other people think. In terms of specific strategies, I have one that I live by: don’t multitask. Focusing my energy into only one thing at a time has done wonders for my mental health and helped me find balance in my everyday life.”

**Robin Wen** immigrated to Saskatchewan in 2016, and describes his initial English language abilities as “far from being proficient for regular academic purposes.” He worked hard to improve those skills, and eventually became the first student to be accepted into the SAGE program in grade 12 at his school; a program focused on advanced-level topics in English and the Humanities. On top of vastly improving his English skills, Wen also displayed his mastery of the AP curriculums of his STEM courses. He achieved the highest score on his calculus, chemistry, statistics, and two physics AP exams nationally. He was the National Champion for the 2017 Fermat Contest, ran by Waterloo’s own Centre for Education in Mathematics and Computing. In addition to this contest, Wen has also qualified for the Canadian Mathematical Olympiad in both 2017 and 2018. When asked what he wants to do after his undergrad, Wen said “It is my current aim to become a physics professor, but I am also open-minded about other various options. Besides physics and math, I take interest in a great variety of fields and subjects, so I would love to explore my potential during my five-year undergraduate study.”

On top of maintaining an excellent average in high school, **Advait Maybhate** practised karate to improve his physical fitness, and placed 3rd in the Kitchener-Waterloo Meibukan Karate Tournament in 2016. Outside of school, Maybhate created an algorithm to identify DNA sequence motifs, which detected known motifs 10 times faster than the standard approach. This project won him a silver medal and the Statistics Society of Canada Award at the Canada-Wide Science Fair. He also participated in hackathons, and won the “Best Use of CockroachDB” award for creating SumNotes, a program that automatically summarizes lectures based on speech-to-text technology. When asked how he became passionate about computer science, Maybhate said: “In Grade 4, one of my classmates used Scratch, a block-based modular graphical programming language, to create an animated presentation. This event inspired me to play with Scratch and create my very own jetpack platformer game. Later on, in Grade 6, I registered for the University of Waterloo’s online CS Circles course, which was a great introduction to Python as a programming language. Nothing is impossible in the world of computer science. You can make people fly or create evil, pink and fluffy unicorns that rule the world.” (adapted from the *Waterloo Stories*, 22 August 2018)

The Office of the Associate Vice President, Academic and the Centre for Teaching Excellence announced the recipients of this term’s **Learning Innovation and Teaching Enhancement (LITE) Seed Grants**. Since 2012, 80 LITE Seed Grants of up to $5,000 have been awarded to instructors and staff investigating innovative approaches to enhancing teaching and fostering deep student learning at Waterloo. The funding of five new projects was announced:

- Changing bodies, changing minds: Utilizing speculative fiction to teach intersectional and Postcolonial theories, **Victoria Lamont** and **Meghan Riley** (English language and literature)
- Creating immersive assignments for deeper learning around diversity, multiculturalism, and social justice in leisure, **Corey Johnson** and **Luc Cousineau** (recreation and leisure Studies)
- Flexible assessment and metacognition in an entry-level statistics course, **Michael Wallace** and **Henry So** (statistics and actuarial science)
• Gamifying history: Designing and implementing a game-based learning course design framework, Kyle Scholz (Centre for Teaching Excellence) and Jolanta Komornicka (St. Jerome’s University)
• Life stories of older adults: Learning aging through research and reflection, Elena Neiterman and Christine Sheppard (School of Public Health and Health Systems)

(adapted from the Daily Bulletin, 28 August 2018)

A blog post, written by a visually impaired person about the challenges she faced trying to use the office’s new touch screen coffee maker was the inspiration behind a recent Waterloo Engineering Capstone Design project. WatVision took home top honours in the national leg at this year’s James Dyson Award for its clever, yet simple engineering principles. Developed by six mechatronics engineering students, WatVision is a system that reads out words or numbers on a device allowing visually impaired individuals to make a cup of java, select an elevator floor or perform other functions most people take for granted. WatVision includes an app as well as a ring that the user wears on a finger. By pointing a smart phone camera at a touch screen, the app reads out whatever word or number is underneath the individual’s finger. One of the main advantages of the ring design is that it costs less than $2 to produce. “We looked at creating braille readers at first, but decided that would be way too hard,” says Craig Loewen, a WatVision member. “When [a team member] read a blog post about an individual not being able to make coffee because she couldn’t use the touch screen, we all said that we could solve that problem.” In March, WatVision captured a GM Innovation Award as well as second place in the People’s Choice Award during TronCon, an annual mechatronics engineering event that connects alumni with current students. Team members Loewen, Jennifer Kim, Joseph Lundy, Lior Lustgarten, Elizabeth Morrow and Jake Rampertab graduated from Waterloo last spring and have all landed full-time jobs throughout North America. The team hopes to integrate images and colours into the next version of WatVision and for users to navigate the touch screen without wearing a ring. They will put the $3,000 James Dyson Award prize towards maintaining server access subscriptions and computing time. WatVision and the two national runners up will move onto the next stage of the James Dyson Award where a panel of Dyson engineers will select a shortlist of international projects later this month.

(adapted from the Daily Bulletin, 11 September 2018)

Four engineering researchers from the University of Waterloo were named fellows of the Royal Society of Canada (RSC) and members of the Royal Society of Canada’s College of New Scholars, Artists and Scientists. Waterloo’s Feridun Hamdullahpur, Zhou Wang, Carolyn Ren, and Alexander Wong are joining this prestigious national organization. The RSC recognizes remarkable contributions in the arts, humanities, and sciences, as well as Canadian public life. Hamdullahpur is named a Specially Elected Fellow, a designation that recognizes individuals who have made exceptionally valuable contributions to promoting the objectives of the RSC in ways that contribute significantly to Canadian society. Hamdullahpur is named for advancing equity in higher education including as a United Nations HeForShe Impact Champion and for his leading work with co-operative education and entrepreneurial programming.

Waterloo’s fellows are:

• Feridun Hamdullahpur (mechanical and mechatronics engineering), Specially Elected Fellow of the Royal Society of Canada: Hamdullahpur is an engineer, educator and leader with a career in research and higher education spanning more than 35 years. A professor of mechanical engineering, Hamdullahpur was named a Fellow of the Canadian Academy of Engineering in 2014 for impactful research in thermo-fluids and energy engineering. He served in various academic and administrative roles including vice-president, academic & provost at the University of Waterloo, and is currently Waterloo’s president and vice-chancellor. In acknowledgement of Hamdullahpur’s leadership in education and innovation, he was awarded the Queen Elizabeth II Diamond Jubilee Medal in January 2013.
• Zhou Wang (electrical and computer engineering), Fellow of the Royal Society of Canada: Wang is one of the world’s most cited authors in visual perception-based image quality assessment, processing and compression. His innovative work created a paradigm change in the imaging field and has been used for
video quality assurance throughout the global media delivery industry, directly affecting millions of viewers daily. He is a Fellow of Canadian Academy of Engineering and the Institute of Electrical and Electronics Engineers, and a recipient of NSERC Steacie Memorial Fellowship and Primetime Engineering Emmy Award. Wang was named to the RSC’s College of New Scholars, Artists and Scientists in 2015.

Waterloo’s members are of the College of New Scholars, Artists and Scientists:

- **Carolyn Ren** (mechanical and mechatronics engineering): Ren is internationally recognized for her seminal contributions to microfluidics and Lab-on-a-Chip research. Her physical and theoretical models, as well as her design and optimization tools, have greatly enhanced the understanding of transport phenomena and have enabled new, truly integrated Lab-on-a-Chip devices for high throughput screening applications. She is currently a Tier 2 Canada Research Chair in Droplet Microfluidics and Lab-on-a-Chip Technology and holds three patents. Already one of Canada’s foremost microfluidics researchers, Ren’s work promises broad and profound impacts for the global biomedical, pharmaceutical and environmental sectors.

- **Alexander Wong** (systems design engineering): Wong is a renowned scientist and engineer whose contributions to artificial intelligence, computer vision and biomedical engineering have had profound impacts on his field. His groundbreaking innovations include computational imaging systems and tissue-scanning techniques for cancer detection, coded hemodynamic imaging technology for blood flow monitoring, and important new concepts for operational artificial intelligence in areas such as explainable and scalable deep learning. He is a Tier 2 Canada Research Chair in Artificial Intelligence and Medical Imaging, is the recipient of numerous awards, and holds six patents and 26 patent applications in the area of artificial intelligence and imaging.

(adapted from the *Daily Bulletin*, 12 September 2018)

**Keith Hipel**, a longtime professor at Waterloo Engineering, was formally invested into the **Order of Canada** on 6 September 2018, one of the country’s highest honours. Hipel was made an officer of the Order, a rank that recognizes national service or achievement, by Governor General Julie Payette during a ceremony at Rideau Hall in Ottawa. A systems design engineering professor who earned three degrees at Waterloo as a student, Hipel was cited for developing “innovative decision models that have been used to design environmental strategies and address pollution conflicts worldwide.” His citation described Hipel as a “pre-eminent leader” in his field, and said his “interdisciplinary systems approach has been applied to such wide-ranging challenges as the management of water levels in the Great Lakes and sustainable energy development.” It also noted he has held numerous leadership posts with academic and professional institutions, including president of the Academy of Science of the Royal Society of Canada. Hipel holds the title of University Professor, the highest academic honour at Waterloo, and has won both the Distinguished Teacher Award and the Award of Excellence in Graduate Supervision.

(adapted from the *Daily Bulletin*, 13 September 2018)

The **Internationalization Fund** was established by the Provost to support innovative new projects that would infuse international, intercultural and/or global perspectives into the curriculum or co-curricular activities. The selected projects represent a mix of initiatives which address internationalization abroad, at home and within research collaborations. They include a focus on undergraduate and graduate students, issues related to both inbound international students and outbound travel by Waterloo students, and both curricular and co-curricular innovation. The recipients are:

- **Janice Aurini** and **Kate Henne**, sociology and legal studies, “Transnational Talks: Global Methodological Approaches to Research”
- **Karla Boluk** and **Elena Neiterman**, recreation and leisure studies, “Building Bridges across Borders: Virtually Aligning Courses between Institutional Partners (Kazakhstan)”
• **Colleen McMillan** and **Kofi Campbell**, Renison University College, School of Social Work, “Enhancing Student Experience: Domestic & International Student Integration”
• **Jessica Lang**, WatPD – EDGE, “International Experiential Education Toolkit for EDGE Instructors”
• **Ellen MacEachen**, public health and health studies, “Collaborative Online Graduate-level Course ‘International Perspectives on Equality in Work and Health’ (Sweden)”
• **Cherisse Mike**, Dean of Math Office, “Videos Addressing Cultural Stereotypes of Minority Groups on Campus”
• **Angela Rooke**, Graduate Studies & Postdoctoral Affairs, “Workshop Series on Professionalism for Graduate Students and Postdoctoral Fellows”
• **Linda Zhang**, Information Systems & Technology, “International Student Seminars to Promote Successful and Healthy Transition to Waterloo”

These projects will be implemented during the 2018-19 academic calendar with their outcomes and results summarized in final reports that will serve as resources and templates for institutional learning and potential future project iterations.
(adapted from the *Daily Bulletin*, 21 September 2018)

The University of Waterloo has awarded six first-year students with **HeForShe IMPACT scholarships** in the fields of science, technology, engineering or mathematics. The scholarships are part of the University’s commitment to encourage more young minds to pursue careers in STEM, an area where those who identify as women or non-binary groups are currently underrepresented. Waterloo is the only Canadian university taking part in the UN Women’s HeForShe IMPACT 10x10x10 initiative to achieve gender parity. This year’s recipients are:

• **Adrianna D’Sa**, chemistry
• **Isemi Ekundayo**, computer engineering
• **Lindsay Toffolo**, computer science
• **Megan Lai**, mechatronic engineering
• **Sally Zhou**, computer science
• **Sarah Moser**, mathematical physics

(adapted from *Waterloo Stories*, 25 September 2018)

University of Waterloo Professor **Donna Strickland** is one of three scientists to win this year's **Nobel Prize in Physics** for her work to develop short and intense laser pulses that have many industrial and medical applications. Strickland is the first woman to win the Nobel Prize in physics in 55 years, the first Canadian woman to do so, and the first University of Waterloo faculty member to win a Nobel Prize while affiliated with the University. Strickland shares the award with American Arthur Ashkin of Bell Laboratories and French physicist Gérard Mourou of École Polytechnique, Palaiseau, and the University of Michigan. Strickland and Mourou split one half of the prize share “for their method of generating high-intensity, ultra-short optical pulses,” according to the Nobel committee. “I got the Nobel Prize for my very first paper, and it was my PhD thesis,” says Strickland. “It was great to have had the opportunity to work with one of the pioneers of ultrafast lasers, Gérard Mourou. It was a small community back then. It was a new, burgeoning field. I got to be part of that. It was very exciting.” Strickland joined the University of Waterloo in 1997. She is a past winner of the Alfred P. Sloan Research Fellowship.
(adapted from the *Daily Bulletin*, 2 October 2018)

Eight research collaborations between the University of Waterloo and institutions around the world will receive $350,000 in funding to collaborate on projects ranging from quantum experiments and gravitational physics to living architecture. Funded by Waterloo (up to $20,000 per project based on equal cash contributions from partners), the projects will involve more than 75 researchers at Waterloo and colleagues in Korea, Singapore, Hong Kong, France, Austria, Germany, and the Netherlands. **International Research Partnerships Grants** are
internal seed grants meant to further Waterloo researchers’ global collaborations with leading research institutions. Since 2011, 134 projects have been funded totalling $1.9 million that garnered $2.9 million in matching cash contributions and subsequently generated over $18 million in new grants awarded to Waterloo researchers. These projects have also resulted in 58 new innovations, four patents and five startups. Newly funded collaborations include:

- **Philip Beesley** (School of Architecture) is partnering with Delft University of Technology to host a student workshop led by Professor Beesley at Delft’s Science Centre.
- **Catherine Burns** (Centre for Bioengineering and Biotechnology) is partnering with the Université de Technologie de Compiègne and Sorbonne University to further support the BIOMEDIInnov project, a summer school exchange program between the two universities in biomedical engineering.
- **Richard Culham** (engineering) is partnering with the National University of Singapore (NUS) and its Biomedical Institute for Global Health Research and Technology (BIHEART).
- **Pin-Han Ho** (electrical and computer engineering) is partnering with the Korea Advanced Institute of Science and Technology and Kyungpook National University.
- **Robert Lemieux** (science) is partnering with Hong Kong Polytechnic University to host a combined Biomedical Research and Innovation Partnership workshop.
- **Robert Mann** (physics and astronomy) is partnering with the University of Vienna to focus on developing novel experiments that test the quantum nature of gravitational force.
- **Sushanta Mitra** (Waterloo Institute for Nanotechnology) is partnering with the University of Duisburg-Essen to host a workshop at the Centre for Nanointegration University of Duisburg-Essen in Germany.
- **Adam Tsen** (chemistry) is partnering with Pohang University of Science and Technology, Korea, on wafer-scale 2d magnetic heterostructures for next-generation spintronic devices.

(adapted from the *Daily Bulletin*, 11 October 2018)
FOR APPROVAL

Incidental Fees

**Federation of Students Administered Fee**

It is recommended that the Federation of Students Administered Fee be increased to reflect an increase for the dental component effective January 2019 (winter term).

<table>
<thead>
<tr>
<th></th>
<th>Dental</th>
<th>Health</th>
<th>U-Pass</th>
<th>SRP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>$48.09</td>
<td>$55.00</td>
<td>$93.91</td>
<td>$1.00</td>
<td>$198.00</td>
</tr>
<tr>
<td>Co-op</td>
<td>$90.16</td>
<td>$103.13</td>
<td>$93.91</td>
<td>$1.00</td>
<td>$288.20</td>
</tr>
</tbody>
</table>

Comments:
- SRP = Student Refugee Program
- The Federation of Students has contracted with Studentcare for the health and dental components and Grand River Transit for the bus pass component.
- The university assesses the fee on behalf of the Federation of Students and transfers the funds to the Federation of Students for disbursement.
- Payment of the fee is a requirement of registration; the health and dental components are refundable through the service provider; the bus pass is non-refundable; the student refugee program is refundable directly through the Federation of Students.
- The Federation of Students continues to monitor the proposed changes to Ontario’s OHIP+ program.
- The bus pass fee is assessed to all full-time undergraduate students on-campus within the Region of Waterloo.
- During the winter term, regular students pay twice the rate for health and dental to ensure continuous coverage from May to August.
- The dental component reflects an increase of $3.09 per term (6.9%) for regular stream students and $6.53 (7.8%) for co-op stream students.

**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 Winter term 2019 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>$16.15</td>
<td>$16.40</td>
<td>1.55%</td>
</tr>
</tbody>
</table>
Comments:
- The fee was approved at the Engineering Society Joint Annual General Meeting in June 2018.
- The previous fee increase from $15.90 to $16.15 (1.6%) was implemented Spring term 2018 following the Joint Annual General meeting on June, 2017.
- The fee is refundable through the Engineering Society during the first three weeks of the term.

Dennis Huber
Vice President, Administration & Finance
This report is submitted following:
- Electronic ballots that were issued to members on items # 1, 2 and 3; these items were approved unanimously;
- The committee’s meeting of 12 October 2018 (items # 4, 5 and 6).

FOR INFORMATION

1. Service Tunnel Rehabilitation – UW Place Residence
On behalf of the Board, the committee approved the award of a stipulated price contract to PM Contracting Ltd. for $760,000 plus HST.

Background:
An inspection of the service tunnels at University of Waterloo Place (UWP) had identified several safety concerns. Gillespie Building Consultants (GBC) Inc., structural consultants specialized in this type of work, were retained to prepare a condition assessment of the existing corrugated steel tunnel infrastructure that was originally constructed in 1970. This condition assessment report concluded that there are issues with the structural stability of these tunnels and a design solution was developed into Construction Documents.

Following its 18 May 2018 meeting, by way of electronic voting, the committee approved the $4 million project budget to excavate the existing corrugated steel service tunnels, encase in reinforced concrete, waterproof and restore finishes at grade.

This project was competitively bid on MERX. Five (5) bids were received. PM Contracting (PM) was the low bidder. The other bids were between 56% and 315% higher. Gillespie Building Consultants were asked to review the bids for anomalies and validate the bid per CCDC 23 – Guide to Calling Bids and Awarding Construction Contracts. PM Contracting (PM) were asked to confirm their bid price. PM confirmed that because they previously completed a similar repair to a different section of the UWP tunnels, and were appointing the same site superintendent to the project, they were confident they accounted for the full scope of work.

The Project Budget and tender results ($000s), including net 3.41% HST are:

<table>
<thead>
<tr>
<th>Description</th>
<th>Approved</th>
<th>Tendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$3,000</td>
<td>$786</td>
</tr>
<tr>
<td>Restore finished grade (asphalt/landscaping)</td>
<td>$275</td>
<td>$275</td>
</tr>
<tr>
<td>Contingency (15%)</td>
<td>$570</td>
<td>$160</td>
</tr>
<tr>
<td>Condition Assessment Consulting Fee</td>
<td>$5</td>
<td>$5</td>
</tr>
<tr>
<td>Bid &amp; Construction Documents</td>
<td>$150</td>
<td>$150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$4,000</strong></td>
<td><strong>$1,376</strong></td>
</tr>
</tbody>
</table>

The project funding is from the Housing Department which operates as an ancillary (full cost recovery) unit. The construction completion is anticipated for late November 2018.
2. **Transformer/Power Upgrade Project – Math and Computer Building**

On behalf of the Board, the committee approved the award of a stipulated price contract to Roberts Onsite for $1,220,000 plus HST.

**Background:**
Following its 18 May 2018 meeting by way of electronic voting, the committee approved the $4.2 million project budget to replace the existing transformers, add an additional generator and upgrade the high voltage cable.

Supporting the Office of Research, the addition of a nationally interconnected data centre also known as “SharcNet” within the Math and Computer building initiated this electrical upgrade project. The existing transformers are original to the building, and have been in service since 1967. This project proposes to replace the two existing 1000kVA transformers with two 3000kVA transformers. Upgrades to the existing high voltage campus loop is required to support this project. Emergency power and redundancy are required for this research facility.

Stantec Consulting was initially selected to design the emergency power systems with incremental fees required to also prepare design and construction documents for the transformer upgrades so that both projects could be fully coordinated.

The recommended contingency amount has been increased to account for the possibility of renting a generator to provide power to Math and Computer if completion of the scheduled shutdown is delayed.

The Project Budget and tender results ($000s), including net 3.41% HST are:

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Approved</th>
<th>Tendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Purchased Equipment (Transformers + Switchgear)</td>
<td>$ 650</td>
<td>$ 200</td>
</tr>
<tr>
<td>Allowance for exterior generator enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Construction</strong></td>
<td>$3,325</td>
<td>$1,262</td>
</tr>
<tr>
<td>Consulting Fees (Generator +Transformers)</td>
<td>$150</td>
<td>$190</td>
</tr>
<tr>
<td>Mechanical Cooling Allowance</td>
<td>$55</td>
<td>$55</td>
</tr>
<tr>
<td>Structural Remediation Allowance</td>
<td>$105</td>
<td>$105</td>
</tr>
<tr>
<td>Construction Contingency</td>
<td>$565</td>
<td>$738</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$4,200</td>
<td>$3,200</td>
</tr>
</tbody>
</table>

The project will be funded through operating funds. Construction is expected to be complete by December 2018.

3. **Chiller Replacement – Physics Building**

On behalf of the Board, the committee approved the award of a stipulated price contract to PM Contracting for $1,468,000 plus HST.

**Background:**
Supporting the Office of Research, the addition of a nationally interconnected data centre known as “SharcNet” initiated this requirement to increase campus chilled water capacity. In addition to the Compute Canada grant for the recently completed SharcNet Data Centre, an additional $1 million grant is anticipated from the Provincial grant sponsor to offset the costs of providing this additional cooling in the form of chilled water.

Following its 18 May 18 meeting, the committee approved the $3.5 million project budget to replace the existing Chiller and associated mechanical equipment with the intention to approve the award of the construction contract in August. The existing chiller within the Physics building is at end of life. The 1060 ton chiller in Physics, complete with associated cooling tower, pumps, and piping will be replaced with a 1500 ton chiller and associated mechanical systems.
Stantec Consulting were initially selected to undertake feasibility and concept design work with a separate contract awarded to prepare the design and construction documents.

This project was competitively bid on MERX. 38 companies, including general contractors, sub-contractors, suppliers and the Grand Valley and Toronto Construction Associations downloaded the bid opportunity. Eight (8) companies submitted an intent to bid. One (1) bid was received. PM Contracting was the only bidder. The submitted bid was within ~2.3% of the pre-tender cost estimate.

The Project Budget and tender results ($000s), including net 3.41% HST are:

<table>
<thead>
<tr>
<th></th>
<th>Approved</th>
<th>Tendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Purchased Equipment (Chiller, Cooling Tower, Pumps)</td>
<td>$1,200</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$2,660</td>
<td>$1,520</td>
</tr>
<tr>
<td>Consulting Fees</td>
<td>$310</td>
<td>$310</td>
</tr>
<tr>
<td>Construction Contingency</td>
<td>$530</td>
<td>$470</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$3,500</td>
<td>$3,500</td>
</tr>
</tbody>
</table>

The project will be funded through a $1 million grant from the Province with the balance coming from the operating fund. This work will be scheduled during fall 2018. Long-lead equipment has been procured and pre-purchased to minimize scheduling risks. Construction is expected to be complete by December 2018.

4. Autonomous Vehicle Research Building

On behalf of the Board, the committee approved the award of a CCDC-2 stipulated price contract of $3,275,550 plus HST to D. Grant Construction Ltd. for the construction of the Autonomous Vehicle Research building to be located on the gravel parking lot on UW’s east campus.

Background:

The Faculty of Engineering currently occupies an 8,000 square foot industrial bay at 663 Colby Drive (Waterloo) to conduct advanced research relating to autonomous vehicles. The lease for this space expires on 30 April 2019 but includes renewal rights for two one-year terms. The annual leasing cost is approximately $85,000/year.

The University is proposing to construct a one-storey 7,100 square foot structure on the gravel parking lot on east campus so that the research activities can be relocated from Colby Drive into a fully functioning advanced research facility. The general property area is designated for a parking structure in the campus master plan and the building has been oriented so that the parking structure can be located immediately east of the building.

Five competitive bids were received, the 5 bids were all within 10.5%; the three lowest bids were within 1% of each other. The construction phase is estimated to take 44 weeks.

The Project Budget and tender results ($000s), including net 3.41% HST are:

<table>
<thead>
<tr>
<th></th>
<th>Approved</th>
<th>Tendered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>$3,100</td>
<td>$3,387.2</td>
</tr>
<tr>
<td>Professional Fees &amp; Disbursements</td>
<td>340</td>
<td>352.6</td>
</tr>
<tr>
<td>Contingency</td>
<td>340</td>
<td>40.2</td>
</tr>
<tr>
<td>Security</td>
<td>8</td>
<td>8.0</td>
</tr>
<tr>
<td>Network Connectivity</td>
<td>12</td>
<td>12.0</td>
</tr>
<tr>
<td>Permit &amp; Development Charges</td>
<td>100</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>$3,900</td>
<td>$3,900.0</td>
</tr>
</tbody>
</table>

$549/sf

Originally, the service road located immediately west of the building (which requires realignment) was planned to be included in the future transit road project but timing issues now require the University to complete this site work (~$71k) through a separate project budget. Recognizing that the revised contingency
budget is limited, additional funding may be required and recommended for approval at a future committee meeting.

Funding for this project comes from multiple sources including $1 million from an approved Canada Foundation for Innovation (CFI) research grant, $2 million from the Faculty of Engineering, and $1 million from central funding. A condition of the CFI grant is that construction commence in 2018.

5. Science Centre for Innovation and Physics Building Enhancement

On behalf of the Board, the committee approved relocating the proposed Science Centre for Innovation to the area west of the Physics research wing and south of the Earth Science Chemistry building as well as the appointment of Hariri Pontarini Architects (HPA) to complete schematic design and proceed into initial design development for the planned refurbishment/enhancement/reconstruction of the Physics building in order that the two projects can proceed as a fully integrated solution to meet the foreseeable needs of the Faculty of Science.

Background:
At its meeting of October 2017, the committee approved the appointment of ZAS Architects to develop schematic designs and proceed into initial design development for the Science Centre for Innovation (SCI) with the initial fees not to exceed $2 million.

Over the past twelve months, it became apparent that locating the SCI project south of the Biology I building creates many logistical challenges given the location of the existing below grade mechanical room and the greenhouse. A significant cost savings (in the order of $8m - $10m) could be achieved by eliminating the reconstruction of the greenhouse and by materially improving the efficiency of the building layout. Although relocating SCI to the revised location is not contemplated in the University’s current master plan, the new location would still meet the master plan’s primary goals which include enhancing the north-south circulation spine and corresponding pedestrian experience, incrementally advancing the longer-term plan to connect the south and north gateways, creating an inviting and accessible courtyard, and facilitating physical changes to the surrounding buildings to enhance their environmental performance. The SCI project costs were originally estimated to be in excess of $60 million, but the estimated savings achieved through its relocation would reduce the estimate significantly. The Science Centre for Innovation will be primarily dedicated to research space, Velocity Science, as well as space for the Science and Business Program and research groups and centres. The sophisticated instrumentation spaces will provide for an integrated high throughput screening and analysis system, free electron laser, environmental particle analysis laboratory, as well as biochemical and structural biology laboratories.

Subsequent design work for the revised location would support the development of a detailed project budget which would be presented to the B&P Committee.

In addition, earlier this year, the University issued a Request for Proposals for architectural services for a phased refurbishment/enhancement/reconstruction of the Physics building (second oldest building on campus) which would include retrofitting the existing research wing as well as creating a new global centre for astro-physics and condensed matter, both with very prestigious research chairs. Co-locating SCI next to the existing Physics research wing as well as re-imaging the Physics’ west wing as the new home for astro-physics and condensed matter activities requires that the two projects be fully integrated to ensure optimal design and functionality. Following the approval of the appointment of HPA, the University would coordinate the work between the two firms so that the projects can be properly integrated while still allowing for phasing if required. HPA’s initial fees would be less than $1 million to develop the concept plan for the revitalization of the Physics building with a total project cost estimated to be in excess of $40 million. Once sufficient design work is completed by HPA, a full project budget would be presented to the B&P Committee.

The initial design fees for both ZAS Architects (< $2 million) and HPA Architects (<$1 million) would be funded through operating funds.
6. General Oversight
   The committee reviewed and accepted for information:
   • the capital financing commitments associated with capital projects, and advises that these commitments fall within Waterloo’s board-approved debt policy;
   • the status of capital projects;
   • the work plan of the committee;
   • the results of the committee self-assessment for the 2017-2018 meeting cycle.

Martha George
Chair
This report is submitted following the committee’s deliberations during July and August 2018.

FOR INFORMATION

Over the course of July and August 2018, the following resolutions were passed on behalf of the Board of Governors.

1. **Financial Statements for Year Ended 30 April 2018**
   That the Board Executive Committee approve the Financial Statements on behalf of the Board of Governors. (See [University of Waterloo Finance website](http://www.uwaterloo.ca/finance) or the copy provided in this agenda.)

2. **Redeployment of Pension Assets Arising from the Discontinuation of the Equity Mandate of Trilogy Global Advisors**

   That the University of Waterloo transition the current assets held by Trilogy Global Advisors to existing investment managers in alignment with the University’s current asset allocation, until further consideration by the Pension Investment Committee can occur.

   *{Members of the Board are directed to the consent report from the Pension & Benefits Committee in this agenda for more information.}*

Cindy Forbes
Chair, Executive Committee
Management of the University of Waterloo (the “University”) is responsible for the preparation of the financial statements, the notes thereto and all other financial information contained in this annual report.

The financial statements have been prepared by management in accordance with Canadian accounting standards for not-for-profit organizations developed by the Chartered Professional Accountants of Canada. Management believes the financial statements present fairly the University's financial position as at April 30, 2018 and the results of its operations and its cash flows for the year then ended.

In fulfilling its responsibilities and recognizing the limits inherent in all systems, management has developed and maintains a system of internal control designed to provide reasonable assurance that University assets are safeguarded from loss and that the accounting records are a reliable basis for the preparation of financial statements.

The Board of Governors (the "Board") is responsible for ensuring that management fulfills its responsibilities for financial reporting and is ultimately responsible for reviewing and approving the financial statements. The Board carries out this responsibility principally through its Audit & Risk Committee (the “Committee”).

The Committee is appointed by the Board and its members are not officers or employees of the University. The Committee meets periodically with management, as well as the external auditors, to discuss internal controls over the financial reporting process, auditing matters and financial reporting issues to satisfy itself that each party is properly discharging its responsibilities and to review the annual report, the financial statements and the external auditors’ report. The Committee reports its findings to the Board for consideration when approving the financial statements for issuance. The Committee also considers, for approval by the Board, the engagement or reappointment of the external auditors.

Financial statements for the year ended April 30, 2018 have been audited by Ernst & Young LLP. The independent auditors’ report outlines the scope of their audit and their opinion on the presentation of the information included in the financial statements.
INDEPENDENT AUDITORS' REPORT

To the Board of Governors of the University of Waterloo

We have audited the accompanying financial statements of the University of Waterloo, which comprise the balance sheet as at April 30, 2018, and the statements of operations, changes in net assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the financial statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of the University of Waterloo as at April 30, 2018, and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

Kitchener, Canada
August 3, 2018
UNIVERSITY OF WATERLOO

BALANCE SHEET

as at April 30, 2018
(with comparative figures as at April 30, 2017)
(thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSETS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$ 258,959</td>
<td>$ 229,684</td>
</tr>
<tr>
<td>Short-term investments (note 3)</td>
<td>173,432</td>
<td>207,374</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>44,485</td>
<td>62,913</td>
</tr>
<tr>
<td>Inventories</td>
<td>2,714</td>
<td>3,007</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>12,917</td>
<td>6,456</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td><strong>492,507</strong></td>
<td><strong>509,434</strong></td>
</tr>
<tr>
<td>Long-term investments (note 3)</td>
<td>620,805</td>
<td>572,476</td>
</tr>
<tr>
<td>Capital assets, net (note 4)</td>
<td>900,838</td>
<td>876,315</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>2,014,150</strong></td>
<td><strong>1,958,225</strong></td>
</tr>
</tbody>
</table>

|                |            |            |
| **LIABILITIES AND NET ASSETS** |            |            |
| **Current**    |            |            |
| Accounts payable and accrued liabilities (note 5) | 76,107     | 87,578     |
| Unearned revenue | 99,340     | 88,723     |
| Current portion of long-term debt (note 6) | 10,495     | 16,694     |
| Deferred contributions (note 7) | 260,809    | 245,067    |
| **Total current liabilities** | **446,751** | **438,062** |
| Employee future benefits (note 8) | 203,674    | 222,802    |
| Long-term debt (note 6) | 498        | 10,993     |
| Deferred capital contributions (note 9) | 449,103    | 447,945    |
| **Total liabilities** | **1,100,026** | **1,119,802** |

|                |            |            |
| **NET ASSETS** |            |            |
| Unrestricted surplus (note 10) | 15,409     | 19,628     |
| Internally restricted (note 11) | 523,585    | 450,900    |
| Endowments (note 12) | 375,130    | 367,895    |
| **Total net assets** | **914,124** | **838,423** |

|                |            |            |
| **Total**      | **2,014,150** | **1,958,225** |

Commitments and contingencies (note 13)

(See accompanying notes to the financial statements)

On behalf of the Board of Governors:

Cindy Forbes  
Chair

Feridun Hamdullahpur  
President
UNIVERSITY OF WATERLOO  STATEMENT 2
STATEMENT OF OPERATIONS
for the year ended April 30, 2018
(with comparative figures for the year ended April 30, 2017)
(thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REVENUE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic fees</td>
<td>$474,957</td>
<td>$431,764</td>
</tr>
<tr>
<td>Donations</td>
<td>12,390</td>
<td>10,979</td>
</tr>
<tr>
<td>Grants and contracts</td>
<td>416,455</td>
<td>402,970</td>
</tr>
<tr>
<td>Sales, services and other revenue</td>
<td>136,262</td>
<td>123,218</td>
</tr>
<tr>
<td>Investment income (note 3)</td>
<td>19,505</td>
<td>38,686</td>
</tr>
<tr>
<td>Amortization of deferred capital contributions (note 9)</td>
<td>28,843</td>
<td>37,500</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>1,088,412</td>
<td>1,045,117</td>
</tr>
</tbody>
</table>

| **EXPENSES**           |          |          |
| Salaries               | 515,682  | 487,465  |
| Employee benefits (note 8) | 102,458  | 99,074   |
| Cost of goods sold     | 18,825   | 18,402   |
| Supplies and other (note 6) | 129,842  | 117,235  |
| Travel                 | 23,865   | 22,299   |
| Minor repairs and renovations | 19,695   | 21,621   |
| Equipment, maintenance and rentals | 34,030   | 23,239   |
| Scholarships and bursaries | 121,245  | 105,773  |
| Municipal taxes and utilities | 22,233   | 27,151   |
| Amortization of capital assets | 46,541   | 66,661   |
| **Total Expenses**     | 1,034,416| 988,920  |

Excess of revenue over expenses for the year

$53,996   $56,197

(See accompanying notes to the financial statements)
UNIVERSITY OF WATERLOO
STATEMENT 3
STATEMENT OF CHANGES IN NET ASSETS
for the year ended April 30, 2018
(with comparative figures for the year ended April 30, 2017)
thousands of dollars

<table>
<thead>
<tr>
<th></th>
<th>Unrestricted Surplus</th>
<th>Internally Restricted</th>
<th>Endowments</th>
<th>2018 Total</th>
<th>2017 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net assets, beginning of year</strong></td>
<td>$ 19,628</td>
<td>$ 450,900</td>
<td>$ 367,895</td>
<td>$ 838,423</td>
<td>$ 701,961</td>
</tr>
<tr>
<td>Excess of revenue over expenses for the year</td>
<td>53,996</td>
<td>—</td>
<td>—</td>
<td>53,996</td>
<td>56,197</td>
</tr>
<tr>
<td>Change in net assets internally restricted (note 11)</td>
<td>(72,685)</td>
<td>72,685</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Change in unrealized gain on investments held for donor endowments (note 12)</td>
<td>—</td>
<td>—</td>
<td>(3,297)</td>
<td>(3,297)</td>
<td>12,856</td>
</tr>
<tr>
<td>Employee future benefit remeasurement costs (note 8)</td>
<td>20,319</td>
<td>—</td>
<td>—</td>
<td>20,319</td>
<td>58,426</td>
</tr>
<tr>
<td>Internally endowed contributions (note 12)</td>
<td>(5,849)</td>
<td>—</td>
<td>5,849</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Endowment contributions (note 12)</td>
<td>—</td>
<td>—</td>
<td>4,683</td>
<td>4,683</td>
<td>8,983</td>
</tr>
<tr>
<td><strong>Net assets, end of year</strong></td>
<td>$ 15,409</td>
<td>$ 523,585</td>
<td>$ 375,130</td>
<td>$ 914,124</td>
<td>$ 838,423</td>
</tr>
</tbody>
</table>

(See accompanying notes to the financial statements)
**UNIVERSITY OF WATERLOO**  
**STATEMENT OF CASH FLOWS**  
for the year ended April 30, 2018  
(with comparative figures for the year ended April 30, 2017)  
(thousands of dollars)

### OPERATING ACTIVITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess of revenue over expenses for the year</td>
<td>$53,996</td>
<td>$56,197</td>
</tr>
<tr>
<td>Add (deduct) non-cash items:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in unrealized gain on internally endowed investments</td>
<td>1,049</td>
<td>(5,434)</td>
</tr>
<tr>
<td>Change in unrealized gain on unrestricted investments</td>
<td>6,855</td>
<td>(2,839)</td>
</tr>
<tr>
<td>Amortization of capital assets</td>
<td>46,541</td>
<td>66,661</td>
</tr>
<tr>
<td>Amortization of deferred capital contributions</td>
<td>(28,843)</td>
<td>(37,500)</td>
</tr>
<tr>
<td>Employee future benefits expense (note 8)</td>
<td>59,484</td>
<td>57,144</td>
</tr>
<tr>
<td>Employee future benefits contributions</td>
<td>(58,291)</td>
<td>(54,712)</td>
</tr>
<tr>
<td>Net change in non-cash balances (note 15)</td>
<td>16,185</td>
<td>(1,605)</td>
</tr>
<tr>
<td>Cash provided by operating activities</td>
<td>96,976</td>
<td>77,912</td>
</tr>
</tbody>
</table>

### FINANCING ACTIVITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repayment of long-term debt</td>
<td>(16,694)</td>
<td>(11,797)</td>
</tr>
<tr>
<td>Contributions for capital assets</td>
<td>30,001</td>
<td>55,065</td>
</tr>
<tr>
<td>Endowment contributions</td>
<td>4,683</td>
<td>8,983</td>
</tr>
<tr>
<td>Cash provided by financing activities</td>
<td>17,990</td>
<td>52,251</td>
</tr>
</tbody>
</table>

### INVESTING ACTIVITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases of capital assets</td>
<td>(58,268)</td>
<td>(83,429)</td>
</tr>
<tr>
<td>Net purchases of investments</td>
<td>(27,423)</td>
<td>(57,748)</td>
</tr>
<tr>
<td>Cash used in investing activities</td>
<td>(85,691)</td>
<td>(141,177)</td>
</tr>
</tbody>
</table>

Net change in cash and cash equivalents during the year        
29,275                                           (11,014) 

Cash and cash equivalents, beginning of year                   
229,684                                           240,698 

Cash and cash equivalents, end of year                         
$258,959                                          $229,684 

(See accompanying notes to the financial statements)
UNIVERSITY OF WATERLOO
NOTES TO THE FINANCIAL STATEMENTS
April 30, 2018
(thousands of dollars)

1. Description

University of Waterloo (the “University”) was incorporated in 1959 under the terms and provisions of the University of Waterloo Act. A new University of Waterloo Act was passed in 1972, which provided that the University continue as the corporation that was established in 1959.

The objectives of the University are the pursuit of learning through scholarship, teaching and research. The University is a degree granting and research organization offering undergraduate and graduate programs. The University is also a registered charity under Section 149 of the Income Tax Act and, as such, is exempt from income taxes.

These financial statements reflect the assets, liabilities, net assets, revenue and expenses of all of the operations of the University. Included are the academic, administrative and other operating expenses funded by academic fees, grants and other general revenue; restricted purpose funds including endowment funds; and the ancillary enterprises, including Housing & Residences, Food Services, Parking, Print and Retail Solutions and WatCard.

2. Summary of Significant Accounting Policies

These financial statements have been prepared in accordance with Part III of the CPA Canada Handbook – Accounting, which sets out generally accepted accounting principles for not-for-profit organizations in Canada and includes the following significant accounting policies:

(a) Cash and cash equivalents

Cash and cash equivalents consist of balances with banks and investments in highly liquid investments, with a maturity of approximately three months or less at the date of purchase, that are readily convertible to known amounts of cash and that are subject to an insignificant risk of change in value, unless they are held for investment rather than liquidity purposes, in which case they are classified as investments. These instruments are carried at cost plus accrued interest.

(b) Investments and investment income

All investments are recorded at fair value. Fair value is the amount of consideration that would be agreed upon in an arm’s length transaction between knowledgeable, willing parties who are under no compulsion to act. Publicly traded securities are valued based on the latest closing prices, and pooled funds are valued based on reported unit values. Transactions are recorded on a trade date basis, and transaction costs are expensed as incurred. Investment income (loss), which consists of interest, dividends and realized and unrealized gains (losses), is recorded as income (loss) from investments in the statement of operations, except for investment income (loss) deferred or recorded directly in endowment net assets.

(c) Derivative financial instruments

The University uses forward contracts to economically hedge the impacts of foreign currency changes for investments denominated in foreign currencies and interest rate swaps to mitigate the effect of changes in interest rates on variable-rate debt. Forward contracts used to hedge investment
transactions are recorded at fair value and included in investments on the balance sheet. The change in fair value of the derivatives is reflected in investment income.

The fair value of derivative financial instruments reflects the daily quoted market amount of those instruments. Investment dealer quotes or quotes from a bank are available for the University's derivative financial instruments.

The University follows hedge accounting for its interest rate swap, which results in the interest expense related to certain long-term debt being recorded in the financial statements at the hedged rate rather than at the original contractual interest rate. In order for a derivative to qualify for hedge accounting, the hedge relationship must be identified, designated and formally documented at its inception. Changes in the cash flows on the interest rate swap must be highly effective in offsetting changes in the amount of cash flows on the hedged long-term debt. Interest rate swaps in qualifying hedging relationships are not recognized until their maturity.

(d) Other financial instruments

Other financial instruments, including accounts receivable and accounts payable and accrued liabilities, are initially recorded at their fair value and continue to be carried at this value, which represents cost, net of any provisions for impairment.

(e) Inventories

Inventories are valued at the lower of cost and net realizable value. Cost of inventory is the weighted-average purchase cost and net realizable value is the estimated selling price in the ordinary course of business. Items that are written down to net realizable value are adjusted back up to cost if there is a subsequent increase in the net realizable value. There have been no write-downs of inventory or reversals of previous write-downs during the year.

(f) Capital assets

Purchased capital assets are recorded at cost. Contributed capital assets are recorded at fair value on the date of contribution. Capital assets are amortized on a straight-line basis over their estimated useful lives as follows:

- Buildings: 40 years
- Parking lots/roadways: 15 years
- Furniture and equipment: 3–10 years

Purchases of library acquisitions and works of art are expensed as incurred.

Contributions received for capital assets are deferred and amortized over the same term and on the same basis as the related capital assets.

(g) Revenue recognition

The University follows the deferral method of accounting for contributions, which include donations and grants. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. Endowment contributions and restricted contributions used to purchase land are recognized as direct increases in net assets in the period in which the contributions are received or when the land is purchased.
Tuition and other academic fees are recorded as revenue on the accrual basis of accounting. All fees that relate to an academic term occurring within the fiscal year are included as revenue. Fees billed and collected that relate to academic terms commencing after the end of the fiscal year are included in “Unearned revenue” on the balance sheet.

Sales, services and other revenue are recognized at point of sale or when these services have been provided.

(h) Long-term debt

Long-term debt is initially recorded at fair value and subsequently measured at amortized cost using the effective interest rate method.

(i) Employee future benefits

The University has a defined benefit pension plan for its employees and provides other retirement and post-employment benefits such as extended health care and life insurance coverage. The University accounts for these plans using the immediate recognition approach. Under this approach, the University recognizes the accrued benefit obligation, net of the fair value of plan assets, on the balance sheet. Current service and finance costs are expensed during the year, while remeasurements and other items, representing the total of the difference between actual and expected return on plan assets, actuarial gains and losses, and past service costs, are recognized as a direct increase or decrease in net assets through unrestricted surplus. The University has elected to use an actuarial valuation prepared for funding purposes to measure the defined benefit obligation in respect of its pension plan. The accrued benefit obligation for funded employee future benefits is determined using a roll-forward technique to estimate the accrued obligation using funding assumptions from the most recent actuarial valuation, which is prepared at least every three years. The accrued obligation for unfunded plans is prepared on a basis consistent with funded plans. Employee future benefit plans’ assets are measured at fair value as at the date of the balance sheet.

(j) Accounting estimates

The preparation of financial statements in conformity with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. These amounts are based on management’s knowledge of current events and actions that the University may undertake in the future. Significant areas requiring the use of management estimates relate to the assumptions used in the valuation of pension and other post-employment retirement benefit obligations, and the recording of contingencies. Actual results could differ from those estimates.

(k) Foreign currency translation

Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rate in effect at year-end. Revenues and expenses are translated at exchange rates in effect on the date of the transaction. Gains or losses arising from these foreign currency transactions are included in operating results, except to the extent that they relate to investments, in which case they are recognized in the same manner as investment income.
3. Investments

The University is subject to various risks with respect to its investment portfolio. To manage these risks, the University has established a target mix of investment types designed to achieve the optimal return within reasonable risk tolerances.

(a) Total investments at fair value consist of the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term bonds and guaranteed investment certificates</td>
<td>$173,432</td>
<td>$207,374</td>
</tr>
<tr>
<td>Long-term investments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposits and bankers’ acceptances</td>
<td>11,909</td>
<td>17,820</td>
</tr>
<tr>
<td>Bonds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>—</td>
<td>1,573</td>
</tr>
<tr>
<td>Corporate</td>
<td>112,223</td>
<td>72,881</td>
</tr>
<tr>
<td>Pooled funds</td>
<td>225,025</td>
<td>225,744</td>
</tr>
<tr>
<td></td>
<td>337,248</td>
<td>300,198</td>
</tr>
<tr>
<td>Equity investments (including pooled equity funds)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian</td>
<td>129,147</td>
<td>123,908</td>
</tr>
<tr>
<td>US</td>
<td>2,168</td>
<td>6,034</td>
</tr>
<tr>
<td>Other international including foreign exchange forward contracts</td>
<td>140,333</td>
<td>124,516</td>
</tr>
<tr>
<td></td>
<td>271,648</td>
<td>254,458</td>
</tr>
<tr>
<td>Total long-term investments</td>
<td>620,805</td>
<td>572,476</td>
</tr>
<tr>
<td>Total investments</td>
<td>$794,237</td>
<td>$779,850</td>
</tr>
</tbody>
</table>

(b) Investment income recognized is calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest, dividend income and realized gains (losses) earned from unrestricted resources</td>
<td>$13,192</td>
<td>$9,940</td>
</tr>
<tr>
<td>Change in unrealized gain from unrestricted resources</td>
<td>(6,855)</td>
<td>2,839</td>
</tr>
<tr>
<td>Investment income from endowment investments (note 12):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donor endowed</td>
<td>9,908</td>
<td>15,155</td>
</tr>
<tr>
<td>Internally endowed</td>
<td>3,260</td>
<td>10,752</td>
</tr>
<tr>
<td>Total investment income recognized in the year</td>
<td>$19,505</td>
<td>$38,686</td>
</tr>
</tbody>
</table>
There were no foreign exchange forward contracts outstanding as at April 30, 2018. The following table summarizes the maturity date, notional amount and fair value related to the foreign exchange forward contracts at as April 30, 2017.

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maturity</td>
<td>Notional Amount</td>
</tr>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States dollar</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Euro</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>British pound sterling</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States dollar</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Euro</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Japanese yen</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

$42,808 $(1,211)

4. **Capital Assets**

Capital assets consist of the following:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost</td>
<td>Accumulated Amortization</td>
</tr>
<tr>
<td>Land</td>
<td>$16,745</td>
<td>$—</td>
</tr>
<tr>
<td>Buildings</td>
<td>1,095,744</td>
<td>311,225</td>
</tr>
<tr>
<td>Parking lots/roadways</td>
<td>6,358</td>
<td>4,496</td>
</tr>
<tr>
<td>Furniture and equipment</td>
<td>205,187</td>
<td>107,475</td>
</tr>
<tr>
<td>Less accumulated amortization</td>
<td>(423,196)</td>
<td>(377,446)</td>
</tr>
</tbody>
</table>

Net book value $900,838 $876,315

During the year ended April 30, 2017, a review of capital assets, including the useful lives, was completed by the University. As a result of this review and the reassessment of certain useful lives, $36,020 of cost, $16,761 of accumulated amortization and additional amortization expense of $19,259 was recorded and deferred capital contributions of $9,133 related to these capital assets were also recognized in income during the year ended April 30, 2017.

During the year ended April 30, 2018, nil (2017 - $206,217) of cost and accumulated amortization was removed from the respective balances for assets that had been fully amortized.

Included in the cost of buildings is $101,559 (2017 - $120,848) of construction in progress that is currently not being amortized.
5. **Government Remittances Payable**

Included in accounts payable and accrued liabilities as at April 30, 2018 are government remittances payable of $16,982 (2017 - $15,664).

6. **Long-term Debt**

(a) Long-term debt obligations are summarized as follows:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1892160 Ontario Limited:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgage payable with 0% interest to be repaid February 14, 2019</td>
<td>$10,250</td>
<td>$10,250</td>
</tr>
<tr>
<td><strong>Ontario Housing Corporation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lease agreements payable with an interest rate of 6.875% to 7.125% and maturing December 1, 2020</td>
<td>723</td>
<td>933</td>
</tr>
<tr>
<td><strong>Canada Mortgage and Housing Corporation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgages payable with interest rates ranging from 5.375% to 6.250% and maturities between July 1, 2017 and February 1, 2019</td>
<td>20</td>
<td>139</td>
</tr>
<tr>
<td><strong>Canadian Imperial Bank of Commerce:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term instalment loan, non-revolving and maturity date October 1, 2017 with a floating interest rate, which was fixed at 6.045% through an interest rate swap</td>
<td>—</td>
<td>16,365</td>
</tr>
<tr>
<td></td>
<td>10,993</td>
<td>27,687</td>
</tr>
<tr>
<td>Less current portion</td>
<td>(10,495)</td>
<td>(16,694)</td>
</tr>
<tr>
<td><strong>Long-term debt</strong></td>
<td>$ 498</td>
<td>$ 10,993</td>
</tr>
</tbody>
</table>

The term instalment loan with Canadian Imperial Bank of Commerce matured on October 1, 2017 and all amounts were repaid at that time. The University had also entered into an interest rate swap contract to manage the cash flow risk associated with this term loan; this interest rate swap contract was concurrently unwound. The termination fee, representing the discounted net present value of the remaining interest on the loan, is included in interest expense for the year.

Future scheduled annual minimum debt principal repayments are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>$10,495</td>
</tr>
<tr>
<td>2020</td>
<td>241</td>
</tr>
<tr>
<td>2021</td>
<td>257</td>
</tr>
<tr>
<td></td>
<td>$10,993</td>
</tr>
</tbody>
</table>

The total interest expense on long-term debt recognized in “Supplies and other” in the statement of operations for the year ended April 30, 2018 was $3,638 (2017 - $1,143).
7. Deferred Contributions

Deferred contributions represent unspent externally restricted grants, donations and investment income for research and other specific purposes. Changes in the deferred contributions balance are as follows:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, beginning of year</td>
<td>$245,067</td>
<td>$216,041</td>
</tr>
<tr>
<td>Contributions received or receivable during the year</td>
<td>213,941</td>
<td>235,286</td>
</tr>
<tr>
<td>Contributions transferred for capital purchases</td>
<td>(11,046)</td>
<td>(27,552)</td>
</tr>
<tr>
<td>Contributions recognized as revenue during the year</td>
<td>(187,153)</td>
<td>(178,708)</td>
</tr>
<tr>
<td>Balance, end of year</td>
<td>$260,809</td>
<td>$245,067</td>
</tr>
</tbody>
</table>

8. Employee Future Benefits

The University has a defined benefit pension plan that provides pension benefits to eligible employees. This registered pension plan is based on years of credited service, highest average earnings in 60 consecutive months in the 10 years immediately preceding retirement, and the CPP’s yearly maximum pensionable earnings average for the last 5 years preceding retirement. Effective May 1, 2014, the pension plan’s guaranteed indexation related to post-retirement cost of living adjustments changed. Any pension benefits earned as at December 31, 2013 will be indexed at 100% of CPI to a maximum of 5%, and pension benefits earned as at an employee’s date of retirement less the pension benefit earned as at December 31, 2013 will be indexed at 75% of CPI to a maximum of 5%.

The latest actuarial valuation for the registered pension plan was performed as at January 1, 2017. The University measures its accrued benefit obligation and the fair value of plan assets for accounting purposes as at April 30 of each year.

The University also has a benefit plan that provides other retirement benefits, including extended health care and life insurance and one that provides for long-term disability income benefits after employment, but before retirement.

The pension expense for the year is $37,282 (2017 - $37,513) and other benefit plans expense is $22,202 (2017 - $19,631). Remeasurements, which are recorded in the statement of changes in net assets, are as follows:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pension Benefit Plan</td>
<td>$20,148</td>
<td>$106,347</td>
</tr>
<tr>
<td>Other Benefit Plans</td>
<td>—</td>
<td>$ —</td>
</tr>
<tr>
<td>Actuarial gains (losses)</td>
<td>13,229</td>
<td>(37,945)</td>
</tr>
<tr>
<td>Valuation allowance</td>
<td>(2,839)</td>
<td>(9,976)</td>
</tr>
<tr>
<td>Total employee future benefit remeasurement costs</td>
<td>$(9,758)</td>
<td>$68,402</td>
</tr>
<tr>
<td></td>
<td>$30,077</td>
<td>$(9,976)</td>
</tr>
</tbody>
</table>
Information about the University’s benefit plans is as follows:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair value of plan assets</td>
<td>$1,695,938</td>
<td>$1,612,182</td>
</tr>
<tr>
<td>Accrued benefit obligation</td>
<td>1,693,099</td>
<td>1,616,631</td>
</tr>
<tr>
<td>Plan surplus (deficit)</td>
<td>2,839</td>
<td>(203,674)</td>
</tr>
<tr>
<td>Valuation allowance</td>
<td>(2,839)</td>
<td>—</td>
</tr>
<tr>
<td>Employee future benefit liability</td>
<td>$ —</td>
<td>$(203,674)</td>
</tr>
</tbody>
</table>

9. **Deferred Capital Contributions**

Deferred capital contributions represent the unamortized amount of grants, donations and investment income received and used for the purchase of capital assets. The amortization of deferred capital contributions is recorded as revenue in the statement of operations. Changes in the deferred capital contributions balance are as follows:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, beginning of year</td>
<td>$447,945</td>
<td>$430,380</td>
</tr>
<tr>
<td>Additions for capital purchases</td>
<td>30,001</td>
<td>55,065</td>
</tr>
<tr>
<td>Amortization of deferred capital contributions</td>
<td>(28,843)</td>
<td>(37,500)</td>
</tr>
<tr>
<td>Balance, end of year</td>
<td>$449,103</td>
<td>$447,945</td>
</tr>
</tbody>
</table>

10. **Unrestricted Surplus**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational surplus</td>
<td>$ 22,771</td>
<td>$ 20,494</td>
</tr>
<tr>
<td>Unrealized gain on unrestricted investments</td>
<td>5,243</td>
<td>12,098</td>
</tr>
<tr>
<td>Land purchased with restricted funds</td>
<td>726</td>
<td>726</td>
</tr>
<tr>
<td>Provision for vacation pay</td>
<td>(13,331)</td>
<td>(13,690)</td>
</tr>
<tr>
<td></td>
<td>$ 15,409</td>
<td>$ 19,628</td>
</tr>
</tbody>
</table>

11. **Internally Restricted Net Assets**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic and academic support department carryforwards and operational commitments</td>
<td>$379,193</td>
<td>$338,474</td>
</tr>
<tr>
<td>Employee future benefits (note 8)</td>
<td>(203,674)</td>
<td>(222,802)</td>
</tr>
<tr>
<td>Ancillary enterprises</td>
<td>36,884</td>
<td>31,294</td>
</tr>
<tr>
<td>Unspent realized income on internally endowed investments</td>
<td>3,353</td>
<td>2,513</td>
</tr>
<tr>
<td>Unrealized gain on internally endowed investments</td>
<td>7,123</td>
<td>8,172</td>
</tr>
<tr>
<td>Bridge financing for housing and other construction projects</td>
<td>(139,110)</td>
<td>(112,677)</td>
</tr>
<tr>
<td>Net assets invested in capital assets</td>
<td>440,016</td>
<td>405,926</td>
</tr>
<tr>
<td></td>
<td>$523,585</td>
<td>$450,900</td>
</tr>
</tbody>
</table>

The University appropriates funds at year-end to cover outstanding operational commitments.
12. **Endowments**

Contributions restricted for endowment consist of restricted donations received by the University and donations internally designated by the Board of Governors. The investment income generated from external and internal endowments must be used for the purposes designated by the donors or Board of Governors. The University ensures that all funds received for restricted purposes are expended for those purposes for which they were provided.

The University's overall objective with respect to endowments is to achieve an annual realized investment income that provides for both spending and inflation protection. Each year, the portion of the realized investment income that is made available for spending is allocated to individual endowments at a rate that is established annually. Another portion of the realized investment income is used to provide inflation protection based on the Consumer Price Index. The residual amount of realized investment income, if any, is used to create a reserve to cover spending and inflation protection in years with low investment returns. The allocation to each endowment is based on the weighted-average principal of the endowment for the fiscal year. Unspent expendable amounts or parts thereof may be carried forward for future expenditures or added to the endowment's principal.

Investment income on endowments is recorded in the statement of operations if it is available for spending at the discretion of the University or if the conditions of any restrictions have been met. The amount of realized investment income that was reinvested for preservation of capital for the year ended April 30, 2018 was $5,138 (2017 - $11,367).

Net assets restricted for endowment consist of the following:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donor endowed (cost)</td>
<td>$252,772</td>
<td>$248,089</td>
</tr>
<tr>
<td>Internally endowed</td>
<td>105,250</td>
<td>99,401</td>
</tr>
<tr>
<td>Unrealized gain on</td>
<td>17,108</td>
<td>20,405</td>
</tr>
<tr>
<td>investments held for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>donor endowments</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$375,130</strong></td>
<td><strong>$367,895</strong></td>
</tr>
</tbody>
</table>

Endowment net investment income includes the following:

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ru</td>
<td>Donor</td>
<td>Internally</td>
</tr>
<tr>
<td>Realized income</td>
<td>$12,197</td>
<td>$4,309</td>
</tr>
<tr>
<td>Unrecognized gains</td>
<td>—</td>
<td>(1,049)</td>
</tr>
<tr>
<td>Income deferred</td>
<td>(2,289)</td>
<td>—</td>
</tr>
<tr>
<td>Income recognized in operations (note 3(b))</td>
<td>$9,908</td>
<td>$3,260</td>
</tr>
</tbody>
</table>

13. **Commitments and Contingencies**

(a) The University is a member of a self-insurance co-operative, named CURIE, in association with other Canadian universities. Under this arrangement, a contractual agreement exists to share the property and liability insurance risks of member universities. The projected cost of claims is funded through members’ premiums based on actuarial projections. As at December 31, 2017, CURIE had an accumulated surplus of $81,232 (2016 - $84,908), of which the University's pro rata share is approximately 4.0% (2016 - 4.1%) on an ongoing basis. The University does not have access to their pro rata share of the accumulated surplus and, accordingly, no amount is recorded in these financial statements.
The University has entered into a long-term land lease and operating agreement with Ivest Properties Limited and London Property Corp. for the construction and rental of student housing. The University has a commitment to rent units in the townhouse complex with an option to terminate. The University is committed until at least September 1, 2020. Based on the number of units available for rent as at April 30, 2018, the following are the annual lease payments committed:

- 2019 - $2,823
- 2020 - $2,859
- 2021 - $957

The nature of the University's activities is such that there are usually claims or potential claims in prospect at any one time. At April 30, 2018, the University believes it has valid defenses and appropriate insurance coverage in place on certain claims that are not expected to have a material impact on the University's financial position. There also exist other claims or potential claims where the ultimate outcome cannot be determined at this time. Any additional losses related to claims would be recorded in the year during which the amount of the liability is able to be estimated or adjustments to the amount recorded are determined to be required.

14. Financial Instruments

The University is exposed to various financial risks through transactions in financial instruments.

(a) Foreign currency risk

The University is exposed to foreign currency risk with respect to its investments denominated in foreign currencies because the fair value and future cash flows will fluctuate due to the changes in the relative value of foreign currencies against the Canadian dollar.

(b) Credit risk

The University is exposed to credit risk in connection with its accounts receivable and its short-term and fixed income investments because of the risk of one party to the financial instrument may cause a financial loss for the other party by failing to settle an obligation. The credit risk related to bonds is considered to be negligible because the University invests in bonds with investment grade ratings by recognized credit rating services.

(c) Interest rate risk

The University is exposed to interest rate risk with respect to its investments in fixed income securities because the fair value will fluctuate with changes in market interest rates.

(d) Liquidity risk

The University is exposed to liquidity risk to the extent it will encounter difficulty in meeting obligations associated with its financial liabilities.

(e) Other price risk

The University is exposed to other price risk through changes in market prices (other than changes from interest or currency rates) in connection with its equity and pooled fund investments.
15. **Net Change in Non-cash Balances**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts receivable</td>
<td>$18,428</td>
<td>$(35,951)</td>
</tr>
<tr>
<td>Inventories</td>
<td>293</td>
<td>492</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>(6,461)</td>
<td>1,705</td>
</tr>
<tr>
<td>Accounts payable and accrued liabilities</td>
<td>(11,471)</td>
<td>17,137</td>
</tr>
<tr>
<td>Less capital asset purchases in accounts payable</td>
<td>(12,797)</td>
<td>(15,912)</td>
</tr>
<tr>
<td>Unearned revenue</td>
<td>10,617</td>
<td>5,133</td>
</tr>
<tr>
<td>Deferred cash contributions</td>
<td>17,576</td>
<td>25,791</td>
</tr>
<tr>
<td><strong>Net Change</strong></td>
<td>$16,185</td>
<td>$(1,605)</td>
</tr>
</tbody>
</table>

16. **Comparative Financial Statements**

The comparative financial statements have been reclassified from statements previously presented to conform to the presentation of the 2018 statements.
This report is submitted following the committee meeting of 11 October 2018, and is recommended for inclusion in the consent agenda.

FOR INFORMATION

1. General Oversight

   Investment Fund Performance. The committee reviewed the performance of the registered pension plan, endowment fund, IQC trust fund, and payroll pension plan portfolios as at 30 June 2018. The most recent quarter was seen to be challenging in the markets broadly, and though investment returns in some funds outperformed (IQC, payroll pension plan) while other trailed their respective policy benchmarks. A subset of individual investment managers outperformed, and indexed investments tracked benchmarks.

   F&I Retreat. In the afternoon and evening of 20 September 2018, committee members met in person along with the president, provost, and vice-president, administration & finance. The purpose of the retreat was to bring together members to allocate a meaningful amount of time to subjects of strategic importance to the committee that otherwise may not be discussed in the normal course of the committee’s regular business. Members covered subjects including: strategic review of investments in non-pension investment funds; measures to implement to foster greater value-added discussion at regular meetings; the committee’s role with respect to the overall advancement activity of the university.

   /mg

James Schlegel
Chair
This report is submitted following the committee’s meeting of 11 October 2018.

FOR APPROVAL

Change to the Governance Committee Resolution

Motion: That the Board of Governors approve a change to the resolution of the Governance Committee as provided in the attachment.

The proposed change is to reflect the requirement of the Province of Ontario’s executive compensation program that oversight be provided with respect to “designated executives”. At Waterloo, this means: the vice-president, academic & provost; the vice-president, university research; the vice-president, administration & finance; the vice-president, university relations; and the vice-president, advancement.

FOR INFORMATION

Board Retreat

The committee reviewed the draft agenda for the Board’s annual retreat which was to be held on Friday 7 December 2018. As governors were notified on 23 October, that date will change and will be set very soon. The day will focus on development of the University’s next strategic plan and will feature a presentation by new chancellor, Dominic Barton.

Cindy Forbes
Chair, Governance Committee
Appendix

Governance Committee - Resolution

1. MEMBERSHIP

The membership of this committee shall consist of the following:

- Chair of the board, who shall be chair of the committee
- Vice-chair of the board
- The chairs of the following standing committees of the board: Audit Committee, Building & Properties Committee, Finance & Investment Committee and Pension & Benefits Committee, provided such chairs are either community-at-large members of the Board of Governors or appointees to the Board of Governors by the Lieutenant Governor in Council
- Up to three external members of the board chosen annually by the chair and approved by the board

Should either the chair of the board or the vice-chair of the board be the chair of one of the standing committees of the board referred to above, then the chair or vice-chair, as appropriate, shall serve on the Governance Committee as the representative of that standing committee, and no substitution shall be allowed.

2. MEETINGS

The committee will normally meet at least four times a year, more often as necessary.

3. TERMS OF REFERENCE

To oversee all university governance and governance-related activities, including:

- ensuring effective operation of the board and its committees
- ensuring that committee mandates remain relevant and effective
- establishing criteria for evaluating incumbent governors and potential candidates for election to the board
- nominating prospective governors to accomplish the objectives of sections 11.2 and 11.6 of The University of Waterloo Act, 1972 and proposing appointments to board committees
- ensuring orientation and training of governors
- assessing the effectiveness of board, committees and governors
- reporting to the board on these activities at least annually

To evaluate on behalf of the board the performance of the president and vice-chancellor of the university and to review and approve his or her compensation and conditions of employment.

To review and approve the president’s recommendations with respect to compensation for designated executives as required by the province of Ontario’s executive compensation program.

To receive from the president and vice-chancellor, on at least an annual basis, reports on the performance, compensation and conditions of employment of the vice-presidents, the university secretary, the deans, the associate provosts and the associate vice-presidents and provide feedback to the president and vice-chancellor as appropriate.
This report is submitted following the committee’s meeting of 26 June 2018, 14 September 2018 and 19 October 2018, for inclusion in the consent agenda.

FOR INFORMATION

1. DISCONTINUING THE DIVIDEND REINVESTMENT PLAN FOR BROOKFIELD INFRASTRUCTURE PARTNERS

The committee received a recommendation from the Finance & Investment Committee (F&I) from that committee’s October 2018 meeting, and subsequently approved that discontinuation of the dividend reinvestment plan for Brookfield Infrastructure Partners (BIP) such that future dividend income will be directed into the existing approved TDAM Short Corporate Bond investment. This decision taken after a period of F&I monitoring the both the pension fund’s and endowment fund’s investment positions in BIP, where the pension plan’s BIP position peaked at 8.1% in December 2017 due to dividend reinvestment and appreciation of the market price. Notwithstanding the outperformance of BIP since initial purchase, both committees noted the risks of having an investment position of this size in a single equity instrument.

2. REDEPLOYMENT OF PENSION ASSETS ARISING FROM THE DISCONTINUATION OF THE EQUITY MANDATE OF TRILOGY GLOBAL ADVISORS

On 29 June 2018, staff at the University was notified of the wind down of the global equity mandate by Trilogy Global Advisors, with which the University held ~$220 million in investments for the registered pension plan. The chairs of the Pension & Benefits Committee and the Finance & Investment Committee were advised of this event shortly thereafter, and were also advised that staff would reach out to Trilogy as well to retained consultants at Aon to develop a plan to retrieve the University’s investment with a minimum of trading and other frictional costs.

Since the winding down of this equity mandate would result in a significant and unanticipated cash position far outside the current allocations, staff formulated a proposal to transition assets from Trilogy while at the same time achieving a number of important objectives: ensuring that the investments in question remain fully in the control of the University; meeting the requirements of the Statement of Investment Policies and Procedures, including compliance with the allowed maxima for cash holdings as well as for asset allocation to an single global equity manager; maintenance of the pension plan’s overall allocation to equities in the face of this unanticipated external event; reducing Trilogy’s investment management fees and transactions costs as the result of this wind up.

Both the Pension & Benefits Committee and the Finance & Investment Committee were consulted via electronic poll, which resulted in a recommendation being jointly brought and subsequently approved by the Board Executive Committee to invest the approximately $220 million in proceeds from Trilogy into the TD Emerald Pooled U.S. Fund (60%) and the TD Emerald International Equity Index Fund, Class B (40%); these are the same TDAM index funds currently held within the pension portfolio. The deployment of the assets as such ensured that the Pension’s investments stayed within the permitted ranges of asset classes as per its Statement of Investment Policies and Procedures and to maintain the benchmark allocation of the Pension investment portfolio, and it was seen to be practical to invest with an investment manager that is currently approved by the Board of Governors while maintaining sufficient diversification in the pension plan assets.
3. 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 pension plan and takes the information into account when making decisions on matters including plan design, funding and administration.

As part of the general oversight function exercised by the committee, the committee has devoted attention to following issues: funded status of pension plans, including funding ratios, special payments, reserves, portion of at-risk funding within plans, and impact of market shifts on these calculations; benefits utilization; progress update on the establishment of a jointly-sponsored pension plan in the university sector.

Holistic Benefits Review: The committee continued its work to review the benefits offered to employees. This review includes plan benchmarking against comparator institutions, and considering potential options for plan redesign. The current work plan is expected to continue into 2019.

/mg

Marilyn Thompson
Chair
How was the Fall 2018 undergrad recruitment/admissions cycle?

- highest-ever number of Waterloo undergrad applications (up 7% over 2017)
- relatively static number of applicants again this year across the province; yet Waterloo saw a 5.3% increase in applications

- out-of-province (Canada and the world) domestic applications up 8% for Waterloo; out of province international applications up 17%
- growth in out-of-province domestic and international applications means increased resource-intensive manual review of different systems of study
- some high-demand programs saw very high admissions cut-offs (95%+)
- median average of our incoming class continues to grow, yet several programs admitted at the minimum of 80% — for both co-op and regular programs, representing a risk to sustainable high-quality enrollment
- decline in number of Ontarians aged 18-20, as well as incidents like Canada’s recent diplomatic challenge with Saudi Arabia underscore importance of growth and diversity of international applicants
- BASE and ELAS programs continue to provide important bridge to full-time studies for some international students needing English language support

How diverse is Waterloo’s international undergraduate intake?

- international first-year enrollment was 910 in 2015 and is projected to be 1,201 in 2018; AHS, Arts, Environment, and Science have more than doubled international enrollments since 2015
- competition and recruitment efforts and investments are increasing among Canadian universities who look to international students to make up for domestic shortfalls
- UBC and McGill appear to be more diverse in their international student populations than Waterloo; U of T is somewhat less diverse than Waterloo (as per their publicly-available institutional enrollment reports)
- U of T’s recently-launched Lester B. Pearson “full ride” scholarships are garnering much attention among Canada-bound international students

Continuous improvement

- Offers of admission now fully digital—more immediate, relevant content
- Data exchange improvements completed or underway—OUAC upgrades done; grade info exchange between provinces and international stakeholders being improved; better analyses being prepared for internal stakeholders
- Working with COU and Canadian Border Services to address growing number of admissions fraud cases
**GRADUATE STUDIES AT A GLANCE**

### Fall 2018 Admission*

**Applications:**
- 11,487 total
- 9,708 Masters
- 1,779 PhD

**Offers:**
- 3,439 total
- 2,967 Masters
- 472 PhD

**Offers Accepted:**
- 2,285
- 1,941 Masters
- 344 PhD

### Preliminary Fall 2018 Enrolment**

**Masters Enrolment**
- 3,924 total
- 2,672 Domestic
- 1,252 International

**PhD Enrolment**
- 2,091 total
- 1,168 Domestic
- 923 International

*Data as of Sept 1

**Data as of Oct 1

---

**Additional Data:**

**Compared to three year averages:**

- The number of **domestic applications** grew by 10% at the Master’s level but decreased by 10% at the PhD level.
- The number of **international applications** grew by 42% at the Master’s level and 17% at the PhD level.
- The number of **offers made to domestic applicants** grew by 5% for Master’s students and 28% at the PhD level.
- The number of **offers made to international applicants** grew by 22% for Master’s students but decreased by 1% for PhD students.
- The number of **offers accepted by domestic students** grew by 1% for Master’s students and 33% for PhD students.
- The number of **offers accepted by international students** grew by 22% for Master’s students but fell by 7% for PhD students.

**Where do we stand relative to SMA2 Targets for domestic students?**

- The university is well positioned to meet its PhD targets;
- The university has an opportunity to grow its domestic intake at the Master’s level.

**What steps are being taken to attract domestic graduate students?**

- GSPA in partnership with the Provost’s office and the Faculties launched a $1.5M domestic incentive in 2017 to be repeated in 2018;
- GSPA in partnership with the Faculties has created a central marketing and recruitment platform for graduate studies – **GRADImpact** – that emphasizes the mobilization of graduate student work into tangible, transformative outputs.
Dear Governors,

I am pleased to provide you with a brief summary of major achievements, initiatives and updates since our last meeting in June along with an update on our Strategic Plan consultations currently underway for the next strategic plan. An update on the summative progress of the 2013-2018 Strategic Plan will be presented at the meeting. I will be happy to discuss any items in further detail.

ACHIEVEMENTS/CONGRATULATIONS/NOTABLE EVENTS

- Professor Donna Strickland wins Nobel Prize in Physics
  - 1st Canadian women to be awarded the Physics Prize
  - 1st women in 55 years to be awarded the Physics Prize
  - 3rd women in history to receive this honour
- Maclean's Rankings - 2019
  - Most Innovative University – 27 years in a row
  - Best Overall Reputation – 2nd (after Toronto)
- Re$earch Infosource named UW Research University of the Year (Comprehensive Category) 11 years in a row
- HeForShe in New York City at UN – Waterloo was applauded for closing the gender pay gap and established mandatory training for hiring committees to help prevent gender discrimination
  - Progress on commitments include:
    - Women in senior leadership roles have increased by 9% to 32%
    - Female tenured professors increased by 7% to 25%
    - Female undergraduate students increased by 2% to 47%
- President’s Lecture (Sept. 21) Chancellor Dominic Barton
- Launch of the Cybersecurity and Privacy Institute – bringing together 88 researchers from across six faculties to bundle their research activities
- Engineering students’ project captures national Dyson Award – WatVision makes touch screens accessible to the visually impaired. The app reads out whatever word or number is underneath the individual’s finger
- Four new Schulich Leaders entered Waterloo STEM programs on scholarship
  - David Gu (Richmond Hill, ON) Software Engineering - $100K
  - Atif Mahmud (Kitchener, ON) Software Engineering $100K
  - Robin Wen (Saskatoon, SK) Mathematics $80K
  - Advait Maybhate (Waterloo, ON) Computer Science $80K
- IMPACT summer camp gave Indigenous girls an opportunity to learn more about STEM
- Phoebe Stephens (Environment PhD student) named 2018 Pierre Elliott Trudeau Foundation scholar for research on investing for sustainable food systems
- Waterloo named Dominic Barton (Global Managing Partner Emeritus, McKinsey & Company) as 11th chancellor – installed on October 27th
- Waterloo named Tom Jenkins as Chancellor Emeritus on October 27th
ENROLMENT – FALL 2018

- Fall 2018 total full-time undergraduate headcount enrolment is forecasted to be 32,624 by official count date (November 1st), representing a 2.7% increase over fall 2017. Similarly, fall 2018 total full-time graduate headcount enrolment is forecasted to be 4,653 by official count date (November 1st), representing a 3.3% increase over fall 2017.

SEARCHES UNDERWAY

- Dean of Applied Health Sciences
- Dean of Arts

WATERLOO BUDGET MODEL (WBM)

- The opening 2018-19 WBM summary was released to the Faculties in June and an update will occur in early 2019.
- Two budget model audit recommendations were closed as of June: (1) A plan to improve budget model workflow and (2) Implementation of Strategic Budget Advisory Committee processes.
- Based on further input and recommendations, we are in the process of introducing revisions/modifications to be completed by November 1, 2018

RESEARCH UPDATE

Nobel Prize in Physics

Donna Strickland, professor, Department of Physics and Astronomy, was awarded the 2018 Nobel Prize in Physics “for groundbreaking inventions in the field of laser physics” for the "method of generating high-intensity, ultra-short optical pulses."

Donna Strickland’s tremendous contributions to laser physics exemplifies research excellence at Waterloo. Her groundbreaking work established the foundation for today’s laser-based technologies. From laser eye surgery that has corrected eyesight for millions of people to laser-based cameras capturing chemical and physical reactions in laboratories around the world, Strickland’s chirped-pulse amplification technique has had tremendous societal impact.

Congratulations to Professor Strickland for her contributions the field, the world and the Waterloo community.

Innovation Initiatives

Global Entrepreneurship and Disruptive Innovation: GEDI continues to build momentum as it moves towards the official launch. Presently staffed by 1, GEDI is in the process of hiring its Managing Director who will be tasked with accelerating the operationalization in advance of the planned launch in Q1 2019. The Tender process has closed for the construction of GEDI’s physical presence on the 2nd floor of EC5, with renovations to commence within Q4 2018.

GEDI staff and the steering committee continue to engage external partners and are working to bring on board Founding Partners as the first clients. Stryker Medical, Deloitte, Bruce Power, and Rogers represent prospective clients who the team is targeting to join Cisco as Founding Partners.
The GEDI team also continues to broker relationships with key stakeholders within the University (Problem Lab, Co-op, Advancement, and Velocity) and within the broader ecosystem (Accelerator Centre, Communitech, Waterloo EDC).

**NRC Collaboration:** NRC and the University of Waterloo are establishing a new Research Collaboration Center at Waterloo that will feature leading-edge research in the areas of Internet of Things, Artificial Intelligence and Cybersecurity. Ten NRC Scientists will move to Waterloo and work on joint projects with ten UW Professors. The collaboration will include joint supervision of graduate students and post-doctoral fellows, and the NRC Scientists and UW Professors will apply for external funding to support their research collaboration. It is envisaged that there will also be close interaction with industry. The Collaboration Center has an initial seven year mandate with the possibility of renewal for an additional seven years.

**University Industry Demonstration Partnership:** Waterloo has become the second Canadian university accepted as a member of the University-Industry Demonstration Partnership (UIDP). The UIDP is an American-based organization of top universities and research-intensive corporations. Waterloo was invited to apply for membership based on our research strength, our reputation for working with industry, and our ability to contribute to best practices. Members include University of Toronto, Princeton University, MIT, Harvard University, Caltech, Lockheed Martin, SONY, and Toyota. [https://www.uidp.org/](https://www.uidp.org/)

**Waterloo staff member selected as finalist for Women in Cleantech Challenge:** Evelyn Allen, corporate research partnerships manager in the Office of Research, was recently selected as a finalist in the Women in Cleantech Challenge. She is one of six women across Canada who will compete for a $1 million prize in the national cleantech challenge. Funded by Natural Resources Canada and MaRS Discovery District, the challenge provides an opportunity for Canadian women entrepreneurs to develop world-class cleantech solutions and launch innovative cleantech startups.

Michael Pope, assistant professor, chemical engineering, and Evercloak co-founder, discovered the innovative technology with his team in 2015. Evercloak’s low-cost advanced manufacturing platform builds ultra-thin nanomaterial membranes, enabling disruptive clean technologies that will reduce cost, energy use, and associated greenhouse gas emissions throughout the oil and gas, nuclear, energy, mining and agri-food sectors.

Allen will lead the commercialization of the manufacturing platform that produces large-area nanofilms made of graphene and other 2D wonder materials. Her application was supported by the Waterloo Commercialization Office (WatCo) which helps researchers and partners further develop opportunities for commercialization.

**TD Bank commits $1 million to create TD Sustainable Future Lab in partnership with the Accelerator Centre:** TD Bank Group announced a $1 million contribution towards the development of the TD Sustainable Future Lab in Waterloo, the region’s first cleantech accelerator designed to offer support and mentorship to startups that are working to develop sustainable solutions for a low-carbon economy.

The new lab will be located at Waterloo’s newest carbon-positive commercial building within the David Johnson Research and Technology Park. The lab programming will be run by The Accelerator Centre, known for helping startups bring their solutions to market. [https://www.newswire.ca/news-releases/canadas-low-carbon-innovators-get-boost-from-td-696872611.html](https://www.newswire.ca/news-releases/canadas-low-carbon-innovators-get-boost-from-td-696872611.html)
In September, Integrated Communications covered the Elevate TechFest in Toronto. Elevate is Canada’s largest technology and innovation festival that attracts global professionals, tech leaders, investors, and creatives who are at the forefront of innovation. A dozen University of Waterloo faculty and alumni were featured in the event line-up. Two Waterloo-based companies — DarwinAI and Elucid Labs — competed alongside 14 other Canadian artificial intelligence (AI) companies for a chance to win $1 million in funding in the ElevateR Pitch competition. Although they did not take home the $1M in funding, Elucid Labs was voted as the People’s Choice winner. Euclid Labs uses AI to detect and diagnose dermatological diseases by using digital biopsy.

**Research Funding Highlights**

**Schwartz-Technion partnership funding:** The Gerald Schwartz and Heather Reisman Foundation has committed an additional gift of $2.5 M over five years (gift agreement is in process). The funding from the Schwartz-Reisman Foundation will support joint research between UW and the Technion in the areas of Water, Quantum Information, Nanotechnology, Artificial Intelligence and Cybersecurity, areas in which both Institutions have major strengths. There will also be opportunities for graduate student and faculty exchanges between the two Institutions.

**SSHRC success:** Waterloo achieved a 69% success rate in SSHRC Insight Development Grants in for a total of $1,334,558. The national success rate was 59.4%. This success is a significant increase over previous years as noted in chart below.

![SSHRC Insight Development Grant 2016-2018](image)

**NSERC Strategic Partnerships Grants:** Waterloo awarded $3.89 million in NSERC Strategic Partnership Grants out of a total of $15 million allocated in this competition.

**Collaborative Research and Training Experience Program (CREATE) grant:** Catherine Burns, professor of systems design engineering and executive director of the Centre for Bioengineering and Biotechnology (CBB), awarded a $1.65 million CREATE grant by the Natural Sciences and Engineering Research Council of Canada (NSERC) to fund a new program in global biomedical technology research and innovation at Waterloo starting in the fall of 2018, the only program of its kind in Canada.
Recent Awards

- Jennifer Clapp (School of Environment, Resources and Sustainability) – Innis Gerrin Medal, Royal Society of Canada
- Geoff Fong (Psychology) – 2018 Alton Ochsner Award Relating Tobacco Smoking and Diseases, Ochsner Health System
- Feridun Hamdullahpur (Mechanical and Mechatronics Engineering) – Specially Elected Fellow, Royal Society of Canada
- Fakhri Karray (Electrical and Computer Engineering) – Fellow, Canadian Academy of Engineering
- Colin MacLeod (Psychology) – 2018 Gold Medal Award for Lifetime Contributions to Canadian Psychology, Canadian Psychological Association
- Michele Mosca (Combinatorics and Optimization) – Knight of the Order of Merit, Government of Italy
- Danielle Robichaud (Library) – James J. Talman Award, Archives Association of Ontario (AAO)
- Carolyn Ren (Mechanical and Mechatronics Engineering) – Member of the College of New Scholars, Artists, and Scientists, Royal Society of Canada
- James Skidmore (Germanic and Slavic Studies) – Innovate German Award, the German Academic Exchange Service (DAAD) and the Canadian Association of University Teachers of German
- Susan Tighe (Civil and Environmental Engineering) – Fellow, Canadian Academy of Engineering
- Zhou Wang (Electrical and Computer Engineering) – Fellow, Royal Society of Canada
- Mary Wells (Mechanical and Mechatronics Engineering) – Fellow, Canadian Academy of Engineering
- Alexander Wong (Systems Design Engineering) – Member of the College of New Scholars, Artists, and Scientists, Royal Society of Canada
- John Yeow (Systems Design Engineering) – Fellow, Canadian Academy of Engineering

International Activities

During the past few months, the University of Waterloo has continued to be very active in advancing its internationalization agenda.

At the beginning of September, we welcomed hundreds of new international students to our campus; the University of Waterloo continues to see enrolment growth in international students at both the undergraduate and graduate levels. While we are still early in the academic year, preliminary reports indicate that our total international enrolments at the undergraduate level are up by 9 per cent to 11 per cent and at the graduate level up by 3 per cent to 5 per cent over Fall 2017. (Please note, however, that figures will become official after the ‘count date’ of 1 November.) I can unequivocally confirm that the numbers attending International Orientation in September were record-breaking this year. Our campus has never been more global in perspective.

In August, the Government of the Kingdom of Saudi Arabia directed some of its students to leave Canada. While this situation remains fluid – even two months later – what I can report is that our team reacted promptly and effectively, working to ensure that the interests of our Saudi students were front and centre: we looked after five undergraduate students and 82 graduate students who were affected by this announcement; we accommodated them to the extent that we could by, for instance, accelerating defence dates, providing letters of introduction to international universities, and proactively confirming their registration status options. Facilitated by Waterloo International and University Relations, Graduate Studies and Postdoctoral Affairs and the Registrar’s Office were
in the front line, and, supported by the Faculties, they served in an exemplary fashion during this crisis situation. We continue to monitor and to support.

UNIVERSITY RELATIONS UPDATE

Chancellor Installation

Chancellor Barton presented a President’s Lecture on Friday, September 21 at Humanities Theatre, and had the opportunity to tour campus, meet with student design teams and research labs, and visit with startups at the Velocity Garage.

Chancellor Barton was formally installed as part of the Saturday, October 27 Faculty of Arts convocation ceremony. The installation is a traditional ceremony, conducted for only the 13th time in the history of the University. Notably, the Honorable Elizabeth Dowdeswell, Lieutenant Governor of Ontario, participated in the Chancellor's procession and addressed convocation. A number of government and community leaders also joined the event, which also marked the installation of Tom Jenkins as Chancellor Emeritus.

Campus Wayfinding Plan

Waterloo's Campus Wayfinding Plan has a mandate to develop an integrated and overarching plan for wayfinding and related signage for the Waterloo campus. After a community-wide unveiling in September, the project moves to the implementation phase. Work is currently underway to develop an RFP in order to contract with vendor(s) to fabricate/implement the wayfinding signage system starting in April 2019.

Waterloo Innovation Summit

The University’s Waterloo Innovation Summit Speaker Series will be held on November 13, 2018 in Vancouver. Hosted in partnership with Microsoft, the Summit will focus on technology solutions to climate change. Over 150 thought leaders from business, government, and academia are expected to attend this half-day event. We are planning for a February 18, 2019 Summit event in London, England.

Executive Communication

Over the course of this reporting period, I undertook forty-one speaking engagements that included on-campus events around Orientation Week and the university strategic planning process, and off-campus keynote engagements in South Africa, New York City, Washington D.C. and Izmir (personal research), and additional appearances across Ontario.

Outside of the campus community from May to September, the president:

- Attended and addressed the School of Accounting and Finance Leadership & Innovation Dinner in Toronto with the School’s many alumni;
- Was the Keynote Speaker at the 6th Global Conference on Global Warming in Izmir, Turkey;
- Represented the University at the Work Integrated Learning Africa Conference in South Africa as a keynote speaker and panelist to share Waterloo’s experience and results in developing our world-renown co-op program;
- Took part in the Invest India Conference as part of the “Building a Brain Chain” panel, moderated by former Governor General Rt. Hon. David Johnston;
• Spoke at the United Nation’s HeForShe Summit in New York City on the progress of the University’s gender equity commitments and how we’ve achieved our gains;
• Was invited to take part in the Association of Research Library’s annual conference in Washington D.C. to talk about how to integrate innovation into universities across North America.

During the same period I published nine new blog posts including:
• Being a catalyst for sustainable development means taking action
• Convocation and 200,000 alumni: a milestone reached
• Introducing the University of Waterloo’s 11th chancellor: dominic barton
• Stepping forward and making progress for the future of the university of waterloo
• Committee on student mental health implementation update
• President’s community impact awards: call for nominations
• Progress in gender equity is promising but by no means final
• Velocity: home to risk takers, dreamers and creators
• Honoured to have Donna Strickland as the University of Waterloo’s first Nobel Prize winner

**Integrated Communication**

The Integrated Communication team continues to support the roll out of the second volume of the 2018/19 State of the University Report — Global Impact. The University launched the report in March 2018. Stories are regularly featured on the University homepage and social media channels. Stories that have been featured on the University homepage and social media channels include:
• Scaling up food security innovations to improve lives
• Helping refugees and volunteers connect
• Why highly skilled immigrants are drawn to the U.S.
• How a circuit board printer is accelerating innovation
• How machine learning helps Siri and Alexa understand you
• Forming the building blocks for quantum computers
• How waterloo researchers are keeping hackers out of your devices

**Media Relations**

The University of Waterloo was mentioned in approximately 15,100 stories (print, online and broadcast) between July 1 and September 28, 2018. The University regularly appeared in local media and in the Globe and Mail, the National Post, the Canadian Press the Daily Mail, University Affairs, the Times of India, Science, CBC, Academia, Betakit, The Christian Science Monitor, Maclean’s, the Toronto Star, the Irish Sun, BBC, Forbes, The Conversation, and Business Insider.

Selected news coverage over the period includes:
• The Globe and Mail featured an op-ed by Feridun Hamdullahpur on global commercialization versus economic nationalism
• University Affairs featured an op-ed by Feridun Hamdullahpur on what Canada needs to do to break down the barriers between research discoveries and commercialization
• Waterloo Region Record featured an op-ed by Feridun Hamdullahpur on new graduates join ranks of innovators and achievers
• Maclean’s magazine featured an op-ed by Waterloo professor Suzanne Kearns who is predicting pilot shortages in Canada’s airline industry in the coming years.
• Regional media including CTV and CBC featured Feridun Hamdullahpur and the University’s efforts in the HeForShe campaign with the UN Women.
• The Canadian Press, the National Post, Vancouver Sun, Huffington Post and the Vancouver Sun featured Waterloo research on the impact of forest fires on drinking water quality.
• The Globe and Mail, the Christian Science Monitor and the National Post featured Waterloo’s research on the impacts of climate change on Canada’s insurance industry.
• IFL Science and Inc.com featured Waterloo’s research on mood and work productivity.
• Forbes featured the work of Waterloo engineering researchers who have found a way to use radar to measure blood sugar levels.

Marketing and Strategic Initiatives

Planning for Phase 3 of the University’s BEYOND brand awareness campaign (to launch November, 2018) began in the summer. Phase 2 campaign findings and results, as well as insights from the recently completed national brand and reputation survey, were used to inform audience, market, channel and content refinement and prioritization.

2018 Brand and Reputation survey considerations include:
• There has been continued progress in building awareness, marketing and communications visibility and recognition of Waterloo’s brand attributes among key audience segments (business leaders, corporate recruiters, university leaders, and parents of prospective students) – especially in Ontario. Phase 3 of the campaign will expand beyond Ontario to reach and engage key audience segments in Western Canada (e.g. Vancouver, Calgary).
• As compared to University of Toronto, UBC, McGill, University of Alberta, Western, McMaster and Ryerson, Waterloo is the market leader for 5 of 13 key brand attributes including: innovation, connected to industry, career-ready graduates, work placement opportunities, and curriculum supports entrepreneurship.
• Waterloo is in contention for market leadership with U of T and/or McGill for 4 other brand attributions including: Research addresses today’s challenges (co-lead with U of T), quality of education, overall reputation, and teaching excellence. Phase 3 will reinforce these attributes in campaign positioning.
• Results beyond Ontario indicate that business leaders and corporate recruiters require additional attention to ensure continued advocacy and consideration of partnership with Waterloo. Phase 3 will increase focus and budget allocation on business and industry leader audience segments.
• Strong preference for digital rather than print sources as the most effective communications method among key audiences. Phase 3 will continue to prioritize digital channels for effective reach, targeting, engagement and measurement.

Campaign-based considerations include:
• Align the campaign with emerging University priorities and objectives;
• Further align University Relations earned, paid, organic and owned content calendars to create the right timing and frequency of content creation and distribution;
• Support the BEYOND Impact event in Vancouver (November 13) with event-specific promotion – see below;
• Create new, deeper in-app user experiences (e.g. develop in-stream paid media opportunities such as video, native content); and
• Enhance the campaign digital ecosystem (e.g. campaign-specific landing pages with value-added content and clear, audience-specific calls to action).
**Government Relations**

During the first 100 days of the new Ontario government, the University focused its efforts making connections with local elected officials as well as both political offices and the public service in the Ministries of Training, Colleges and Universities (TCU), Economic Development, Job Creation and Trade (EDJCT), Finance, Treasury Board and the Premier’s Office.

The University is highlighting our key differentiators and substantial economic impacts in Ontario that come from creating 20,000 work placements for students each year, supporting an entrepreneurial culture and ventures as well as our long record of working with industry on research in emerging technologies. Our goal is to maintain or improve our system share of funding and identify areas where Waterloo can support and deliver on the government’s goals of preparing work-ready talent, promoting job creation, and enhancing economic development.

Additionally, the Government of Ontario released the 2017-2018 Public Accounts and Findings of the Independent Financial Commission of Inquiry, as well as the *Managing Transformation - A Modernization Action Plan for Ontario* on September 21st and 25th respectively. Both documents offer insights into the current state of Ontario’s finances, as well as the Government’s options to return to a balanced budget.

**Transit Advocacy**

On September 20th, Minister of Transportation John Yakabuski announced the addition of two rail cars during four rush hour trips that begin and end at Kitchener GO, expanding the length from 10 to 12 cars.

The University of Waterloo continues to advocate to the provincial and federal governments for better transportation linkages from Waterloo to Toronto, including as part of a Region led coalition.

**Government Officials Campus Visits**

- May 17th: Cabinet Office visit to campus
- May 17th: Doug Ford campaign visit to Engineering 5
- May 28th: New Deputy Minister Champion Paul Thompson (ISED, ADM) visit to campus
- June 1st: Kathleen Wynne campaign visit to Engineering 5
- June 5th: Hosted Australian Universities visit to campus
- June 6th: MEDG/MRIS visit to the Velocity Garage
- June 25th: Destination Canada visit to campus
- July 24th: Minister Chagger made a funding announcement on behalf of Public Safety Canada
- August 10th: Minister Duncan announces NSERC Strategic Partnership Grants for Networks and Projects with UW and industry partner in Oakville
- August 14th: Campus tour for Invest in Canada executives
- August 30th: Visit to Velocity by Minister Wilson
- September 4th: Visit of local NDP MPPs
- September 5th: Visit of local PC MPPs
- September 27th: Visit of Parliamentarians from the National Assembly of France
- September 28th: Velocity 10th Anniversary event attended by local elected officials and their designates
ADVANCEMENT UPDATE

Campaign Planning

The Campaign Planning Committee, chaired by former board member Mike Stork, has held three quarterly meetings and will hold its first in-person two-day collision workshop on October 29th and 30th to advance decision making and meet with the President, VPs, Deans, AVPs and Directors personally to learn about priority funding initiatives for the future. The Committee is preparing a draft recommendation for early 2019 that will include the financial goals of the proposed campaign; the proposed timeline; themes and funding priorities; donor pipeline and volunteer structure and a gap analysis of the areas to be addressed in 2019 so that the University will be positioned to be campaign ready by 2020.

Sustainable Growth Strategy

In order to build sustainable growth in fundraising, the central Advancement and Faculty teams operate on this strategic framework:

1. Alumni and donor-centred decision-making and strategy-setting
2. Faculty focus
3. President and leadership engagement
4. Central Advancement optimization
5. Accountability, transparency and results

Activities in these areas from May 1 to September 30 include:

1. Alumni and donor-centred decision-making and strategy-setting

I200/C100

- The I200 list currently stands at 184 individuals/family relationships. The C100 list stands at 97 major corporations and foundations - 95% of our initial targets. To ensure the list is regularly replenished, a third list dubbed the 'X300' (up-and-coming segment of donor pipeline) is under development.

Donor relations

- The 2017-2018 Report on Giving was produced in digital and print versions, shared with 10,000+ donors in September.
- Annual President’s Reception is October 30 at Federation Hall following the Board meeting.

Volunteer engagement

- The Global Alumni Volunteer Network plan, created in partnership with the Alumni Council, will engage our alumni worldwide to have a more meaningful relationship with the University and facilitate more opportunities for alumni and students to connect. This network will be built in three stages; a) create the network by restructuring the chapter groups, aligning activities with Advancement goals and UWaterloo strategic plan; b) transition the network with a new structure for all 10 chapters and create new chapters, and c) grow the network with new volunteer opportunities. This model will eventually be self-sustaining. Alumni Council President, John Haddock (BA ’78), will support the development and launch of new volunteer chapters in the Waterloo and Toronto regions in early 2019 through the creation of advisory councils comprised of interested alumni.
2. Faculty focus

- Worked collaboratively with the Deans to develop a medium-term case for support, Beyond Possible: Challenging Assumptions, Changing the World. This is a print and digital storytelling tool to use with major and principal level donors to inspire and build the pre-campaign pipeline. Faculty and unit-specific fundraising priorities are inserted in the back pocket.
- The Faculty Advancement Directors, VP, Advancement and AVPs now meet bimonthly to discuss priorities, campaign planning, areas for collaboration, and strategy at the newly formed Advancement Strategy (S12) meetings. In alternate months, they meet to review progress to goals.
- Every Dean now meets with their Advancement Director, VP, Advancement and the AVP, Advancement Strategy each term to discuss priorities, advance the case, and become campaign-ready.

3. President and leadership engagement

- Below is a summary of activity President’s Advancement activity, from May 1- October 31, 2018.

<table>
<thead>
<tr>
<th>Activity Category</th>
<th>Running Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospect/donor calls (individuals, foundations, corporations, and other organizations with Advancement as a focal point)</td>
<td>22</td>
</tr>
<tr>
<td>Conferences*</td>
<td>2</td>
</tr>
<tr>
<td>Private dinners at the President’s home</td>
<td>2</td>
</tr>
<tr>
<td>Campus visits by companies (with major Presidential involvement)</td>
<td>2</td>
</tr>
<tr>
<td>Advancement/alumni events and other activities (including vision roundtables, VIP gatherings)</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total for Q1 and Q2 2018-19</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

*Includes participation at the Ontario Global 100 Conference (May 2018) and Invest India Conference (Sept 2018).

- 2017/18 was an unprecedented year for Presidential Advancement activity, with more than 135 meetings, the majority of which were face-to-face prospect calls and small group engagements. This year, Advancement has scaled back this activity to focus on high-value meetings, but anticipate 100+ donor calls, small group activities, and major Advancement events.
- The Vice President, Advancement has participated in or booked at least 65 distinct donor/alumni activities since May 1, with 60% in support of the President’s Advancement activity. During October 2018, the VP, Advancement will meet with alumni and donors in the GTA, Waterloo Region, and NYC, and a small group of top alumni in Sydney, Australia.

4. Accountability, transparency and results

- Results of September 30 of $5,830,258 in support of the University compares favourably with last year’s $4,541,246 at the same time.
- Nine donors at the $100,000+ level is more than double what we achieved during the same period last year and indicates positive momentum at this key level.
• **Endowment fund reports** are being prepared and donors will receive their packages in October.

**STRATEGIC PLANNING – 2020-2025**

To begin the strategic planning process for 2020 to 2025, I delivered a discussion paper to the community called “Disrupting the 21st Century University” that reflected my vision for what Waterloo could be in 2025. In addition, the University launched a series of seven issue papers, which were presented at the June 2018 Board of Governors’ meeting. The primary objectives of the issue papers is to identify Waterloo’s current status in each topic area, including strengths, barriers and opportunities for moving forward. These issue papers, along with the 2013-2018 Strategic Plan Summative Reports, form the basis of evidence and common frame of reference for the strategic plan consultations that launched in the fall.

A Strategic Plan Advisory Committee (SPAC) was also formed, with representation from Faculty deans, university vice presidents, student representatives (graduate and undergraduate), staff representatives, faculty representatives and an alumni representative. This committee will provide advice and feedback to guide the plan development process, and will engage members of their respective constituencies for input and feedback as appropriate.

A Bridge to 2020 website was launched as the hub for strategic planning activity. This website hosts a description of the planning process, registration details for in-person consultation, the strategic plan survey, and the strategic plan issue papers.

Consultations for the 2020-2025 strategic plan officially launched in September 2018. Campus is provided with a variety of ways to contribute to the planning process between September and November. Opportunities to contribute include: at least 30 stakeholder-based in-person consultations, an online strategic plan survey, feedback on each of the seven issue papers, and an email address to submit informal feedback.

Consultations focus on the following three questions:

- Considering your vision for the University, and the evidence provided, what **outcomes** do you think we need to **achieve by 2025**?
- What would you **see and hear** that would tell us the goals have been achieved?
- By 2025, what does Waterloo need to achieve in its overall **distinctive characteristics** (experiential education, entrepreneurship, and innovation)?

In-person consultations include stakeholder groups: undergraduate and graduate students, staff, faculty, alumni, and members of the Board of Governors. Six Faculty-based consultations are hosted by the faculty deans, and finally we are facilitating issue-based consultations (Empowering People, Graduate Studies, Internationalization, Learning Environment, Leveraging Resources, Research, Undergraduate Learning, as well as Entrepreneurship).

The Strategic Plan Survey is an online survey to which the entire campus community and members of the Board of Governors were invited to participate. The survey asks for feedback on the University’s mission and values, as well as the general consultation questions (see questions above).

Participation in the planning process has been encouraged via a variety of communications channels including: the President’s Update, the University’s Daily Bulletin e-newsletter, a variety of newsletters (FAUW, Staff Association, Graduate and Undergraduate student newsletters), a message to students about the strategic plan survey on LEARN, social media (Twitter, etc.), displays on campus digital screens, and targeted invitations from SPAC members to their constituencies.
We are half way through the broad consultations and have met with over 470 people so far, (including the Board members). We also received over 1350 responses to the survey. This broad consultation process is concluding at the end of November.

The analysis of the themes that emerge from the consultation phase, prioritizing and development of the goals will continue to early 2019.

MACLEAN’S 2019 UNIVERSITY RANKINGS (released in October 2018)

SUMMARY OF UNIVERSITY OF WATERLOO’S RESULTS

Overall Comprehensive Rankings (position out of 15 universities)

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>2019</th>
<th>2018</th>
<th>CHANGE FROM PREVIOUS YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Awards</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Student/Faculty Ratio</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Student Satisfaction</td>
<td>10</td>
<td>11</td>
<td>*</td>
</tr>
<tr>
<td>Awards per Full-time Faculty</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Social Science and Humanities Grants</td>
<td>2</td>
<td>1</td>
<td>*</td>
</tr>
<tr>
<td>Medical/Science Grants</td>
<td>2</td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td>Citations</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total Research Dollars</td>
<td>3</td>
<td>2</td>
<td>*</td>
</tr>
<tr>
<td>Operating Budget</td>
<td>11</td>
<td>10</td>
<td>*</td>
</tr>
<tr>
<td>Library Expenses (as a percent of operating expenses)</td>
<td>*14</td>
<td>*14</td>
<td>-</td>
</tr>
<tr>
<td>Library Acquisitions (acquisitions as a percent of library budget)</td>
<td>5</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Scholarships and Bursaries (as a percent of operating expenses)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Student Services (as a percent of operating expenses)</td>
<td>12</td>
<td>*12</td>
<td>*</td>
</tr>
<tr>
<td>Reputation (see detailed breakdown below)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overall</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: 1) * indicates a tie with another institution  
2) 2019 Rankings are released in October 2018

National Reputational Survey Rankings (position out of 49 universities)

<table>
<thead>
<tr>
<th>MACLEAN’S REPUTATIONAL SURVEY BREAKDOWN (includes all 49 universities)</th>
<th>2019</th>
<th>2018</th>
<th>CHANGE FROM PREVIOUS YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Quality</td>
<td>3</td>
<td>2</td>
<td>*</td>
</tr>
<tr>
<td>Most Innovative</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Leaders of Tomorrow</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Best Overall</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

PRESIDENT’S ADVISORY COMMITTEE ON STUDENT MENTAL HEALTH UPDATE

The Committee on Student Mental Health (CoSMH) recently hosted the Student Mental Health Forum on October 24th, inviting students, staff and faculty, and community partners to join us to engage in the committee’s activities, and to mark the adoption of the Okanagan Charter. Through adoption, University of Waterloo is committing to the prioritization of health and wellness in strategic planning and policy, the development of a university-wide collaborative, and the
promotion of health and wellness across campus. These commitments are published online, and the University of Waterloo joins a network of other Canadian post-secondary institutions who are prioritizing wellness through the Charter.

Since CoSMH completed the prioritization of all 36 recommendations with feedback from various stakeholders across campus, a total of 40 per cent of the recommendations are underway or have been completed. The implementation status of the recommendations and the details of their progress can be monitored on the newly launched CoSMH website and dashboard. Interested parties can use these tools to monitor the committee’s progress, and keep up to date with monthly updates on CoSMH activities. The work of the PAC-SMH and CoSMH have also been noted by the Mental Health Commission of Canada (MHCC), who has approached UWaterloo to participate in the Canadian Standards Association (CSA) effort in creating a set of standards on Student Psychological Health and Safety. John P. Hirdes, CoSMH chair, and Walter Mittelstaedt, director of Campus Wellness, will work together to engage in the consultation process on a technical committee.

INDIGENIZATION STRATEGY

The working groups concluded their work in June and suggested that all recommendations be compiled into one document, which I have now received.

The steering committee suggested I strike an advisory committee to advance this work, which I support, but also wanted to consult with local and national communities to ensure we have appropriate Indigenous leadership and governance to inform the structure, process and governance of this advisory committee before moving forward.

As you know Chief Ava Hill joined the Board of Directors in the spring and I look forward to her counsel as well. I will make an announcement in the coming weeks concerning a new hire that I believe will make a valuable contribution as we seek to develop and deliver an Indigenization strategy for the University of Waterloo.

 VELOCITY UPDATE

**Top Line KPIs**

- $820M+ investment raised by Velocity companies
- Currently, 68 companies in Velocity Garage + 14 teams in Velocity Science (on campus)
- Velocity celebrated 10th anniversary of Velocity! (great engagement from federal and municipal governments + entrepreneur community)
- Continuing to expand graduate student engagement, >30% of startups at Velocity Garage (portfolio of ~70) have a founder with a graduate degree
- Working to secure provincial and federal funding given that existing incubator funding programs from both levels of government expiry this fiscal.

**Funding, Growth, Scaling**

- **Embank** (autonomous trucking) closed investment of $39M to fund growth
- **ApplyBoard** (marketplace for international students to apply to US/Canadian universities) closed investment of $17M to fund growth. They employ over 70 people and is growing fast.
- **Avro Life Science** (skin patches that deliver drugs) secured investment of $2.6M
• **Penta Medical** (wearable that delivers physio treatment) and **OpenPhone** (business phone systems reinvented for BYOD smartphone world) both completed Y-Combinator and raised >$1M investment to fund growth

• **Serenity Bioworks** (drug platform that enables gene therapy drugs) accepted to world-renown biotech accelerator IndieBio accelerator.

• **HITCH** (enabling video content education Africa) and **NERV** (implantable biochip for post-op complication detection)) accepted into HAX Accelerator (highly competitive hardware accelerator in Shenzhen backed by venture-capital investor SOSV)
PRESENTED'S UPDATE
BOARD OF GOVERNORS

10/30/2018

Presented by: Feridun Hamdullahpur
President and Vice-Chancellor
Donna Strickland – Nobel Prize Physics

Groundbreaking inventions in the field of laser physics

1st time in 55 years that a woman has been honoured with a Nobel Prize in Physics
Managing Director, Emeritus, McKinsey & Company
Installation of the University of Waterloo’s 11th Chancellor
Saturday, October 27, 2018
WELCOME

Welcome our New Senior Administrators;

Dr. Jim Rush – Vice President Academic & Provost
Effective July 1, 2018

Dr. Norah McRae – Associate Provost, Co-operative and Experiential Education
Effective September 1, 2018
ROYAL SOCIETY OF CANADA UPDATES:

Dr. Feridun Hamdullahpur
Mechanical & Mechatronics Engineering
Specially Elected Fellow

Dr. Zhou Wang
Electrical & Computer Engineering
RSC Fellow

Dr. Alex Wong
Systems Design Engineering
RSC College of New Scholars, Artists, and Scientists Member

Dr. Carolyn Ren
Mechanical & Mechatronics Engineering
RSC College of New Scholars, Artists, and Scientists Member

Dr. Jennifer Clapp
School of Environment, Resources, & Sustainability
2018 Innis Gérin Medal
ADMISSIONS

Effective September 1, 2018

- Undergraduate* - 6,900 (Sept. 2017 – 6,659)
- Master’s** - 1,941 (Sept. 2017 – 1,950)
- PhD** - 344 (Sept. 2017 – 333)

• *New, first-year, degree-seeking, full-time enrolments up about 4% over target

• **Comparing these new admits with an average of the previous three years, Masters accepted offers are up by 9% and PhD accepted offers are up by 12%.

• UW now has 22 UG Schulich scholarship recipients (up from 18 in 17-18)
FACULTY NEW HIRES

September 1, 2017 – September 1, 2018
New: 64 (2017 - 36)
Replacement: 26 (2017 – 38)
Overall Positions: 90 (2017 – 74)

Gender Breakdown: 39 female, 51 male
GOVERNMENT RELATIONS – PROVINCIAL DEVELOPMENTS

- New Appointments for Ministry of Training, Colleges and Universities;
  
  Hon. Dr. Merrilee Fullerton,  
  Minister  
  
  George Zegarac,  
  Deputy Minister  

- Ontario government undertaking review of spending for improvement, efficiencies and cost-savings with final report released in the fall

- MTCU requirement for every university to have a policy regarding free speech on campus by January 1, 2019

- Future of SMA
GOVERNMENT RELATIONS – FEDERAL DEVELOPMENTS

- Super Clusters
- Digital Research Infrastructure
  - Governance
  - Structure
  - Investment $62M/$570M
STUDENT MENTAL HEALTH UPDATE

- Making significant progress on the 36 recommendations highlighted in the PAC-SMH in March 2018
- The implementation committee, chaired by Dr. John Hirdes, is currently working on or has completed approx. 40% of the recommendations

Upcoming:

- Report on progress and announcing adoption of Okanagan Charter (October 24th, Mental Health Town Hall event)
- Appointing student spokespersons, soon to receive media relations training
- Creating a website with a dashboard dedicated to providing updates on CoSMH progress
GENERAL UPDATES

- Indigenization Strategy
- Saudi Arabian Students
- Salient Energy
- Free Speech
## World University Rankings

### Research University of the Year (Comprehensive Category) 11 years in a row

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Fall 2017</th>
<th>Fall 2018</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>QS</td>
<td>152</td>
<td>163</td>
<td>↓</td>
</tr>
<tr>
<td>ARWU</td>
<td>201-250</td>
<td>190</td>
<td>↑</td>
</tr>
<tr>
<td>THE</td>
<td>201-250</td>
<td>201-250</td>
<td>-</td>
</tr>
</tbody>
</table>
MACLEANS - 2018

- 1st place in Most Innovative for the 27th year in a row (Toronto and UBC are 2nd and 3rd, respectively)
- 3rd in the Highest Quality category (behind Toronto and McGill)
- 2nd in the Leaders of Tomorrow category (behind Toronto)
- 2nd in the Best Overall category (behind Toronto)
Strategic Plan Summative Reports
## Strategic Plan Outcomes

<table>
<thead>
<tr>
<th>Measures</th>
<th>2013/14</th>
<th>2017/18</th>
<th>Change/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of incoming students enrolled in co-op</td>
<td>68.9%</td>
<td>72.5%</td>
<td>↑ 3.6 ppt</td>
</tr>
<tr>
<td>Co-op employment rate</td>
<td>96.6%</td>
<td>98.5%</td>
<td>↑ 1.9 ppt</td>
</tr>
<tr>
<td>Velocity ventures, one year survival rate</td>
<td>84.3%</td>
<td>91.0%</td>
<td>↑ 6.7 ppt</td>
</tr>
<tr>
<td>Investment funding for current and alumni ventures</td>
<td>$3.9M</td>
<td>$44.6M</td>
<td></td>
</tr>
<tr>
<td>Undergraduates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent alumni</td>
<td>$97.9M</td>
<td>$160.1M</td>
<td></td>
</tr>
</tbody>
</table>


## Strategic Plan Outcomes, Continued

<table>
<thead>
<tr>
<th>Measures</th>
<th>2013/14</th>
<th>2017/18</th>
<th>Change/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sponsored research</td>
<td>$180.9M</td>
<td>$224.3M</td>
<td>↑ 24.0%</td>
</tr>
<tr>
<td>Industry sponsored research</td>
<td>31.1%</td>
<td>29.5%</td>
<td>Steady</td>
</tr>
<tr>
<td>Fully online courses available</td>
<td>286</td>
<td>407</td>
<td>↑ 42.3%</td>
</tr>
<tr>
<td>QS Rankings, subjects in top 100</td>
<td>7</td>
<td>11</td>
<td>↑ 4</td>
</tr>
<tr>
<td>International study and experiential learning experiences (excludes co-op)</td>
<td>312</td>
<td>987</td>
<td>↑ &gt; 200%</td>
</tr>
<tr>
<td>International co-op work terms</td>
<td>2,010</td>
<td>2,993</td>
<td>↑ 48.9%</td>
</tr>
<tr>
<td>Measures</td>
<td>2013/14</td>
<td>2017/18</td>
<td>Change/Notes</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>International research funding</td>
<td>$17.4M</td>
<td>$20.8M</td>
<td>↑ 19.5%</td>
</tr>
<tr>
<td>Study space</td>
<td>42.0%</td>
<td>128.8%</td>
<td>*not directly comparable</td>
</tr>
<tr>
<td>Student &amp; central services space</td>
<td>73.4%</td>
<td>62.3%</td>
<td>not directly comparable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(coding changes)</td>
</tr>
<tr>
<td>Percentage of new staff hires – female</td>
<td>56.8%</td>
<td>63.3%</td>
<td>↑ 6.5 ppt</td>
</tr>
<tr>
<td>Female faculty</td>
<td>28.1%</td>
<td>30.1%</td>
<td>met HeForShe Target of 30%</td>
</tr>
</tbody>
</table>
Students – Campus Experience

**OVER 80% OF GRADUATING STUDENTS** rated the quality of their Waterloo education as **GOOD OR EXCELLENT** and would return to Waterloo if they could start over; higher than ON peers* (NSSE 2017)

**ABOUT 70% OF GRADUATING Respondents …**

> report spending time on co-curricular activities; higher than ON peers* (NSSE 2017)
> are satisfied with opportunities to become involved on campus (CUSC 2018)

* statistically significant

**74% OF FIRST-YEAR Respondents (CUSC 2016)** are satisfied with the concern shown them by the University; only **42% of graduating students are satisfied** (CUSC 2018)
# Performance Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2013/14</th>
<th>2017/18</th>
<th>Change/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE Enrolment</td>
<td>32,629</td>
<td>35,156</td>
<td>↑ 7.7%</td>
</tr>
<tr>
<td>Degrees Awarded</td>
<td>7,463</td>
<td>8,159</td>
<td>↑ 9.3%</td>
</tr>
<tr>
<td>Faculty (full-time)</td>
<td>1,139</td>
<td>1,260</td>
<td>↑ 10.6%</td>
</tr>
<tr>
<td>Student to Faculty Ratio (adj.)</td>
<td>25.4 : 1(2014)</td>
<td>25.1 : 1(2017)</td>
<td>↓ 0.3 ppt</td>
</tr>
<tr>
<td>Staff</td>
<td>2,201</td>
<td>2,466</td>
<td>↑ 12.0%</td>
</tr>
<tr>
<td>Staff to Faculty ratio</td>
<td>2.0</td>
<td>2.0</td>
<td>Steady</td>
</tr>
</tbody>
</table>
## Performance Indicators, Continued

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2013/14</th>
<th>2017/18</th>
<th>Change/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Retention to 2\textsuperscript{nd} year</td>
<td>92.3%</td>
<td>93.9%</td>
<td>↑ 1.6 ppt</td>
</tr>
<tr>
<td>Co-op Enrolment (FT UG heads)</td>
<td>18,448</td>
<td>21,606</td>
<td>↑ 17.1%</td>
</tr>
<tr>
<td>Avg. Co-op Earnings per student</td>
<td>$12.9K</td>
<td>$14.1K</td>
<td>↑ 9.3%</td>
</tr>
<tr>
<td>Sponsored Research Revenue</td>
<td>$180.9M</td>
<td>$224.3M</td>
<td>↑ 24.0%</td>
</tr>
<tr>
<td>Operating Revenue</td>
<td>$640.4M</td>
<td>$786.8M</td>
<td>↑ 22.9%</td>
</tr>
</tbody>
</table>
SP 2013-2018: Looking Ahead, Waterloo needs to...

- Address competition in co-op and other forms of experiential education
- Develop common goals for the rich entrepreneurial ecosystem
- Foster interdisciplinary collaboration and lead in new and emerging research areas
- Remain competitive in recruiting and retaining excellent faculty
- Increase and diversify research funding (industry/government contracts, foundations and non-profit organizations)
Looking ahead, continued

- Continue to pursue strong international linkages with world-leading universities
- Strengthen and develop innovative pedagogy
- Implement recommendations from President’s Advisory Committee on Student Mental Health
  - Continue to create physical spaces and support factors that encourage student community development
- Embrace equity, diversity and inclusivity; develop a “people plan” to advance the University’s next strategic plan
Bridge to 2020

- Developed framework: key elements, stages, roles, principles and process
- Established advisory committee: SPAC
- Phases:
  1. Evidence Gathering Phase
     - Completed issue papers on seven areas of vital interest to the University and other supporting documents (Elsevier assessment of Waterloo’s trends and strengths in research)
     - Completed final report for 2013-2018 Strategic Plan; Presented to BoG in October
  2. Consultation Phase
     - Launched consultation phase June 18
     - 30 consultations with stakeholder groups, Faculties and on seven issue paper areas (September 10-November 18)
Consultation Phase

- 30 Consultations:
  - Two with each stakeholder group: undergraduate students, graduate students, faculty, alumni
  - One with each Faculty (hosted by Deans)
  - Two for each of the seven issue papers:
    - Undergraduate Learning, Learning Environment, Empowering People, Research
    - Consultations with key leadership groups: Board of Governors, Senate
  - Additional opportunities may be added as the consultations progress
2017-2020 Strategic plan development timeline

Winter 2018

Launch Event
Reflecting back, looking forward

2013 – 2018 Summative

Spring 2018

2020 – 2025 Preparation

Fall 2018

Consultation Phase

Winter 2019

Priorities, Goals & Objectives

Spring 2019

Strategic Plan Development

Fall 2019

Strategic Plan Approval

Winter 2020

SP Implementation & Accountability

Spring 2020

2020 – 2025 SP Begins
THANK YOU!
Waterloo – Internationalization

30 October 2018

Ian Rowlands

Associate Vice-President, International
Outline

- Defining internationalization
- Why internationalization?
- Waterloo’s internationalization activities
  - At home
  - Abroad
  - Connections
- Global trends
- Leadership for the world
Internationalization...

‘...is the intentional process of integrating an international, intercultural or global dimension into the purpose, functions, and delivery of postsecondary education, in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society.’

Source: European Parliament’s Committee on Culture and Education
Why internationalization?

- Diverse perspectives for advancing knowledge
- Opportunities for students to utilize the best infrastructure at home and globally
- Global networks of excellence developed
Why internationalization?

- Enabling a broader perspective for our leaders of tomorrow
  - Advancing cross-cultural understanding
Why internationalization?

- Help build a connected, prosperous world
Internationalization at Waterloo

- At home
- Abroad
- Connections
Internationalization at home

Celebrating our global population on campus

In 2017/18:

- **6,023** (20%) - International UG
- **1,833** (40%) - International GRAD
- **350** (30%) - International faculty
Internationalization abroad

In 2017/18:

987 - International academic experiences

2,993 - International co-op work-terms

Staff International Experience Fund recipients
International connections

In 2017/18:

$20.8 million in international funding

Agreements with 38 of world’s top universities

17,850 alumni with whom we are in touch

Over 52% of Waterloo co-authored papers are with international collaborators
Global trends

The world’s economic center of gravity is shifting back to Asia.

Africa today also represents a huge opportunity

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.3 trillion</td>
<td>2016 collective real GDP</td>
</tr>
<tr>
<td>~$4 trillion</td>
<td>2015 consumer and business spending</td>
</tr>
<tr>
<td>&gt;1.1 billion</td>
<td>Expected size of working-age population by 2034</td>
</tr>
<tr>
<td>&gt;40 million</td>
<td>Expected size of middle class in 2040, from 15 million today</td>
</tr>
<tr>
<td>55 percent</td>
<td>Smartphone penetration in 2020 (vs. 28% in 2016)</td>
</tr>
</tbody>
</table>

Source: Lions on the Move 2.0, McKinsey Global Institute, September 2019

Source: https://www.youtube.com/watch?v=HhMbxtVT-w8E
Global trends: R+D spending

http://uis.unesco.org/apps/visualisations/research-and-development-spending/
Global trends: demand for tertiary education

Figure 7. Regional contribution to next middle class billion, 2015-2022

Source: Author’s calculations

Source: Homi Kharas, ‘The Unprecedented Expansion of the Global Middle Class: An Update’,
Global trends: countries of influence

Table 1: GDP at PPP rankings

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>17,632</td>
<td>China</td>
<td>36,112</td>
<td>China</td>
<td>61,079</td>
</tr>
<tr>
<td>2</td>
<td>United States</td>
<td>17,416</td>
<td>United States</td>
<td>25,451</td>
<td>India</td>
<td>42,205</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>7,277</td>
<td>India</td>
<td>17,138</td>
<td>United States</td>
<td>41,384</td>
</tr>
<tr>
<td>4</td>
<td>Japan</td>
<td>4,788</td>
<td>Japan</td>
<td>6,006</td>
<td>Indonesia</td>
<td>12,210</td>
</tr>
<tr>
<td>5</td>
<td>Germany</td>
<td>3,621</td>
<td>Indonesia</td>
<td>5,486</td>
<td>Brazil</td>
<td>9,164</td>
</tr>
</tbody>
</table>

Waterloo to the world, the world to Waterloo

- The new strategic plan ...
Internationalization 1.0

Manipal Academy of Higher Education ...
skilلوdsbc.com

Florida International University Signed ...
indieeducationtery.in

Casper Foundation and United ...
dhsskitribune.com

Sahyadri signs MoU with Florida ...
newasiansdaily.com

International College, Burapha ...
buu.ca.u.ac.th

QIUP links smart partnership MO ...
qilp.edu.my

MoU with 9 International Universities ...
kst.ac.in

Plastindia International University ...
plastindia.org

Scholartroop | Home
scholartroop.com

Express route to CIMA qualifications ...
ciup.edu.my
Internationalization 2.0

China 2+2 programs
Internationalization 3.0

Articulated institutional commitment

Administrative structure and staffing

Curriculum, co-curriculum, and learning outcomes

Faculty policies and practices

Student mobility

Collaboration and partnerships

Comprehensive Internationalization
Internationalization 3.0 at Waterloo

Waterloo leadership = integrated, focused, and with select relationships

Identify transformative opportunities

Work with the best in the world

Build on existing relationships
Challenges and Opportunities

- Transformative global forces – What is changing the world?
- Future skills - What skills and talents will the world need in the years to come?
- Global citizens - How can we best create a globally-engaged community on campus?
- Future partners – Where are our critical strategic partners in a changing world?
Strategic Plan - internationalization

Next Strategic Plan consultation on Internationalization issue paper:

November 21st, 2018
2:00pm-3:30pm
EIT 3142

Find the Internationalization Issue Paper at: https://uwaterloo.ca/strategic-plan/bridge-to-2020/issue-papers/internationalization
Thank you

Ian Rowlands
AVP, International
ext. 45466
irowlands@uwaterloo.ca
@IanHRowlands
Additional photo and image sources

- Slide 5: https://uwaterloo.ca/co-operative-education/working-abroad/cecas-where-world-co-op-photo-contest/international-co-op-photo-contest-2013
- Slide 8: https://uwaterloo.ca/orientation/events/international-orientation; https://uwaterloo.ca/student-success/students/international-student-resources/international-peer-community
- Slide 15: https://uwaterloo.ca/international/partnerships
- Slide 16: http://www.google.com
- Slide 18: https://www.acenet.edu/news-room/Pages/CIGE-Model-for-Comprehensive-Internationalization.aspx
- Slides 7, 10, 21: Waterloo International
This report is submitted for inclusion in the regular agenda.

FOR APPROVAL

Change to the Memorandum of Agreement between the Faculty Association of the University of Waterloo (FAUW) and the University of Waterloo

Motion: To approve the following amendment to Article 13.5.11 of the Memorandum of Agreement between FAUW and the University of Waterloo.

Current text, with amendments
(new text denoted with underline; deletions denoted with strikethrough)

13.5.11
For each evaluation period, members shall have online access to, at a minimum, histograms showing the distribution by rank in the Faculty, of: (a) final overall ratings and (b) unweighted ratings in the categories of teaching, scholarship, and service, shall be provided to each Member with their performance evaluation. Ratings histograms for small Departments may be combined with those of other Departments from similar disciplines in the same Faculty in order to preserve confidentiality. In cases where there are fewer than ten members of the same rank within a Faculty, instead of histograms, those members shall be provided with averages by rank. In cases where there are fewer than three members of the same rank within a Faculty, no data shall be provided.

Proposed new clean text

13.5.11
For each evaluation period, members shall have online access to, at a minimum, histograms showing the distribution by rank in the Faculty, of: (a) final overall ratings and (b) unweighted ratings in the categories of teaching, scholarship, and service. In cases where there are fewer than ten members of the same rank within a Faculty, instead of histograms, those members shall be provided with averages by rank. In cases where there are fewer than three members of the same rank within a Faculty, no data shall be provided.

Rationale: The proposed amendment will serve to make histograms more accessible to faculty members by providing for online access. As well, the provision of department-level rankings in small departments is removed to provide information that would be comparatively more useful of the individual faculty member, in the form of averages by rank within the Faculty.

James Rush
Vice-President, Academic & Provost
This report is submitted for inclusion in the consent agenda.

RECOMMENDATION

Motion: To approve the allocation of responsibilities for implementing Environmental, Social & Governance-related (“ESG”) investment approaches as recommended in this report.

Background: At its meeting on 5 June 2018, the Board of Governors approved the recommendations outlined in the report from the Responsible Investing Working Group. The report also included a proposed eight-step action plan with the first two actions to be completed in Fall 2018:

1. “Amendment of the SIPP and investment guidelines ..... “. The three revised investment guidelines are provided through the regular committee reports, from the Pension & Benefits Committee and the Finance & Investment Committee.

2. “Allocation by the Board of Governors of responsibility for making ESG decisions for each of the identified groups of investment holdings”. The allocation of these responsibilities is addressed in this report.

Following consultation with the Finance & Investment Committee and the Pension & Benefits Committee, it is recommended that the University adopt institution-wide ESG guidelines applicable to all investment funds.

Institution-wide ESG guidelines applicable to all investment funds:

- Each investment fund must comply with its Board approved Statement of Investment Policies & Procedures/Investment Guidelines
- All investment approaches must meet the fiduciary obligations and purposes of the investment fund
- ESG factors are to be integrated with traditional investment analysis and decision making processes to enhance risk management and help identify potential investment opportunities
- The incorporation of ESG factors into the investment decision making process will not result in lower risk-adjusted return expectations
- The selection and retention of investment managers and/or direct investments will be based, in part, on the integration of ESG factors
- Each investment fund will communicate the ESG reporting requirements to its investment managers. Common ESG reporting requirements will be developed for those investment managers with allocations across multiple investment funds. UW may retain an investment consultant to provide commonly required ESG analysis to supplement the investment manager reporting.
- The implementation of ESG approaches will be supportive of UW becoming a signatory to the United Nations Principles for Responsible Investing (UN PRI)

These institution-wide ESG guidelines will be operationalized through the existing committee structure:

<table>
<thead>
<tr>
<th>Investment Fund</th>
<th>Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Pension Plan</td>
<td>Pension Investment Committee</td>
</tr>
<tr>
<td>Endowment</td>
<td>Finance &amp; Investment Committee</td>
</tr>
<tr>
<td>Special Purpose Trust</td>
<td>Finance &amp; Investment Committee</td>
</tr>
<tr>
<td>Operating</td>
<td>Finance &amp; Investment Committee</td>
</tr>
</tbody>
</table>

Note: UW staff will ensure that both committees are aware of the other's implementation methods.
Current Examples of ESG factors (for information)

Environmental
- climate change
- greenhouse gas (GHG) emissions
- resource depletion, including water
- waste and pollution
- deforestation

Social
- working conditions, including slavery and child labour
- local communities, including indigenous communities
- conflict
- health and safety
- employee relations and diversity

Governance
- executive pay
- bribery and corruption
- political lobbying and donations
- board diversity and structure
- tax strategy

Source: United Nations Principles for Responsible Investment
This report is submitted following the committee’s meetings of 25 July 2018 and 11 October 2018.

FOR APPROVAL

1. APPOINTMENT OF EXTERNAL AUDITORS
   Motion: To reappoint Ernst & Young as the university’s external auditors for the fiscal year ending 30 April 2019.

   Background: This recommendation is made with the endorsement of the vice-president, administration & finance, and in conjunction with the approval of the audit plan and fee (item #3 of this report).

FOR INFORMATION

2. AUDITED FINANCIAL STATEMENTS
   The audited Financial Statements for the fiscal year ended 30 April 2018 were reviewed by members at the 25 July 2018 meeting and approved by the Board Executive Committee on behalf of the Board of Governors on 3 August 2018.

3. EXTERNAL AUDIT PLAN AND FEES FOR 2019
   The committee reviewed and approved the external audit plan and fees for the fiscal year ended 30 April 2019 as proposed by the external auditors (Ernst & Young), concluding that the approach and fees are appropriate.

4. DIRECTORS AND OFFICERS INSURANCE
   The committee reviewed coverage and found it satisfactory.

5. UNIVERSITY RISK MANAGEMENT PROJECT UPDATE
   The committee received a status report on the university risk management program, as well as the university’s biannual risk assessment in accordance with Policy 11 – University Risk Management.

6. STATUTORY COMPLIANCE
   The Secretariat maintains a list of federal and provincial statutes, municipal bylaws and international regulations (the “applicable laws”) posing the greatest potential for liability in the event of non-compliance. Managers responsible for institutional compliance with the applicable laws have each signed a declaration indicating that, to the extent of their responsibility and to the best of their knowledge, there are no issues of material non-compliance related to their areas of responsibility as at the date of their signature.

   Thorsten Heins
   Chair, Audit & Risk Committee

/rmw
This report is submitted following the committee’s meeting of 11 October 2018, for inclusion in the regular agenda.

RECOMMENDATION

1. Amendment to Finance & Investment Committee Terms of Reference

**Motion:** To recommend that the Board the Governors amend the terms of reference of the Finance & Investment Committee to add text that will delegate certain powers and responsibilities of the committee to the Pension Investment Committee as described:

...  

**The Board of Governors on [date] approved the delegation of specific powers and responsibilities of the Finance & Investment Committee to the Pension Investment Committee for the latter to be established as the operational locus of control for matters pertaining to the management of investment assets of the pension plan, as follows: (1) to review annually the Statement of Investment Policies and Procedures, with input from the Finance & Investment Committee; (2) to review and recommend the selection/termination of investment managers to the Pension & Benefits Committee for further recommendation to the Board of Governors; (3) to review and report on investment manager performance at least annually to the Finance & Investment Committee and the Pension & Benefits Committee; (4) to approve asset mix changes and investment decisions within the list of approved investment managers where the cumulative transaction(s) represent less than 15% of the pension plans total assets at the beginning of the calendar year, with reporting to the Finance & Investment Committee and the Pension & Benefits Committee as appropriate.**

Background: At the May 2018 meetings of the Finance & Investment Committee and the Pension & Benefits Committee, both bodies provided recommendations to the Board of Governors in support of the proposed Pension Investment Committee (PIC), which was ultimately approved in principle by the Board at its 5 June 2018 meeting. The approval in principle granted in June 2018 contemplated that the Finance & Investment Committee and the Pension & Benefits Committee would each retain the respective empowerments that exist within the existing terms of reference, and would delegate certain specific powers and responsibilities to the PIC with approval from the Board of Governors. This recommendation respects that approach and reflects the reallocation of powers and responsibilities approved by the Board of Governors.

2. Endowment Fund Investment Guidelines

**Motion:** To approve the revised Endowment Fund Investment Guidelines, as described in Attachment #1 and effective 1 November 2018.

**Background:** With the approval of the environmental, social and governance principles and guidelines at the June 2018 meeting of the Board of Governors, amendments to the endowment fund investment guidelines and the IQC fund investment guidelines are required to bring those documents in line with said principles and guidelines. Some minor text amendments to harmonize the language in the documents are also proposed.
3. IQC Fund Investment Guidelines

Motion: To approve the revised IQC Fund Investment Guidelines, as described in Attachment #2 and effective 1 November 2018.

Background: See rationale for item #2.

/mg

James Schlegel
Chair
Statement of Investment Guidelines

University of Waterloo
Endowment Fund

Effective Month 1, November 1, 2018

APPROVED on this day of , 2018

______________________________

on behalf of the University of Waterloo.

Replaces previous version, which was last revised, and effective on October 2015 March 2018.
Section 1—Overview

1.01 Purpose of Statement

This Statement of Investment Guidelines (the “Guidelines”) provides the framework for the investment of the assets for the University of Waterloo Endowment Fund (“Fund”).

These Guidelines are based on the “prudent person approach” to ensure the prudent investment and administration of the assets of the Fund.

These Guidelines also seek to establish ongoing communication between UW and others engaged in the administration of the Fund.

1.02 Standard of Care

These Guidelines are based on the “prudent person approach” to ensure the prudent investment and administration of the assets of the Fund. UW shall exercise the care, diligence and skill in the administration and investment of the Fund that a person of ordinary prudence would exercise. Such persons must further use all knowledge and skill that they possess or ought to possess.

1.03 Objective of the Fund

The objective of the Fund is to provide an annual revenue stream in perpetuity to fund specific activities of UW and to preserve its purchasing power.

1.04 Administration

UW is the legal owner of the Fund and is therefore responsible for all matters relating to the administration, interpretation and application of the Fund.

1.05 Background of the Fund

To provide investment income within acceptable risk tolerances, it is necessary to strive for sufficient/appropriate real investment returns on the Fund assets over medium- and long-term periods. The investment philosophy, policies and procedures adopted in this document will assist in the achievement of this goal in a prudent and effective manner.

These Guidelines have been developed taking into account factors such as:

a) The nature of the Fund’s liabilities;

b) Historical and expected capital market returns; and

c) The benefits of investment diversification.
Section 2 — Asset Mix and Diversification Policy

2.01 Risk/Return Considerations

Investment objectives for the Fund have been established (target 3% - 5% real rate of return) with regard to the:

a) Rate of return sufficient to meet the annual expendable obligations;

b) Rate of return sufficient to maintain the purchasing power of the endowed capital;

c) The risk tolerance which is acceptable to UW; and

d) Special factors, if any, which UW considers significant.

2.02 Investment and Risk Philosophy

UW recognizes that, based on historical data, the asset classes most likely to produce the greatest return over time are also likely to exhibit the most volatility. Conversely, the asset classes likely to be the least volatile are likely to produce the lowest returns over time. Therefore, the investment philosophies and strategies must take into account both return and risk objectives.

a) Investment Philosophy

The investment management structure employs a mix of active and passive management styles. Active management has been adopted for portions of the assets as it provides the opportunity to outperform common market indices over the long-term, while controlling active risk levels. Passive management has been adopted for portions of the assets as it minimizes the risk of underperformance relative to a benchmark index and is generally less expensive than active management. For information on how environmental, social and governance factors are considered in selecting investment managers, refer to Section 3.05.

Active equity fund managers are to apply the long-term value approach by investing in companies at prices below their underlying long-term values to protect capital from loss and earn income over time. The fund managers will attempt to identify financially sound companies with good potential profitability, which are selling at a discount to their intrinsic value. Appropriate measures of low prices may consist of low price-earnings, high dividend yields, and significant discounts to book value and low price to free cash flow. Downside protection is obtained by seeking a margin of safety in terms of sound financial position and a low price in relation to intrinsic value. Appropriate measures of financial integrity include debt/equity ratios, financial leverage, asset turnover, profit margin, return on equity, and interest coverage. It is anticipated that purchases will be made when economic and issue-specific conditions are less than ideal and sentiment is uncertain or negative. Conversely, it is expected that gains will be realized when issue-specific factors are positive and sentiment is buoyant. Assets of the Fund are administered and managed on a combined basis through specialist portfolios. Fund managers will be expected to generate a rate of return in the first quartile or better over a market cycle.
2.03 Portfolio Return Expectations

The annualized rate of return of the Fund must exceed the annualized rate of increase in the CPI by 300 – 500 basis points net of the associated investment management fees over rolling ten-year period.

2.04 Expected Volatility

The volatility of the assets of the Fund is directly related to its asset mix. Since the fund managers do not have authority to make any type of leveraged investment on behalf of the Fund, the volatility of the assets of the Fund should be similar to the volatility of the Benchmark Portfolio set out in section 4.02 (Performance Measurement).

2.05 Asset Mix

At all times, the market value of the individual asset classes will be within the minimum and maximum aggregate investment limits as listed.

<table>
<thead>
<tr>
<th>Assets</th>
<th>Minimum %</th>
<th>Maximum %</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>0.0</td>
<td>10.0</td>
<td>FTSE TMX Canada 91-Day T-Bill</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>30.0</td>
<td>70.0</td>
<td>FTSE TMX Universe Bond</td>
</tr>
<tr>
<td>Total Fixed Income</td>
<td>30.0</td>
<td>70.0</td>
<td></td>
</tr>
<tr>
<td>Canadian Equity</td>
<td></td>
<td></td>
<td>S&amp;P/TSX Composite</td>
</tr>
<tr>
<td>Global Equity</td>
<td></td>
<td></td>
<td>MSCI World (CAD)</td>
</tr>
<tr>
<td>Total Equity</td>
<td>30.0</td>
<td>70.0</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
<td></td>
<td>UBS 50/50 (CAD)</td>
</tr>
<tr>
<td>Real Estate</td>
<td></td>
<td></td>
<td>FTSE EPRA/NAREIT Developed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(CAD)</td>
</tr>
<tr>
<td>Total Alternatives</td>
<td>0.0</td>
<td>20.0</td>
<td></td>
</tr>
</tbody>
</table>

For the purpose of the total asset mix described above, the fund managers’ asset class pooled funds are deemed to be 100% invested, even though these funds may contain a portion held in cash and cash equivalent instruments.

The asset mix may deviate from the above mix, within the limits prescribed in these Guidelines. The monitoring of the asset mix and rebalancing guidelines are set out in Section 5.02 (Monitoring...

b) Risk Philosophy

In order to achieve their long-term investment goals, the Fund must invest in assets that have uncertain returns. However, UW attempts to reduce the overall level of risk by diversifying the asset classes and further diversifying within each individual asset class.
Of Asset Mix). In order to ensure that the assets operate within the minimum and maximum ranges, UW shall review the asset mix on a quarterly basis. Rebalancing will be conducted as required.

2.06 Management Structure

A diversified management structure has been adopted for the Fund consisting of several managers. This structure has been adopted, as it is believed that the different investment mandates will result in increased diversification, while reducing the ‘manager risk’ effect for the Fund.

Section 3 — Permitted and Prohibited Investments

3.01 General Guidelines

The investments of the Fund must comply with the requirements and restrictions imposed by the applicable legislation.

3.02 Permitted Investments

In general, and subject to the restrictions in this section (Section 3), the investment manager may invest in any of the following asset classes and in any of the investment instruments listed.

a) Total Fund Level
   i. UW shall not, directly or indirectly, lend or invest moneys of the Fund to or in any one person, any associated persons or any affiliated persons if:
      - 10% or more of the total market value of the Fund’s assets has already been lent or invested in total to, or in, the person, the associated persons or the affiliated corporations; or
      - 10% or more of the total market value of the Fund’s assets would be lent or invested in total to, or in, the person, the associated persons or the affiliated corporations as a result of the loan or investment.
   ii. UW shall not, directly or indirectly, invest the moneys of the Fund in the securities of a corporation to which are attached more than 30% of the votes that may be cast to elect the directors of the corporation.

b) Cash and Short Term Investments

Cash on hand, demand deposits, treasury bills, short-term notes and bankers’ acceptances, commercial paper, term deposits and guaranteed investment certificates having a term of less than or equal to one year.

c) Fixed Income

Bonds, debentures, or other debt instruments of corporations, Canadian Governments, Government agencies, or guaranteed by Governments, supranationals, federal real return bonds, mortgage-backed securities, mortgages, asset-backed securities, non-convertible preferred shares, term deposits, guaranteed investment certificates, insurance contracts, private placements and bonds where capital, interest or both are linked to increases in the cost-of-living (i.e. real return bonds).
**d) Equities**

Common shares, preferred shares, American Depository Receipts, Foreign Depository Receipts, rights, warrants, installment receipts, index units, income trust units (including real estate investment trusts) and securities convertible into common shares.

**e) Derivatives**

The pooled funds in which the Fund invests may invest directly in derivatives to create synthetic exposures, or for hedging purposes, if their objectives and strategies permit, and if the exposure to derivatives is subject to limits based on the intended use and strategies for derivatives and the risks associated with them. Derivatives may also be used to hedge currency. Derivatives may not be used for speculative trading or to create a portfolio with leverage. Investment funds that invest in derivatives must comply with all applicable statutory provisions and regulations, including the Prudent Person Rule, must be invested, and managed in accordance with regulatory derivatives best practices.

**f) Pooled Funds**

Investments in open-ended or closed-ended pooled funds provided that the assets of such funds are permissible investments under these Guidelines. While these Guidelines are intended to guide the management of the assets, it is recognized that, where pooled funds are held, there may be instances where there is a conflict between these Guidelines and the investment policy of a pooled fund. In that case, the pooled fund policy shall dominate, subject to the compliance reporting procedures outlined in Section 4.03. However, the investment manager is expected to advise UW in the event of any material discrepancies between the above guidelines and the pooled fund's own investment guidelines. In addition, the investment manager will ensure that UW has received a copy of the most recent version of the pooled fund policy and of any amendments made to the pooled fund policy.

### 3.03 Minimum Quality Requirements

**a) Quality Standards**

Within the investment restrictions for individual portfolios, all portfolios should hold a prudently diversified exposure to the intended market.

i. The minimum quality standard for individual bonds and debentures is ‘BBB’ or equivalent as rated by at least two Recognized Bond Rating Agencies, at the time of purchase. Where an investment in the portfolio is downgraded below a ‘BBB’ rating, the following steps will be taken:

- The investment manager will notify UW of the downgrade by telephone at the earliest possible opportunity;
- Within ten business days of the downgrade, the investment manager will advise UW in writing of the course of action taken or to be taken by the investment manager, and its rationale; and
- Immediately upon downgrade, the investment manager will place the asset on a Watch List subject to monthly review by the investment manager with UW until such time as the security matures, is sold or until it is upgraded to a level consistent with the purchase quality standards as expressed in the guidelines mentioned above.

ii. In cases in which the Recognized Bond Agencies do not agree on the credit rating, the bond will be classified according to the methodology used by FTSE TMX, which states:
- If two agencies rate a security, use the lower of the two ratings;
- If three agencies rate a security, use the most common; or
- If all three disagree, use the middle rating.

b) **Rating Agencies**

For the purposes of these Guidelines, the following rating agencies shall be considered to be ‘Recognized Bond Rating Agencies:’

i. Dominion Bond Rating Agency;

ii. Standard and Poor’s; and

iii. Moody’s Investors Services.

3.04 **Maximum Quantity Restrictions**

a) **Total Fund Level**

No one holding shall represent more than 10% of the market value of the Fund’s assets.

**UW shall not, directly or indirectly, lend or invest moneys of the Fund to or in any one person, any associated persons or any affiliated corporations if:**

- 10% or more of the total market value of the Fund’s assets has already been lent or invested in total to, or in, the person, the associated persons or the affiliated corporations; or
- 10% or more of the total market value of the Fund’s assets would be lent or invested in total to, or in, the person, the associated persons or the affiliated corporations as a result of the loan or investment.

**UW shall not directly or indirectly, invest the moneys of the Fund in the securities of a corporation to which are attached more than 30% of the votes that may be cast to elect the directors of the corporation.**

b) **Fixed Income**

i. Maximum 15% of the market value of the Canadian fixed income securities shall be invested in BBB bonds or debentures

ii. Maximum 10% of the actively managed fixed income portfolio may be invested in debt denominated in US currency, including debt issued by the US Government, its agencies and instrumentalities. No other foreign currency debt will be purchased.

c) **Equities**

No one equity holding shall represent more than 10% of the total market value of the manager’s portfolio.

3.05 **Environmental, Social and Governance (‘ESG’) Factors**

Consistent with its obligation to act in the best interest of the Fund, UW chooses investments and fund managers that it believes will deliver superior financial performance over the longer term. In this regard, UW does not consider ESG factors in choosing fund managers with whom it invests the assets of the Fund. UW recognizes, however, that some fund managers may consider ESG factors as a way of determining which investments will have the best economic outcome, but this is not a factor considered by UW when choosing fund managers nor are the Fund Managers instructed to consider the policies and practices of the various investments relating to ESG factors. In order to protect and enhance the value of the Fund’s investments, when choosing fund managers, UW...
considers criteria that include the fund managers’ business, staff, historical performance, and investment process. For the purposes of this section, ESG factors refer to the environmental, social and governance factors relevant to an investment that may have a financial impact on that investment.

Consistent with its obligation to act in the best interest of the Fund, UW chooses investments and investment managers that it believes will deliver superior financial performance over the long term. In this regard, UW considers environmental, social and governance ("ESG") factors in selecting investment managers with whom it invests the assets of the Fund as well as assets that are directly held. UW recognizes, however, that managers may consider ESG factors in different ways in assessing whether a given investment will have the best economic outcome. In order to protect and enhance the value of the Fund’s investments, when selecting investment managers or direct investments, UW considers criteria that include: the manager’s business and staff; historical performance; and the consideration of ESG factors in the investment process. As well, the proactive disclosure and analysis of ESG factors by the investment manager will be considered in the monitoring of, and ongoing decisions pertaining to, the retention of investment managers. For the purposes of this section, ESG factors refer to the environmental, social and governance factors relevant to an investment that may have a financial impact on that investment. It is accepted that the understanding of and the impact from ESG factors may change over time.

3.06 Prior Notice Required

The fund managers shall not make investments in asset categories other than those explicitly permitted in these Guidelines, unless UW first consents in writing. Each fund manager’s portfolio shall also comply with all requirements and constraints in any supplementary document provided by UW.
3.07 Securities and Cash Lending

The fund managers and custodian may participate in securities lending programs for the purpose of generating revenue.

Such loans must be secured by cash and/or readily marketable government bonds, treasury bills and/or letters of credit, discount notes, banker’s acceptances of Canadian chartered banks or high quality, liquid equities. The amount of collateral taken for securities lending should reflect OSFI standards and best practices in local markets. This market value relationship must be calculated at least daily.

Fund managers and custodians participating in securities lending will make available the terms and conditions of any securities lending program(s) with UW.

3.08 Short Selling

Short selling and/or pair trading are not permitted.

3.09 Liquidity

Investments should be liquid enough so that they can be sold in a reasonable period of time. The investments should be valued at least monthly and selected to ensure sufficient liquidity to meet transaction needs.

3.10 Borrowing

The Fund shall not borrow money, except to cover short-term contingency and the borrowing is for a period that does not exceed ninety days, subject to the written permission of UW.

Section 4 — Monitoring and Control

4.01 Delegation of Responsibility

The Board of Governors of the University of Waterloo (the “Board”) has established a Finance and Investment Committee (“F&I Committee”) to assist in the determination of UW’s overall investment philosophy, policies, objectives and strategies. UW assists in carrying out the responsibilities listed below.

   a) The F&I Committee will:

   i. review this document annually;

   ii. review Fund performance on at least a semi-annual basis;

   iii. review Fund Manager performance on at least a semi-annual basis;

   iv. make recommendations on the selection of Fund Managers;

   v. make recommendations on the purchase of specific investments; and

   vi. provide cash flow information to the Fund Managers, if necessary;

   vii. be responsible for the delegation of any responsibilities not specifically mentioned;

   viii. review and approve the purchase of specific investments.
b) The Fund Managers will:
   
   i. forward to UW quarterly reviews of investment performance, expectations of future returns on various asset classes and proposed investment strategies for the following 12 to 24 months;
   
   ii. upon direction of the F&I Committee, invest in passive asset classes such as indexed bond funds, indexed equity funds, real-return bonds, etc.;
   
   iii. manage asset mix and select securities within each asset class, subject to applicable legislation and the philosophy and other constraints set out in this document;
   
   iv. forward to UW quarterly reports describing their ESG analysis and approach;
   
   v. advise the UW immediately of any changes in its senior investment personnel and/or significant changes in the size or mix of assets managed;
   
   vi. comply with all relevant laws concerning the investment of the Fund; and
   
   vii. complete and deliver a compliance report to the F&I Committee each quarter. The compliance report will indicate whether or not the Fund Manager was in compliance with these Guidelines during the quarter. In the event that the Fund Manager is not in compliance with this Statement, the Fund Manager is required to advise UW immediately, detail the nature of the non-compliance and recommend the appropriate course of action to remedy the situation.
   
   viii. comply, at all times and in all respects, with the Code of Ethics and Standards of Professional Conduct as promulgated by the CFA Institute.
   
   ix. manage the assets with the care, diligence and skill that an investment manager of ordinary prudence would use in dealing with the Fund’s assets.
   
   x. use all relevant knowledge and skill that they possess or ought to possess as a prudent investment manager.

c) The Custodian/Trustee will:
   
   i. fulfill the regular duties required by law of a Custodian/Trustee and perform the specific duties required of the Custodian/Trustee pursuant to agreements entered into from time to time with UW; and
   
   ii. provide UW with monthly portfolio printouts of all assets of the Fund and transactions during the period.

4.02 Performance Measurement

For purposes of evaluating the performance of the Fund and the fund managers, all rates of returns are measured over rolling four-year periods. Return objectives are net of fees and include realized and unrealized capital gains or losses plus income from all sources.

(a) Total Fund

Investment weightings and results for the Fund are to be tested regularly against a long-term Benchmark Portfolio comprising:
<table>
<thead>
<tr>
<th>Benchmark</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTSE TMX Canada 91-Day T-Bill</td>
<td>0.0</td>
</tr>
<tr>
<td>FTSE TMX Universe Bond</td>
<td>40.0</td>
</tr>
<tr>
<td>S&amp;P/TSX Composite</td>
<td>30.0</td>
</tr>
<tr>
<td>MSCI World (CAD)</td>
<td>30.0</td>
</tr>
<tr>
<td>UBS 50/50 (CAD)</td>
<td>0.0</td>
</tr>
<tr>
<td>FTSE EPRA/NAREIT Developed (CAD)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

(b) Investment Manager Mandates

Fund managers are subject to the following objectives on a gross of fees basis and over rolling four-year periods:

<table>
<thead>
<tr>
<th>Investment Manager and Mandate</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indexed Universe Bonds</td>
<td>Tracking error within +/- 6 basis points of index return</td>
</tr>
<tr>
<td>Canadian Fixed Income</td>
<td>Index + 50 basis points</td>
</tr>
<tr>
<td>Active Short Term Corporate Bond</td>
<td>Index + 50 basis points</td>
</tr>
<tr>
<td>Canadian Equity</td>
<td>Index + 100 basis points</td>
</tr>
<tr>
<td>Global Equity</td>
<td>Index + 200 basis points</td>
</tr>
</tbody>
</table>

(c) Qualitative Monitoring

In addition to performance criteria, the following qualitative factors will also be monitored and evaluated:

i. Stability of the investment firm (personnel, assets under administration, operational capabilities, etc.);

ii. Investment objective and portfolio composition;

iii. Changes in the investment philosophy used in the investment fund;

iv. Consistency of style or approach; and

v. Adherence to investment policy statement; and

vi. ESG analysis and reporting.

4.03 Compliance Reporting by Investment Manager

The investment manager is required to complete and deliver a compliance report to UW each quarter. The compliance report will indicate whether or not the investment manager was in compliance with these Guidelines, including its ESG requirements, during the quarter.

In the event that an investment manager is not in compliance with these Guidelines, the investment manager is required to advise UW immediately, detail the nature of the non-compliance and recommend an appropriate course of action to remedy the situation.

The Fund invests in pooled funds with separate investment policies. Should a conflict arise between those investment policies and these Guidelines, the investment manager’s pooled fund
policy shall dominate. However, the investment manager is required to advise UW immediately, detail the nature of the conflict and recommend an appropriate course of action to remedy the situation.

Section 5 — Administration

5.01 Conflicts of Interest

a) Responsibilities

This standard, which is consistent with UW Policy 69 (Conflict of Interest) applies to UW and the members of UW, as well as to all agents employed by them, in the execution of their responsibilities (the “Affected Persons”).

An "agent" is defined to mean a company, organization, association or individual, as well as its employees who are retained by UW to provide specific services with respect to the investment, administration and management of the assets of the Fund.

b) Disclosure

In the execution of their duties, the Affected Persons shall disclose any material conflict of interest relating to them, or any material ownership of securities, which could impair their ability to render unbiased advice, or to make unbiased decisions, affecting the administration of the Fund.

Further, it is expected that no Affected Person shall make any personal financial gain (direct or indirect) because of his or her fiduciary position. However, normal and reasonable fees and expenses incurred in the discharge of their responsibilities are permitted if documented and approved by UW.

No Affected Person shall accept a gift or gratuity or other personal favour, other than one of nominal value, from a person with whom they deal with in the course of performance of his or her duties and responsibilities for the Fund.

It is incumbent on any Affected Person who believes that he or she may have a conflict of interest, or who is aware of any conflict of interest, to disclose full details of the situation to UW immediately. UW, in turn, will decide what action is appropriate under the circumstances but, at a minimum, will table the matter at the next regular meeting of the F&I Committee.

No Affected Person who has or is required to make a disclosure as contemplated in this Policy shall participate in any discussion, decision or vote relating to any proposed investment or transaction in respect of which he or she has made or is required to make disclosure.

5.02 Monitoring of Asset Mix

In order to ensure that the assets of the Fund operate within the minimum and maximum ranges, as prescribed in the Guidelines in Section 2.05 (Asset Mix), UW shall review the asset mix at least quarterly. Rebalancing will be conducted as required.

5.03 Selecting Fund Managers

In the event that a new investment manager must be selected or additional investment manager(s) added, UW will undertake an investment manager search. The criteria used for selecting an
Investment Manager will be consistent with the investment and risk philosophy set out in Sections 2.02 (Investment and Risk Philosophy) and 3.05 (Environmental, Social and Governance Factors).

5.04 Monitoring Manager Performance

At least quarterly, the F&I Committee and UW will monitor and review:

a) Each investment manager’s staff turnover, consistency of style and record of service;

b) Each investment manager’s current economic outlook and investment strategies (including ESG approach);

c) Each investment manager’s compliance with these Guidelines; and

d) Investment performance of the assets of the Fund in relation to the rate of return expectations outlined in these Guidelines.

5.05 Dismissal of an Investment Manager

Reasons for considering the termination of the services of an investment manager include, but are not limited to, the following factors:

a) Performance results which are below the stated performance benchmarks;

b) Changes in the overall structure of the Fund’s assets such that the investment manager’s services are no longer required;

c) Change in personnel, firm structure or investment philosophy which might adversely affect the potential return and/or risk level of the portfolio; and/or

d) Failure to adhere to these Guidelines.

The failure to achieve the goals stated in Section 4.02 (Performance Measurement) over a period of four consecutive years will require a reassessment of such goals and/or the appointment of an alternative investment manager.

5.06 Voting Rights

The voting rights acquired through the investments held by the Fund are delegated to the fund managers of the securities. Fund managers are expected to exercise all voting rights related to investments held by the Fund in the interests of UW.

5.07 Valuation of Investments Not Regularly Traded

The following principles will apply for the valuation of investments that are not traded regularly:

a) Equities

Average of bid-and-ask prices from two major investment dealers, at least once every month.

b) Fixed Income

Same as for equities.
Section 6 — General Provisions

6.01 Related Party Transactions

UW, on behalf of the Fund, may not enter into a transaction with a related party unless:

a) The transaction is made for the operation or administration of the Fund under terms and conditions that are not less favourable to the Fund than market terms and conditions and such transaction does not involve the making of loans to, or investments in, the related party; or

b) The combined value of all transactions with the same related party is nominal or the transaction(s) is immaterial to the Fund.

For the purposes of this section, only the market value of the combined assets of the Fund shall be used as the criteria to determine whether a transaction is nominal or immaterial to the Fund. Transactions less than 0.5% of the combined market value of the assets of the Fund are considered nominal.

In addition, the prohibition to entering into transactions with a related party does not apply to investments:

a) In securities issued or fully guaranteed by the Government of Canada, the government of a province, or an agency of either one of them;

b) In a fund composed of mortgage-backed securities that are fully guaranteed by the Government of Canada, the government of a province, or an agency of either one of them;

c) In a fund that replicates the composition of a widely recognized index of a broad class of securities traded at a marketplace; and

d) That involve the purchase of a contract or agreement in respect of which the return is based on performance of a widely recognized index of a broad class of securities traded at a marketplace.

A “related party” in respect of the Fund means:

a) A person who is the administrator of the Fund including any officer, director or employee of the administrator. It also includes the Managers and their employees, a union representing employees of the employer, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others.

b) An officer, director or employee of one of the administrators of the Fund;

c) A person responsible for holding or investing the assets of the Fund, or any officer, director or employee thereof;

d) An affiliate of UW;

6.02 Policy Review

The F&I Committee shall review and either confirm or amend these Guidelines at least annually. UW will also provide any amended copy of these Guidelines to the investment manager.
Appendix A — Investment Manager Compliance Letter

To be completed by fund managers immediately prior to each quarterly review.

UNIVERSITY OF WATERLOO
______________, 201_

This is to certify that I/we have adhered to the guidelines contained in the Month-November 2018 version of the “Investment Guidelines” for the University of Waterloo Endowment Fund approved by the Board of Governors of the University of Waterloo.

Signed _______________________

On behalf of ______________________

Date ______________________
Statement of Investment Guidelines

University of Waterloo
IQC Trust Fund

Effective Month November 1, 2018

APPROVED on this day of , 2018

on behalf of the University of Waterloo.

Replaces previous version, which was last revised, and effective on March 2018.
Section 6 — General Provisions

6.01 Related Party Transactions

6.02 Policy Review

Appendix A — Investment Manager Compliance Letter
Section 1—Overview

1.01 Purpose of Statement

This Statement of Investment Guidelines (the “Guidelines”) provides the framework for the investment of the assets for the University of Waterloo IQC Trust Fund (“Fund”). These Guidelines are based on the “prudent person approach” to ensure the prudent investment and administration of the assets of the Fund. These Guidelines also seek to establish ongoing communication between UW and others engaged in the administration of the Fund.

1.02 Standard of Care

These Guidelines are based on the “prudent person approach” to ensure the prudent investment and administration of the assets of the Fund. UW shall exercise the care, diligence and skill in the administration and investment of the Fund that a person of ordinary prudence would exercise. Such persons must further use all knowledge and skill that they possess or ought to possess.

1.03 Objective of the Fund

The Institute of Quantum Computing (IQC) is a scientific research institute harnessing the quantum laws of nature to develop powerful new technologies that will transform information technology. IQC was launched more than a decade ago as the result of the pioneering vision and personal investment by Mike Lazaridis. Since IQC’s near term (5 years) income requirements can be met through other funding sources, this Fund is expected to have minimal liquidity requirements before 2022. The investment objective of the Fund is to provide reasonable market returns over the long-term to support IQC’s ongoing activities.

1.04 Administration

UW is the legal owner of the Fund and is therefore responsible for all matters relating to the administration, interpretation and application of the Fund.

1.05 Background of the Fund

To provide investment income within acceptable risk tolerances, it is necessary to strive for sufficient/appropriate real investment returns on the Fund assets over medium- and long-term periods. The investment philosophy, policies and procedures adopted in this document will assist in the achievement of this goal in a prudent and effective manner.

These Guidelines have been developed taking into account factors such as:

a) The nature of the Fund’s liabilities;

b) Historical and expected capital market returns; and

c) The benefits of investment diversification.
Section 2 — Asset Mix and Diversification Policy

2.01 Risk/Return Considerations

Investment objectives for the Fund have been established with regard to the:

a) Rate of return sufficient to meet future expenses;

b) Rate of return sufficient to maintain the purchasing power of the capital;

c) The risk tolerance which is acceptable to UW; and

d) Special factors, if any, which UW considers significant.

2.02 Investment and Risk Philosophy

UW recognizes that, based on historical data, the asset classes most likely to produce the greatest return over time are also likely to exhibit the most volatility. Conversely, the asset classes likely to be the least volatile are likely to produce the lowest returns over time. Therefore, the investment philosophies and strategies must take into account both return and risk objectives.

a) Investment Philosophy

The investment management structure employs a mix of active and passive management styles. Active management has been adopted for portions of the assets as it provides the opportunity to outperform common market indices over the long-term, while controlling active risk levels. Passive management has been adopted for portions of the assets as it minimizes the risk of underperformance relative to a benchmark index and is generally less expensive than active management. For information on how environmental, social and governance factors are considered in selecting investment managers, refer to Section 3.05.

Active equity fund managers are to apply the long-term value approach by investing in companies at prices below their underlying long-term values to protect capital from loss and earn income over time. The fund managers will attempt to identify financially sound companies with good potential profitability, which are selling at a discount to their intrinsic value. Appropriate measures of low prices may consist of low price-earnings, high dividend yields, and significant discounts to book value and low price to free cash flow. Downside protection is obtained by seeking a margin of safety in terms of sound financial position and a low price in relation to intrinsic value. Appropriate measures of financial integrity include debt/equity ratios, financial leverage, asset turnover, profit margin, return on equity, and interest coverage. It is anticipated that purchases will be made when economic and issue-specific conditions are less than ideal and sentiment is uncertain or negative. Conversely, it is expected that gains will be realized when issue-specific factors are positive and sentiment is buoyant. Assets of the Fund are administered and managed on a combined basis through specialist portfolios. Fund managers will be expected to generate a rate of return in the first quartile or better over a market cycle.

b) Risk Philosophy

In order to achieve their long-term investment goals, the Fund must invest in assets that have uncertain returns. However, UW attempts to reduce the overall level of risk by diversifying the asset classes and further diversifying within each individual asset class.
2.03 Portfolio Return Expectations

The annualized rate of return of the Fund must exceed the annualized rate of increase in the CPI by 350 basis points net of the associated investment management fees over rolling ten-year period.

2.04 Expected Volatility

The volatility of the assets of the Fund is directly related to its asset mix. Since the fund managers do not have authority to make any type of leveraged investment on behalf of the Fund, the volatility of the assets of the Fund should be similar to the volatility of the Benchmark Portfolio set out in section 4.02 (Performance Measurement).

2.05 Asset Mix

At all times, the market value of the individual asset classes will be within the minimum and maximum aggregate investment limits as listed.

<table>
<thead>
<tr>
<th>Assets</th>
<th>Minimum %</th>
<th>Maximum %</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>0.0</td>
<td>10.0</td>
<td>FTSE TMX Canada 91-Day T-Bill</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>30.0</td>
<td>70.0</td>
<td>FTSE TMX Universe Bond</td>
</tr>
<tr>
<td><strong>Total Fixed Income</strong></td>
<td><strong>30.0</strong></td>
<td><strong>70.0</strong></td>
<td></td>
</tr>
<tr>
<td>Canadian Equity</td>
<td></td>
<td></td>
<td>S&amp;P/TSX Composite</td>
</tr>
<tr>
<td>Global Equity</td>
<td></td>
<td></td>
<td>MSCI World (CAD)</td>
</tr>
<tr>
<td><strong>Total Equity</strong></td>
<td><strong>30.0</strong></td>
<td><strong>70.0</strong></td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
<td></td>
<td>UBS 50/50 (CAD)</td>
</tr>
<tr>
<td>Real Estate</td>
<td></td>
<td></td>
<td>FTSE EPRA/NAREIT Developed (CAD)</td>
</tr>
<tr>
<td><strong>Total Alternatives</strong></td>
<td><strong>0.0</strong></td>
<td><strong>20.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

For the purpose of the total asset mix described above, the fund managers’ asset class pooled funds are deemed to be 100% invested, even though these funds may contain a portion held in cash and cash equivalent instruments.

The asset mix may deviate from the above mix, within the limits prescribed in these Guidelines. The monitoring of the asset mix and rebalancing guidelines are set out in Section 5.02 (Monitoring Of Asset Mix). In order to ensure that the assets operate within the minimum and maximum ranges, UW shall review the asset mix on a quarterly basis. Rebalancing will be conducted as required.
2.06 Management Structure

A diversified management structure has been adopted for the Fund consisting of several managers. This structure has been adopted, as it is believed that the different investment mandates will result in increased diversification, while reducing the ‘manager risk’ effect for the Fund.

Section 3 — Permitted and Prohibited Investments

3.01 General Guidelines

The investments of the Fund must comply with the requirements and restrictions imposed by the applicable legislation.

3.02 Permitted Investments

In general, and subject to the restrictions in this section (Section 3), the investment manager may invest in any of the following asset classes and in any of the investment instruments listed.

a) Total Fund Level

i. UW shall not, directly or indirectly, lend or invest moneys of the Fund to or in any one person, any associated persons or any affiliated persons if:

   - 10% or more of the total market value of the Fund’s assets has already been lent or invested in total to, or in, the person, the associated persons or the affiliated corporations; or

   - 10% or more of the total market value of the Fund’s assets would be lent or invested in total to, or in, the person, the associated persons or the affiliated corporations as a result of the loan or investment.

ii. UW shall not, directly or indirectly, invest the moneys of the Fund in the securities of a corporation to which are attached more than 30% of the votes that may be cast to elect the directors of the corporation.

b) Cash and Short Term Investments

Cash on hand, demand deposits, treasury bills, short-term notes and bankers’ acceptances, commercial paper, term deposits and guaranteed investment certificates having a term of less than or equal to one year.

c) Fixed Income

Bonds, debentures, or other debt instruments of corporations, Canadian Governments, Government agencies, or guaranteed by Governments, supranationals, federal real return bonds, mortgage-backed securities, mortgages, asset-backed securities, non-convertible preferred shares, term deposits, guaranteed investment certificates, insurance contracts, private placements and bonds where capital, interest or both are linked to increases in the cost-of-living (i.e. real return bonds).

d) Equities

Common shares, preferred shares, American Depository Receipts, Foreign Depository Receipts, rights, warrants, installment receipts, index units, income trust units (including
real estate investment trusts) and securities convertible into common shares.

e) Derivatives

The pooled funds in which the Fund invests may invest directly in derivatives to create synthetic exposures, or for hedging purposes, if their objectives and strategies permit, and if the exposure to derivatives is subject to limits based on the intended use and strategies for derivatives and the risks associated with them. Derivatives may also be used to hedge currency. Derivatives may not be used for speculative trading or to create a portfolio with leverage. Investment funds that invest in derivatives must comply with all applicable statutory provisions and regulations, including the Prudent Person Rule, must be invested, and managed in accordance with regulatory derivatives best practices.

f) Pooled Funds

Investments in open-ended or closed-ended pooled funds provided that the assets of such funds are permissible investments under these Guidelines. While these Guidelines are intended to guide the management of the assets, it is recognized that, where pooled funds are held, there may be instances where there is a conflict between these Guidelines and the investment policy of a pooled fund. In that case, the pooled fund policy shall dominate, subject to the compliance reporting procedures outlined in Section 4.03. However, the investment manager is expected to advise UW in the event of any material discrepancies between the above guidelines and the pooled fund's own investment guidelines. In addition, the investment manager will ensure that UW has received a copy of the most recent version of the pooled fund policy and of any amendments made to the pooled fund policy.

3.03 Minimum Quality Requirements

a) Quality Standards

Within the investment restrictions for individual portfolios, all portfolios should hold a prudently diversified exposure to the intended market.

i. Subject to 3.04 (Maximum Quantity Restrictions), the minimum quality standard for individual bonds and debentures is ‘BBB’ or equivalent as rated by at least two Recognized Bond Rating Agencies, at the time of purchase. Where an investment in the portfolio is downgraded below a ‘BBB’ rating, the following steps will be taken:

- The investment manager will notify UW of the downgrade by telephone at the earliest possible opportunity;
- Within ten business days of the downgrade, the investment manager will advise UW in writing of the course of action taken or to be taken by the investment manager, and its rationale; and
- Immediately upon downgrade, the investment manager will place the asset on a Watch List subject to monthly review by the investment manager with UW until such time as the security matures, is sold or until it is upgraded to a level consistent with the purchase quality standards as expressed in the guidelines mentioned above.

ii. In cases in which the Recognized Bond Agencies do not agree on the credit rating, the bond will be classified according to the methodology used by FTSE TMX, which states:

- If two agencies rate a security, use the lower of the two ratings;
- If three agencies rate a security, use the most common; or
- If all three disagree, use the middle rating.
b) Rating Agencies

For the purposes of these Guidelines, the following rating agencies shall be considered to be ‘Recognized Bond Rating Agencies:’

i. Dominion Bond Rating Agency;

ii. Standard and Poor’s; and

iii. Moody’s Investors Services.

3.04 Maximum Quantity Restrictions

a) Total Fund Level

UW shall not, directly or indirectly, lend or invest moneys of the Fund to or in any one person, any associated persons or any affiliated corporations if:

- 10% or more of the total market value of the Fund’s assets has already been lent or invested in total to, or in, the person, the associated persons or the affiliated corporations; or

- 10% or more of the total market value of the Fund’s assets would be lent or invested in total to, or in, the person, the associated persons or the affiliated corporations as a result of the loan or investment.

UW shall not directly or indirectly, invest the moneys of the Fund in the securities of a corporation to which are attached more than 30% of the votes that may be cast to elect the directors of the corporation.

No one holding shall represent more than 10% of the market value of the Fund’s assets.

b) Fixed Income

i. Maximum 15% of the market value of the Canadian fixed income securities shall be invested in BBB bonds or debentures

ii. Maximum 5% of the market value of the Canadian fixed income securities shall be invested in bonds or debentures rated below BB

iii. Maximum 10% of the actively managed fixed income portfolio may be invested in debt denominated in US currency, including debt issued by the US Government, its agencies and instrumentalities. No other foreign currency debt will be purchased.

c) Equities

No one equity holding shall represent more than 10% of the total market value of the manager’s portfolio.

3.05 Environmental, Social and Governance (“ESG”) Factors

Consistent with its obligation to act in the best interest of the Fund, UW chooses investments and fund managers that it believes will deliver superior financial performance over the longer term. In this regard, UW does not consider ESG factors in choosing fund managers with whom it invests the assets of the Fund. UW recognizes, however, that some fund managers may consider ESG factors as a way of determining which investments will have the best economic outcome, but this is not a factor considered by UW when choosing fund managers nor are the Fund Managers instructed to consider the policies and practices of the various investments relating to ESG factors. In order to protect and enhance the value of the Fund’s investments, when choosing fund managers, UW...
consider criteria that include the fund managers’ business, staff, historical performance, and investment process. For the purposes of this section, ESG factors refer to the environmental, social and governance factors relevant to an investment that may have a financial impact on that investment.

Consistent with its obligation to act in the best interest of the Fund, UW chooses investments and investment managers that it believes will deliver superior financial performance over the long term. In this regard, UW considers environmental, social and governance (“ESG”) factors in selecting investment managers with whom it invests the assets of the Fund as well as assets that are directly held. UW recognizes; however, that managers may consider ESG factors in different ways in assessing whether a given investment will have the best economic outcome. In order to protect and enhance the value of the Fund’s investments, when selecting investment managers or direct investments, UW considers criteria that include: the manager’s business and staff; historical performance; and the consideration of ESG factors in the investment process. As well, the proactive disclosure and analysis of ESG factors by the investment manager will be considered in the monitoring of, and ongoing decisions pertaining to, the retention of investment managers. For the purposes of this section, ESG factors refer to the environmental, social and governance factors relevant to an investment that may have a financial impact on that investment. It is accepted that the understanding of and the impact from ESG factors may change over time.

3.06 Prior Notice Required

The fund managers shall not make investments in asset categories other than those explicitly permitted in these Guidelines, unless UW first consents in writing. Each fund manager’s portfolio shall also comply with all requirements and constraints in any supplementary document provided by UW.
3.07 **Securities and Cash Lending**

The fund managers and custodian may participate in securities lending programs for the purpose of generating revenue.

Such loans must be secured by cash and/or readily marketable government bonds, treasury bills and/or letters of credit, discount notes, banker’s acceptances of Canadian chartered banks or high quality, liquid equities. The amount of collateral taken for securities lending should reflect OSFI standards and best practices in local markets. This market value relationship must be calculated at least daily.

Fund managers and custodians participating in securities lending will make available the terms and conditions of any securities lending program(s) with UW.

3.08 **Short Selling**

Short selling and/or pair trading are not permitted.

3.09 **Liquidity**

Investments should be liquid enough so that they can be sold in a reasonable period of time. The investments should be valued at least monthly and selected to ensure sufficient liquidity to meet transaction needs.

3.10 **Borrowing**

The Fund shall not borrow money, except to cover short-term contingency and the borrowing is for a period that does not exceed ninety days, subject to the written permission of UW.

---

**Section 4 — Monitoring and Control**

4.01 **Delegation of Responsibility**

The Board of Governors of the University of Waterloo (the “Board”) has established a Finance and Investment Committee (“F&I Committee”) to assist in the determination of UW’s overall investment philosophy, policies, objectives and strategies. UW assists in carrying out the responsibilities listed below.

a) The F&I Committee will:

i. review this document annually;
ii. review Fund performance on at least a semi-annual basis;
iii. review Fund Manager performance on at least a semi-annual basis;
iv. make recommendations on the selection of Fund Managers;
v. make recommendations on the purchase of specific investments; and
vi. provide cash flow information to the Fund Managers, if necessary;
vii. be responsible for the delegation of any responsibilities not specifically mentioned;
viii. review and approve the purchase of specific investments.

b) The Fund Managers will:
   i. forward to UW quarterly reviews of investment performance, expectations of future returns on various asset classes and proposed investment strategies for the following 12 to 24 months;
   ii. upon direction of the F&I Committee, invest in passive asset classes such as indexed bond funds, indexed equity funds, real-return bonds, etc.;
   iii. manage asset mix and select securities within each asset class, subject to applicable legislation and the philosophy and other constraints set out in this document;
   iv. forward to UW quarterly reports describing their ESG analysis and approach;
   v. advise the UW immediately of any changes in its senior investment personnel and/or significant changes in the size or mix of assets managed;
   vi. comply with all relevant laws concerning the investment of the Fund; and
   vii. complete and deliver a compliance report to the F&I Committee each quarter. The compliance report will indicate whether or not the Fund Manager was in compliance with these Guidelines during the quarter. In the event that the Fund Manager is not in compliance with this Statement, the Fund Manager is required to advise UW immediately, detail the nature of the non-compliance and recommend the appropriate course of action to remedy the situation.
   viii. comply, at all times and in all respects, with the Code of Ethics and Standards of Professional Conduct as promulgated by the CFA Institute.
   ix. manage the assets with the care, diligence and skill that an investment manager of ordinary prudence would use in dealing with the Fund’s assets.
   x. use all relevant knowledge and skill that they possess or ought to possess as a prudent investment manager.

c) The Custodian/Trustee will:
   i. fulfill the regular duties required by law of a Custodian/Trustee and perform the specific duties required of the Custodian/Trustee pursuant to agreements entered into from time to time with UW; and
   ii. provide UW with monthly portfolio printouts of all assets of the Fund and transactions during the period.

4.02 Performance Measurement

For purposes of evaluating the performance of the Fund and the fund managers, all rates of returns are measured over rolling four-year periods. Return objectives are net of fees and include realized and unrealized capital gains or losses plus income from all sources.
(a) **Total Fund**

Investment weightings and results for the Fund are to be tested regularly against a long-term Benchmark Portfolio comprising:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTSE TMX Canada 91-Day T-Bill</td>
<td>0.0</td>
</tr>
<tr>
<td>FTSE TMX Universe Bond</td>
<td>67.0</td>
</tr>
<tr>
<td>S&amp;P/TSX Composite</td>
<td>0.0</td>
</tr>
<tr>
<td>MSCI World (CAD)</td>
<td>33.0</td>
</tr>
<tr>
<td>UBS 50/50 (CAD)</td>
<td>0.0</td>
</tr>
<tr>
<td>FTSE EPRA/NAREIT Developed (CAD)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

(b) **Investment Manager Mandates**

Fund managers are subject to the following objectives on a gross of fees basis and over rolling four-year periods:

<table>
<thead>
<tr>
<th>Investment Manager and Mandate</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indexed Universe Bonds</td>
<td>Tracking error within +/- 6 basis points of index return</td>
</tr>
<tr>
<td>Canadian Fixed Income</td>
<td>Index + 50 basis points</td>
</tr>
<tr>
<td>Active Short Term Corporate Bond</td>
<td>Index + 50 basis points</td>
</tr>
<tr>
<td>Canadian Equity</td>
<td>Index + 100 basis points</td>
</tr>
<tr>
<td>Global Equity</td>
<td>Index + 200 basis points</td>
</tr>
</tbody>
</table>

(c) **Qualitative Monitoring**

In addition to performance criteria, the following qualitative factors will also be monitored and evaluated:

i. Stability of the investment firm (personnel, assets under administration, operational capabilities, etc.);

ii. Investment objective and portfolio composition;

iii. Changes in the investment philosophy used in the investment fund;

iv. Consistency of style or approach; and

v. Adherence to investment policy statement; and

vi. ESG analysis and reporting.

4.03 **Compliance Reporting by Investment Manager**

The investment manager is required to complete and deliver a compliance report to UW each quarter. The compliance report will indicate whether or not the investment manager was in compliance with these Guidelines, including its ESG requirements, during the quarter.
In the event that an investment manager is not in compliance with these Guidelines, the investment manager is required to advise UW immediately, detail the nature of the non-compliance and recommend an appropriate course of action to remedy the situation.

The Fund invests in pooled funds with separate investment policies. Should a conflict arise between those investment policies and these Guidelines, the investment manager’s pooled fund policy shall dominate. However, the investment manager is required to advise UW immediately, detail the nature of the conflict and recommend an appropriate course of action to remedy the situation.

Section 5 — Administration

5.01 Conflicts of Interest

a) Responsibilities

This standard, which is consistent with UW Policy 69 (Conflict of Interest) applies to UW and the members of UW, as well as to all agents employed by them, in the execution of their responsibilities (the “Affected Persons”).

An “agent” is defined to mean a company, organization, association or individual, as well as its employees who are retained by UW to provide specific services with respect to the investment, administration and management of the assets of the Fund.

b) Disclosure

In the execution of their duties, the Affected Persons shall disclose any material conflict of interest relating to them, or any material ownership of securities, which could impair their ability to render unbiased advice, or to make unbiased decisions, affecting the administration of the Fund assets.

Further, it is expected that no Affected Person shall make any personal financial gain (direct or indirect) because of his or her fiduciary position. However, normal and reasonable fees and expenses incurred in the discharge of their responsibilities are permitted if documented and approved by UW.

No Affected Person shall accept a gift or gratuity or other personal favour, other than one of nominal value, from a person with whom they deal within the course of performance of his or her duties and responsibilities for the Fund.

It is incumbent on any Affected Person who believes that he or she may have a conflict of interest, or who is aware of any conflict of interest, to disclose full details of the situation to the attention of UW immediately. UW, in turn, will decide what action is appropriate under the circumstances but, at a minimum, will table the matter at the next regular meeting of the F&I Committee.

No Affected Person who has or is required to make a disclosure as contemplated in this Policy shall participate in any discussion, decision or vote relating to any proposed investment or transaction in respect of which he or she has made or is required to make disclosure.

5.02 Monitoring of Asset Mix
In order to ensure that the assets of the Fund operate within the minimum and maximum ranges, as prescribed in the Guidelines in Section 2.05 (Asset Mix), UW shall review the asset mix at least quarterly. Rebalancing will be conducted as required.

5.03 Selecting Fund Managers

In the event that a new investment manager must be selected or additional investment manager(s) added, UW will undertake an investment manager search. The criteria used for selecting an Investment Manager will be consistent with the investment and risk philosophy set out in Sections 2.02 (Investment and Risk Philosophy) and 3.05 (Environmental, Social and Governance Factors).

5.04 Monitoring Manager Performance

At least quarterly, the F&I Committee and UW will monitor and review:

a) Each investment manager’s staff turnover, consistency of style and record of service;

b) Each investment manager’s current economic outlook and investment strategies (including ESG approach);

c) Each investment manager’s compliance with these Guidelines; and

d) Investment performance of the assets of the Fund in relation to the rate of return expectations outlined in these Guidelines.

5.05 Dismissal of an Investment Manager

Reasons for considering the termination of the services of an investment manager include, but are not limited to, the following factors:

a) Performance results which are below the stated performance benchmarks;

b) Changes in the overall structure of the Fund’s assets such that the investment manager’s services are no longer required;

c) Change in personnel, firm structure or investment philosophy which might adversely affect the potential return and/or risk level of the portfolio; and/or

d) Failure to adhere to these Guidelines.

The failure to achieve the goals stated in Section 4.02 (Performance Measurement) over a period of four consecutive years will require a reassessment of such goals and/or the appointment of an alternative investment manager.

5.06 Voting Rights

The voting rights acquired through the investments held by the Fund are delegated to the fund managers of the securities. Fund managers are expected to exercise all voting rights related to investments held by the Fund in the interests of UW.

5.07 Valuation of Investments Not Regularly Traded

The following principles will apply for the valuation of investments that are not traded regularly:

a) Equities

   Average of bid-and-ask prices from two major investment dealers, at least once every month.
6.01 Related Party Transactions

UW, on behalf of the Fund, may not enter into a transaction with a related party unless:

a) The transaction is made for the operation or administration of the Fund under terms and conditions that are not less favourable to the Fund than market terms and conditions and such transaction does not involve the making of loans to, or investments in, the related party; or

b) The combined value of all transactions with the same related party is nominal or the transaction(s) is immaterial to the Fund.

For the purposes of this section, only the market value of the combined assets of the Fund shall be used as the criteria to determine whether a transaction is nominal or immaterial to the Fund. Transactions less than 0.5% of the combined market value of the assets of the Fund are considered nominal.

In addition, the prohibition to entering into transactions with a related party does not apply to investments:

a) In securities issued or fully guaranteed by the Government of Canada, the government of a province, or an agency of either one of them;

b) In a fund composed of mortgage-backed securities that are fully guaranteed by the Government of Canada, the government of a province, or an agency of either one of them;

c) In a fund that replicates the composition of a widely recognized index of a broad class of securities traded at a marketplace; and

d) That involve the purchase of a contract or agreement in respect of which the return is based on performance of a widely recognized index of a broad class of securities traded at a marketplace.

A “related party” in respect of the Fund means:

a) A person who is the administrator of the Fund including any officer, director or employee of the administrator. It also includes the Managers and their employees, a union representing employees of the employer, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others.

b) An officer, director or employee of one of the administrators of the Fund;

c) A person responsible for holding or investing the assets of the Fund, or any officer, director or employee thereof;

d) An affiliate of UW;

6.02 Policy Review

The F&I Committee shall review and either confirm or amend these Guidelines at least annually. UW will also provide any amended copy of these Guidelines to the investment manager.
Appendix A — Investment Manager Compliance Letter

To be completed by fund managers immediately prior to each quarterly review.

UNIVERSITY OF WATERLOO
______________, 201_

This is to certify that I/we have adhered to the guidelines contained in the Month-November 2018 version of the “Investment Guidelines” for the University of Waterloo IQC Trust Fund approved by the Board of Governors of the University of Waterloo.

Signed ______________________

On behalf of ______________________

Date ______________________
FOR APPROVAL

1. Amendment to Healthcare Benefits Arising from 2018 Salary Settlements

Motion: To approve an amendment to the healthcare benefit for non-retired faculty, staff and CUPE Local 793 employees to increase the level of reimbursement for basic dental services from 80% to 95%, and to remove the two year lag in the dental fee guide by adopting the current year fee guide, all effective for eligible expenses incurred on or after 1 January 2019.

Background: The May 1, 2018 salary agreements for the University’s Faculty and Staff employee groups include a commitment to enhance the healthcare benefits for active employees for a total budget increase of $1.2 million per year for those two groups. A similar commitment from the University exists for the CUPE Local 793 employee group, with the budget impact of a parallel agreement with that group estimated at $200,000; the University and CUPE are currently in negotiations on a new collective agreement effective May 1, 2018. The Pension & Benefits Committee was allocated responsibility for determining the appropriate program design to deliver against this commitment, with a focus on broad participation.

As a defined benefit arrangement provided on an Administrative Services Only (ASO) basis, the cost associated with amending the healthcare benefits can only be estimated using utilization assumptions; the actual cost is dependent on utilization and subject to annual trend. The removal of the fee guide lag increases the reimbursement for all eligible dental services, including those reimbursed at 50% (i.e. major services and orthodontia). The increase in reimbursement from 80% to 95% applies only to eligible basic dental services as defined in the contract with Great-West Life.

Based on costings provided by the university’s consultant Aon Hewitt, the budgeted amount of $1.4 million is reasonably expected to cover the anticipated utilization of the dental benefit amendment. Further, while the intent of the funding is as a fixed cost, the University has indicated that it is prepared to accept the risk associated with the corresponding cost uncertainty while the holistic benefits review project continues to progress.

2. Actuarial Valuation of the Pension Plan as at 1 January 2018

Motion: To approve the filing of the actuarial valuation report as at 1 January 2018 with the Financial Services Commission of Ontario (FSCO) and the Canada Revenue Agency (CRA).

Background: The University of Waterloo pension plan is an inflation-linked defined-benefit plan. The plan is funded by contributions from the employees and the University, and by investment returns. The total annual contribution is determined by applying actuarial methods with assumptions about investment returns, mortality, inflation and salaries. An actuarial valuation report is required to be filed at least every three years; notwithstanding this, in practice the committee commissions a report on an annual basis for its planning and the University’s budgeting purposes.

The 1 January 2018 report shows that the registered pension plan (the “Registered Plan”) is in a deficit position; however, the going concern deficit position has improved since the 1 January 2017 report both in terms of overall deficit and deficit as a percentage of total plan assets. The University continues to make additional contributions to meet the unfunded liability. The plan previously received approval for temporary solvency funding relief in connection with the 1 January 2017 actuarial valuation. Filing of this valuation will serve to direct a greater portion of the annual contributions to improve the going concern financial position of the plan. See Attachment #1 for a detailed summary of the actuarial valuation results for the Registered Plan. A complete copy of the report can be requested through the committee’s secretary at extension 38990.
3. Amendment to Pension & Benefits Committee Terms of Reference

Motion: To approve amendments to the terms of reference of the Pension & Benefits Committee to add text that will delegate certain powers and responsibilities of the committee to the Pension Investment Committee as described (new text underlined):

3. Terms of Reference

…

Note:

…

(3) The Board of Governors on [date] approved the delegation of specific powers and responsibilities of the Pension & Benefits Committee to the Pension Investment Committee for the latter to be established as the operational locus of control for matters pertaining to the management of investment assets of the pension plan, as follows: (1) to review annually the Statement of Investment Policies and Procedures, and to recommend any amendments to the Board of Governors through the Pension & Benefits Committee; (2) to review and recommend the selection/termination of investment managers to the Pension & Benefits Committee for further recommendation to the Board of Governors; (3) to review and report on investment manager performance at least annually to the Finance & Investment Committee and the Pension & Benefits Committee; (4) to approve asset mix changes and investment decisions within the list of approved investment managers where the cumulative transaction(s) represent less than 15% of the pension plans total assets at the beginning of the calendar year, and to make recommendations to the Pension and Benefits Committee on asset mix changes where the cumulative transaction(s) represent more than 15% of the pension plans’ total assets at the beginning of the calendar year, for further recommendation to the Board of Governors; (5) to review reports from the Pension & Benefits Committee including but not limited to the annual valuation of the pension plan, investment-related risk/return assessments, and asset-liability studies.

Background: At the May 2018 meetings of the Finance & Investment Committee and the Pension & Benefits Committee, both bodies provided recommendations to the Board of Governors in support of the proposed Pension Investment Committee (PIC), which was ultimately approved in principle by the Board at its 5 June 2018 meeting. The approval in principle granted in June 2018 contemplated that the Finance & Investment Committee and the Pension & Benefits Committee would each retain the respective empowerments that exist within the existing terms of reference, and would delegate certain specific powers and responsibilities to the PIC with approval from the Board of Governors. This recommendation respects that approach and reflects the reallocation of powers and responsibilities approved by the Board of Governors.

/Mgm

Marilyn Thompson
Chair
Attachment #1 - Summary of the Actuarial Valuation Results as at 1 January 2018

1. Financial Position of the Registered Plan

a. **Going Concern Basis.** A valuation conducted on a going-concern basis is to determine the relationship between the respective values of the Registered Plan’s assets and accumulated liabilities, assuming the Registered Plan will be maintained indefinitely.

<table>
<thead>
<tr>
<th></th>
<th>01.01.2016¹</th>
<th>01.01.2017²</th>
<th>01.01.2018³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuarial value of assets</td>
<td>$1,357,813,943</td>
<td>$1,473,514,888</td>
<td>$1,675,862,000</td>
</tr>
<tr>
<td>Actuarial liability</td>
<td>$1,463,929,240</td>
<td>$1,585,567,596</td>
<td>$1,653,560,000⁴</td>
</tr>
<tr>
<td>Funding excess (unfunded liability)</td>
<td>$(106,115,297)</td>
<td>$(112,052,708)</td>
<td>$22,302,000</td>
</tr>
<tr>
<td>Deferred asset gain (loss)</td>
<td>$44,365,045</td>
<td>$44,365,045</td>
<td>$44,365,045</td>
</tr>
<tr>
<td>Adjustment, Provision for Adverse Deviation</td>
<td></td>
<td></td>
<td>$(98,514,000)</td>
</tr>
<tr>
<td>Market value of assets</td>
<td>$1,402,178,988</td>
<td>$1,517,879,933</td>
<td>$1,675,862,000</td>
</tr>
</tbody>
</table>

b. **Solvency Basis.** A valuation conducted on a solvency basis is used to determine the relationship between the respective values of the Registered Plan’s assets and its liabilities assuming the Registered Plan was wound up and settled on the valuation date by the purchase of annuities or the payment of lump-sum values. In accordance with the Pension Benefits Act, solvency liabilities exclude certain contractual benefits (e.g., indexing) in order to limit the magnitude of additional funding requirements for solvency purposes. Ignoring these obligations for solvency funding purposes does not alter the contractual obligation with respect to indexing in place under the terms of the Registered Plan (the liability for indexation benefits is reflected in the going concern valuation position and funding requirements).

<table>
<thead>
<tr>
<th></th>
<th>01.01.2016⁵</th>
<th>01.01.2017</th>
<th>01.01.2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency assets</td>
<td>$1,401,678,988</td>
<td>$1,517,379,933⁶</td>
<td>$1,675,362,000</td>
</tr>
<tr>
<td>Solvency liability</td>
<td>$1,689,999,086</td>
<td>$1,744,213,228</td>
<td>$1,857,556,000</td>
</tr>
<tr>
<td>Present value of special payments</td>
<td>$69,855,540</td>
<td>$52,020,000</td>
<td>$52,020,000</td>
</tr>
<tr>
<td>Solvency excess/(deficiency)</td>
<td>$(288,320,098)</td>
<td>$(156,977,755)</td>
<td>$(130,174,000)</td>
</tr>
</tbody>
</table>

The additional wind-up liability for indexation benefits is approximately $894.7 million at 1 January 2018, resulting in a hypothetical wind-up deficit of approximately $1,025 million at 1 January 2018 (including indexation). The solvency ratio has improved since January 1, 2016 due to increases in nominal government bond yields and asset gains during the year.

2. **Funding Requirements.** Member contributions for 2018 are approximately $32.7 million, or 7.38% of pensionable earnings. The University’s current service cost is approximately $42.3 million or 9.55% of pensionable earnings. The University is also making mandatory special payments of $12.7 million in 2018 and $8.8 million in 2019-20 to amortize the unfunded liability of the Registered Plan. This brings the University’s total contribution for 2018 to $55.0 million (168% of member contributions).

¹ The 2016 figures reflect the change in the discount rate from 5.75% (CPI + 3.75%) to 5.70% (CPI + 3.70%)
² The 2017 figures reflect the change in the discount rate from 5.70% (CPI + 3.70%) to 5.50% (CPI + 3.50%)
³ The 2018 figures reflect the change in the discount rate from 5.50% (CPI + 3.50%) to 5.60% (CPI + 3.50%), reflecting the removal of the implicit expense margin prior to the application of the provision for adverse deviation.
⁴ The 2018 liability figures reflect an increase arising from the adoption of the 2014 Canadian Pensioners’ Mortality Table combined with mortality improvement Scale MI-2017
⁵ 2016 Solvency Liabilities reflect the adoption of CPM 2014 Combined with Generational Improvements mortality tables
⁶ Solvency assets in both 2017 and 2018 are net of $500,000 in estimated wind-up expenses
3. Asset Mix

<table>
<thead>
<tr>
<th>Asset Mix (% of Total Market Value)</th>
<th>01.01.2015</th>
<th>01.01.2016</th>
<th>01.01.2017</th>
<th>01.01.2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Return Bonds</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Fixed Income, Cash</td>
<td>57%</td>
<td>54%</td>
<td>51%</td>
<td>49%</td>
</tr>
<tr>
<td>Equities</td>
<td>35%</td>
<td>38%</td>
<td>39%</td>
<td>40%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>5%</td>
<td>5%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

4. Membership Data

<table>
<thead>
<tr>
<th>Membership Data</th>
<th>01.01.2013</th>
<th>01.01.2014</th>
<th>01.01.2015</th>
<th>01.01.2016</th>
<th>01.01.2017</th>
<th>01.01.2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Members</td>
<td>3760</td>
<td>3891</td>
<td>3940</td>
<td>4169</td>
<td>4326</td>
<td>4476</td>
</tr>
<tr>
<td>LTD Members</td>
<td>94</td>
<td>97</td>
<td>86</td>
<td>84</td>
<td>74</td>
<td>86</td>
</tr>
<tr>
<td>Suspended Members</td>
<td>15</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Current Pensioners</td>
<td>1555</td>
<td>1603</td>
<td>1673</td>
<td>1745</td>
<td>1837</td>
<td>1932</td>
</tr>
<tr>
<td>Deferred Pensioners</td>
<td>448</td>
<td>484</td>
<td>490</td>
<td>501</td>
<td>489</td>
<td>537</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5872</td>
<td>6086</td>
<td>6201</td>
<td>6509</td>
<td>6736</td>
<td>7040</td>
</tr>
</tbody>
</table>

5. History of Asset Returns

<table>
<thead>
<tr>
<th>Year Ending</th>
<th>Return on Market Valuea</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 December 2009</td>
<td>14.70%</td>
</tr>
<tr>
<td>31 December 2010</td>
<td>8.49%</td>
</tr>
<tr>
<td>31 December 2011</td>
<td>2.89%</td>
</tr>
<tr>
<td>31 December 2012</td>
<td>9.10%</td>
</tr>
<tr>
<td>31 December 2013</td>
<td>13.1%</td>
</tr>
<tr>
<td>31 December 2014</td>
<td>9.43%</td>
</tr>
<tr>
<td>31 December 2015</td>
<td>5.23%</td>
</tr>
<tr>
<td>31 December 2016</td>
<td>6.95%</td>
</tr>
<tr>
<td>31 December 2017</td>
<td>9.09%</td>
</tr>
</tbody>
</table>

---

7 Asset mix is based on the underlying assets excluding in-transit contributions and payments.

8 The returns (after expenses) on market value have been calculated assuming contributions and benefit payments take place in the middle of the year. Returns for 2008 – 2013 exclude the real return bonds.
This report is submitted following the committee’s meetings of 11 October 2018 (F&I) and 19 October 2018 (P&B), for inclusion in the regular agenda.

RECOMMENDATION

1. Dissolution of the Registered Pension Plan Investment Subcommittee

Motion: To approve the dissolution of the Registered Pension Plan Investment Subcommittee.

Background: At the May 2018 meetings of the Finance & Investment Committee and the Pension & Benefits Committee, both bodies provided a recommendation to the Board of Governors in support of the proposed Pension Investment Committee (PIC), which was approved in principle by the Board at its 5 June 2018 meeting. The submission to propose the PIC contemplates that the new body will displace entirely the role and function of the Registered Pension Plan Investment Subcommittee (RPPI) as the operational locus of control for matters pertaining to the management of investment assets of the pension plan. Further, it was also observed that the terms of reference for the PIC will be brought for official approval at the Board meeting on 30 October 2018, and that the approval of those terms will necessarily occur in tandem with the dissolution of the RPPI (see item #1 of this report). Recognizing that RPPI was originally approved in 2009 as a subcommittee of both the Finance & Investment Committee and the Pension & Benefits Committee, this recommendation has obtained the support of both committees for the dissolution of RPPI.

2. Statement of Investment Policies and Procedures for University of Waterloo Pension Plan

Motion: To approve the 1 November 2018 version of the University of Waterloo Pension Plan (2011) Statement of Investment Policies and Procedures (the “SIPP”), effective 1 November 2018. See Attachment 1.

Background: With the approval of the environmental, social and governance principles and guidelines at the June 2018 meeting of the Board of Governors, amendments to the SIPP are required to bring this document in line with said principles and guidelines. As well, the SIPP is amended to reflect the vesting of responsibility for the day-to-day management of the university’s pension investments with the Pension Investment Committee, as per item #1 of this report. Further minor text amendments are also proposed, including those to reflect a slight change in the minimum required return of the plan from 3.50% to 3.60% and to update language in the SIPP to reflect current legislation and regulations.

James Schlegel, Chair
Finance & Investment Committee

Marilyn Thompson, Chair
Pension & Benefits Committee
Statement of Investment Policies and Procedures

University of Waterloo Pension Plan (2011)

Registration number: 0310565

Effective November 1, September 1, 2018

APPROVED on this day of , 2018

on behalf of the University of Waterloo.

Replaces previous version which was last revised and effective on January 1, 2017.
Contents

Section 1—Overview
  1.01 Purpose of Statement 1
  1.02 Standard of Care 1
  1.03 Objective of the Plan 1
  1.04 Administration 1
  1.05 Background of the Plan 1

Section 2—Asset Mix and Diversification Policy
  2.01 Risk/Return Considerations 33
  2.02 Investment and Risk Philosophy 33
  2.03 Portfolio Return Expectations 44
  2.04 Expected Volatility 44
  2.05 Asset Mix 44
  2.06 Management Structure 55

Section 3—Permitted and Prohibited Investments
  3.01 General Guidelines 66
  3.02 Permitted Investments 66
  3.03 Minimum Quality Requirements 77
  3.04 Maximum Quantity Restrictions 88
  3.05 Environmental, Social and Governance Factors 88
  3.06 Prior Notice Required 99
  3.07 Securities and Cash Lending 99
  3.08 Short Selling 99
  3.09 Liquidity 109
  3.10 Borrowing 1040

Section 4—Monitoring and Control
  4.01 Delegation of Responsibility 1144
  4.02 Performance Measurement 1343
  4.03 Compliance Reporting by Investment Manager 1414
  4.04 Audit 1444

Section 5—Administration
  5.01 Conflicts of Interest 1545
  5.02 Monitoring of Asset Mix 1545
  5.03 Selecting Fund Managers 1545
  5.04 Monitoring Manager Performance 1616
  5.05 Dismissal of an Investment Manager 1646
  5.06 Voting Rights 1646
  5.07 Valuation of Investments Not Regularly Traded 1616
Section 6 — General Provisions

6.01 Related Party Transactions

6.02 Policy Review

Appendix A — Investment Manager Compliance Letter
Section 1—Overview

1.01 Purpose of Statement

This Statement of Investment Policies and Procedures (the “Policy”) provides the framework for the investment of the assets for the University of Waterloo Pension Plan (2011), registration number 0310565 (the “Plan”). The University of Waterloo (“UW”) is the sponsor and legal administrator of the Plan.

This Policy is based on the “prudent person approach” to ensure the prudent investment and administration of the assets of the Plan. The Plan will be managed in accordance with the parameters set out in the Income Tax Act (Canada) (“ITA”) and the Pension Benefits Act (Ontario) (“PBA”), including their respective Regulations and all subsequent amendments, and any other applicable federal or provincial legislation and regulations governing the investment of pension funds, including Schedule III to the Pension Benefits Standards Regulation, 1985 (Canada) (“PBSA”).

This Policy also seeks to establish ongoing communication between UW and others engaged in the administration of the Plan. It is intended to summarize and explain the investment beliefs but does not supersede the formal plan documents or the applicable provisions of the Acts governing the Plan. In case of any dispute between this document and the formal Plan documents, the formal Plan documents shall prevail.

1.02 Standard of Care

This Policy is based on the “prudent person approach” to ensure the prudent investment and administration of the assets of the Plan within the parameters set out in the PBA and the Regulations thereunder. UW shall exercise the care, diligence and skill in the administration and investment of the Plan that a person of ordinary prudence would exercise in dealing with the property of another person. Such persons must further use all knowledge and skill that they possess or ought to possess.

1.03 Objective of the Plan

The objective of the Plan is to provide members of the Plan with the retirement benefits prescribed under the terms thereof.

1.04 Administration

UW is the sponsor and legal administrator of the Plan and is therefore responsible for all matters relating to the administration, interpretation and application of the Plan.

1.05 Background of the Plan

The Plan is a contributory defined benefit plan, based upon an individual’s final average salary and years of participation in the Plan prior to retirement.

Most pensions paid under the Plan are escalated annually by the cost-of-living factor described in the Plan. For benefits accrued prior to January 1, 2014, liabilities will grow in direct relation to the
increase in the Consumer Price Index ("CPI"). For benefits accrued on or after January 1, 2014, liabilities will increase by 75% of the increase in CPI. A protocol has been developed to set out the parameters under which the Pension and Benefits Committee ("P&B Committee"), which has been set up by the Board to assist with the management of the pension plan, would increase the level of indexation beyond 75%. Notwithstanding the foregoing, if the increase in CPI in a given year exceeds 5%, then the indexation paid in that year will be determined by the P&B Committee, in its discretion, taking into account the Plan’s ability to afford such an increase.

Thus, to provide pensions at a reasonable cost, it is necessary to strive for sufficient/appropriate real investment returns on the Plan assets over medium- and long-term periods. The investment philosophy, policies and procedures adopted in this document will assist in the achievement of this goal in a prudent and effective manner.

This Policy has been developed taking into account factors such as:

a) The nature of the Plan’s liabilities;

b) The allocation of such liabilities between active and retired members;

c) The funded and solvency positions of the Plan;

d) The net cash flow position of the Plan;

e) The investment horizon of the Plan;

f) Historical and expected capital market returns; and

g) The benefits of investment diversification.
Section 2 — Asset Mix and Diversification Policy

2.01 Risk/Return Considerations

Investment objectives for the Plan have been established (a minimum return of CPI +3.6% net of expenses) with regard to the:

a) Structure and design of, and benefits provided by, the Plan;

b) Rate of return which would provide appropriate appreciation on the assets in the Plan;

c) Financial position of the Plan, as provided by actuarial valuations and projections;

d) The risk tolerance which is acceptable to UW in the Plan;

e) Demographics of the Plan membership; and

f) Special factors, if any, which UW considers significant.

2.02 Investment and Risk Philosophy

UW recognizes that, based on historical data, the asset classes most likely to produce the greatest return over time are also likely to exhibit the most volatility. Conversely, the asset classes likely to be the least volatile are likely to produce the lowest returns over time. Therefore, the investment philosophies and strategies must take into account both return and risk objectives.

a) Investment Philosophy

The investment management structure employs a mix of active and passive management styles. Active management has been adopted for portions of the assets as it provides the opportunity to outperform common market indices over the long-term, while controlling active risk levels. Passive management has been adopted for portions of the assets as it minimizes the risk of underperformance relative to a benchmark index and is generally less expensive than active management. For information on how environmental, social and governance factors are considered in selecting investment managers, refer to Section 3.05.

Active equity fund managers are to apply the long-term value approach by investing in companies at prices below their underlying long-term values to protect capital from loss and earn income over time. The fund managers will attempt to identify financially-sound companies with good potential profitability which are selling at a discount to their intrinsic value. Appropriate measures of low prices may consist of: low price-earnings, high dividend yields, significant discounts to book value and low price to free cash flow. Downside protection is obtained by seeking a margin of safety in terms of sound financial position and a low price in relation to intrinsic value. Appropriate measures of financial integrity include debt/equity ratios, financial leverage, asset turnover, profit margin, return on equity, and interest coverage. It is anticipated that purchases will be made when economic and issue-specific conditions are less than ideal and sentiment is uncertain or negative. Conversely, it is expected that gains will be realized when issue-specific factors are positive and sentiment is buoyant. Assets of the Fund are administered and managed on a combined
basis through specialist portfolios. Fund managers will be expected to generate a rate of return in the first quartile or better over a market cycle.

b) Risk Philosophy

In order to achieve their long-term investment goals, the Plan must invest in assets that have uncertain returns. However, UW attempts to reduce the overall level of risk by diversifying the asset classes and further diversifying within each individual asset class.

2.03 Portfolio Return Expectations

The annualized rate of return of the Plan must exceed the annualized rate of increase in the CPI by at least 350 basis points net of the associated investment management fees over rolling ten-year period.

2.04 Expected Volatility

The volatility of the assets of the Plan is directly related to its asset mix. Since the fund managers do not have authority to make any type of leveraged investment on behalf of the Plan, the volatility of the assets of the Plan should be similar to the volatility of the Benchmark Portfolio set out in section 4.02 (Performance Measurement).

2.05 Asset Mix

The following benchmark portfolio is used by the Consulting Actuary to calculate the return assumptions for the Plan. At all times, the market value of the individual asset classes will be within the minimum and maximum aggregate investment limits as listed.

<table>
<thead>
<tr>
<th>Assets</th>
<th>Minimum %</th>
<th>Maximum %</th>
<th>Benchmark Portfolio %</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>0.0</td>
<td>15.0</td>
<td>2.0</td>
<td>FTSE TMX Canada 91-Day T-Bill</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>30.0</td>
<td>70.0</td>
<td>33.0</td>
<td>FTSE TMX Universe Bond</td>
</tr>
<tr>
<td>Total Fixed Income</td>
<td>30.0</td>
<td>70.0</td>
<td>35.0</td>
<td></td>
</tr>
<tr>
<td>Canadian Equity</td>
<td></td>
<td></td>
<td>15.0</td>
<td>S&amp;P/TSX Composite</td>
</tr>
<tr>
<td>Global Equity</td>
<td></td>
<td></td>
<td>40.0</td>
<td>MSCI World (CAD)</td>
</tr>
<tr>
<td>Total Equity</td>
<td>30.0</td>
<td>70.0</td>
<td>55.0</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>5.0</td>
<td></td>
<td></td>
<td>UBS 50/50 (CAD)</td>
</tr>
<tr>
<td>Real Estate</td>
<td>5.0</td>
<td></td>
<td></td>
<td>FTSE EPRA/NAREIT Developed (CAD)</td>
</tr>
<tr>
<td>Total Alternatives</td>
<td>0.0</td>
<td>20.0</td>
<td>10.0</td>
<td></td>
</tr>
</tbody>
</table>
For the purpose of the total asset mix described above, the fund managers’ asset class pooled funds are deemed to be 100% invested, even though these funds may contain a portion held in cash and cash equivalent instruments.

The asset mix may deviate from the above mix, within the limits prescribed in the Policy. The monitoring of the asset mix and rebalancing guidelines are set out in Section 5.02 (Monitoring of Asset Mix). In order to ensure that the assets operate within the minimum and maximum ranges, UW shall review the asset mix on a quarterly basis. Rebalancing will be conducted as required.

The Plan’s target asset allocation for each investment category listed in subsection 76(12) of the regulations to the Pension Benefits Act (Ontario) is as follows:

<table>
<thead>
<tr>
<th>Asset Class under Sub-section 76(12) of the Pension Benefits Act (Ontario)</th>
<th>Long Term Target Allocation</th>
<th>Accessed Through Pooled Funds (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Insured Contracts</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>2. Mutual or pooled funds or segregated funds</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>3. Demand deposits and cash on hand</td>
<td>2.0%</td>
<td>-</td>
</tr>
<tr>
<td>4. Short-term notes and treasury bills</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>5. Term Deposits and guaranteed investment certificates</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>6. Mortgage Loans</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>7. Real Estate</td>
<td>5.0%</td>
<td>N</td>
</tr>
<tr>
<td>8. Real Estate Debentures</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>9. Resource properties</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>10. Venture Capital</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>11. Corporations referred to in subsection 11(2) of Schedule III to the federal investment regs</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>12. Employer issued securities</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>13. Canadian stocks other than investments referred to in 1 to 12 above</td>
<td>15.0%</td>
<td>N</td>
</tr>
<tr>
<td>14. Non-Canadian stocks other than investments referred to in 1 to 12 above</td>
<td>40.0%</td>
<td>-</td>
</tr>
<tr>
<td>a) Oldfield</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>b) Walter Scott</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>c) TD Emerald U.S. Pooled</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>d) TD Emerald International Equity Index</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>15. Canadian bonds and debentures other than investments referred to in 1 to 12 above</td>
<td>33.0%</td>
<td>-</td>
</tr>
<tr>
<td>a) TDAM Universe Index</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>b) TDAM Active Short Term Corporate</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>16. Non-Canadian bonds and debentures other than investments referred to in 1 to 12 above</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>17. Investments other than investments referred to in 1 to 16 above</td>
<td>5.0%*</td>
<td>N</td>
</tr>
</tbody>
</table>

* Refers to the long term target allocation to Direct Infrastructure

2.06 Management Structure

A diversified management structure has been adopted for the Plan consisting of several managers. This structure has been adopted as it is believed that the different investment mandates will result in increased diversification, while reducing the ‘manager risk’ effect for the Plan.
Section 3 — Permitted and Prohibited Investments

3.01 General Guidelines

The investments of the Plan must comply with the requirements and restrictions imposed by the applicable legislation, including but not limited to the requirements of the ITA, the PBA and their respective Regulations, any other applicable federal or provincial legislation and regulations governing the investment of pension funds, including Schedule III to the PBSA and this Policy.

3.02 Permitted Investments

In general, and subject to the restrictions in this section (Section 3), the investment manager may invest in any of the following asset classes and in any of the investment instruments listed.

a) Total Plan Level

i. UW shall not, directly or indirectly, lend or invest moneys of the Plan to or in any one person, any associated persons or any affiliated persons if:

- 10% or more of the total market value of the Plan’s assets has already been lent or invested in total to, or in, the person, the associated persons or the affiliated corporations; or
- 10% or more of the total market value of the Plan’s assets would be lent or invested in total to, or in, the person, the associated persons or the affiliated corporations as a result of the loan or investment.

ii. UW shall not, directly or indirectly, invest the moneys of the Plan in the securities of a corporation to which are attached more than 30% of the votes that may be cast to elect the directors of the corporation.

b) Cash and Short Term Investments

Cash on hand, demand deposits, treasury bills, short-term notes and bankers’ acceptances, commercial paper, term deposits and guaranteed investment certificates having a term of less than or equal to one year.

c) Fixed Income

Bonds, debentures, or other debt instruments of corporations, Canadian Governments, Government agencies, or guaranteed by Governments, supranationals, federal real return bonds, mortgage-backed securities, mortgages, asset-backed securities, non-convertible preferred shares, term deposits, guaranteed investment certificates, insurance contracts, private placements and bonds where capital, interest or both are linked to increases in the cost-of-living (i.e. real return bonds).

d) Equities

Common shares, preferred shares, American Depository Receipts, Foreign Depository Receipts, rights, warrants, installment receipts, index units, income trust units (including real estate investment trusts) and securities convertible into common shares.
**Derivatives**

The pooled funds in which the Plan invests may invest directly in derivatives to create synthetic exposures, or for hedging purposes, if their objectives and strategies permit, and if the exposure to derivatives is subject to limits based on the intended use and strategies for derivatives and the risks associated with them. Derivatives may also be used to hedge currency. Derivatives may not be used for speculative trading or to create a portfolio with leverage. Investment funds that invest in derivatives must comply with all applicable statutory provisions and regulations, including the Prudent Person Rule and must be invested and managed in accordance with regulatory derivatives best practices.

**Pooled Funds**

Investments in open-ended or closed-ended pooled funds provided that the assets of such funds are permissible investments under this Policy. While the guidelines in this Policy are intended to guide the management of the assets, it is recognized that, where pooled funds are held, there may be instances where there is a conflict between this policy and the investment policy of a pooled fund. In that case, the pooled fund policy shall dominate, subject to the compliance reporting procedures outlined in Section 4.03. However, the investment manager is expected to advise UW in the event of any material discrepancies between the above guidelines and the pooled fund’s own investment guidelines. In addition, the investment manager will ensure that UW has received a copy of the most recent version of the pooled fund policy and of any amendments made to the pooled fund policy.

**3.03 Minimum Quality Requirements**

**a) Quality Standards**

Within the investment restrictions for individual portfolios, all portfolios should hold a prudently diversified exposure to the intended market.

i. The minimum quality standard for individual bonds and debentures is ‘BBB’ or equivalent as rated by at least two Recognized Bond Rating Agencies, at the time of purchase. Where an investment in the portfolio is downgraded below a ‘BBB’ rating, the following steps will be taken:

- The investment manager will notify UW of the downgrade by telephone at the earliest possible opportunity;
- Within ten business days of the downgrade, the investment manager will advise UW in writing of the course of action taken or to be taken by the investment manager, and its rationale; and
- Immediately upon downgrade, the investment manager will place the asset on a Watch List subject to monthly review by the investment manager with UW until such time as the security matures, is sold or until it is upgraded to a level consistent with the purchase quality standards as expressed in the guidelines mentioned above.

ii. In cases in which the Recognized Bond Agencies to do not agree on the credit rating, the bond will be classified according to the methodology used by FTSE TMX, which states:

- If two agencies rate a security, use the lower of the two ratings;
- If three agencies rate a security, use the most common; or
- If all three disagree, use the middle rating.

b) Rating Agencies

For the purposes of this Policy, the following rating agencies shall be considered to be ‘Recognized Bond Rating Agencies:’

i. Dominion Bond Rating Agency;

ii. Standard and Poor’s; and

iii. Moody’s Investors Services.

3.04 Maximum Quantity Restrictions

a) Total Plan Level

No one holding shall represent more than 10% of the market value of the Plan’s assets. UW shall not, directly or indirectly, lend or invest moneys of the Plan to or in any one person, any associated persons or any affiliated corporations if:

- 10% or more of the total market value of the Plan’s assets has already been lent or invested, in total, to or in the person, the associated persons or the affiliated corporations; or

- 10% or more of the total market value of the Plan’s assets would be lent or invested, in total to or in the person, the associated persons or the affiliated corporations as a result of the loan or investment.

UW shall not, directly or indirectly, invest the moneys of the Plan in the securities of a corporation to which are attached more than 30% of the votes that may be cast to elect the directors of the corporation.

This section applies to those investments and loans subject to quantitative limit under Section 9(1) of Schedule III to Pension Benefits Standards Regulations, 1985 (Canada).

b) Fixed Income

i. Maximum 15% of the market value of the Canadian fixed income securities shall be invested in BBB bonds or debentures

ii. Maximum 10% of the actively managed fixed income portfolio may be invested in debt denominated in US currency, including debt issued by the US Government, its agencies and instrumentalities. No other foreign currency debt will be purchased.

c) Equities

No one equity holding shall represent more than 10% of the total market value of the manager’s portfolio.

3.05 Environmental, Social and Governance (“ESG”) Factors

Consistent with its obligation to act in the best interest of the Plan, UW chooses investments and fund managers that it believes will deliver superior financial performance over the longer term. In this regard, UW does not consider ESG factors in choosing fund managers with whom it invests the assets of the Plan. UW recognizes, however, that some fund managers may consider ESG factors as a way of determining which investments will have the best economic outcome, but this is not a
factor considered by UW when choosing fund managers nor are the Fund Managers instructed to consider the policies and practices of the various investments relating to ESG factors. In order to protect and enhance the value of the Plan’s investments, when choosing fund managers, UW considers criteria that include the fund managers’ business, staff, historical performance, and investment process. For the purposes of this section, ESG factors refer to the environmental, social and governance factors relevant to an investment that may have a financial impact on that investment.

**Consistent with its obligation to act in the best interest of the Plan, UW chooses investments and investment managers that it believes will deliver superior financial performance over the long term. In this regard, UW considers environmental, social and governance ("ESG") factors in selecting investment managers with whom it invests the assets of the Plan as well as assets that are directly held. UW recognizes; however, that managers may consider ESG factors in different ways in assessing whether a given investment will have the best economic outcome. In order to protect and enhance the value of the Plan’s investments, when selecting investment managers or direct investments, UW considers criteria that include: the manager’s business and staff; historical performance; and the consideration of ESG factors in the investment process. For the purposes of this section, ESG factors refer to the environmental, social and governance factors relevant to an investment that may have a financial impact on that investment. It is accepted that the understanding of and the impact from ESG factors may change over time.**

### 3.06 Prior Notice Required

The fund managers shall not make investments in asset categories other than those explicitly permitted in the Policy, unless UW first consents in writing. Each fund manager’s portfolio shall also comply with all requirements and constraints in any supplementary document provided by UW.

### 3.07 Securities and Cash Lending

The fund managers and custodian may participate in securities lending programs for the purpose of generating revenue, subject to the provisions of the PBA, the ITA and their applicable Regulations, as applicable.

Such loans must be secured by cash and/or readily marketable government bonds, treasury bills and/or letters of credit, discount notes, banker’s acceptances of Canadian chartered banks or high quality, liquid equities. The amount of collateral taken for securities lending should reflect OSFI standards and best practices in local markets. This market value relationship must be calculated at least daily.

Fund managers and custodians participating in securities lending will make available the terms and conditions of any securities lending program(s) with UW.

### 3.08 Short Selling

Short selling and/or pair trading are not permitted.
3.09 Liquidity
Investments should be liquid enough so that they can be sold in a reasonable period of time. The investments should be valued at least monthly and selected to ensure sufficient liquidity to meet transaction needs.

3.10 Borrowing
The Plan shall not borrow money, except to cover short-term contingency and the borrowing is for a period that does not exceed ninety days, subject to the PBA, the ITA and the written permission of UW.
Section 4 — Monitoring and Control

4.01 Delegation of Responsibility

The Board of Governors of the University of Waterloo (the “Board”) has established the Pension Finance and Investment Committee (“PIC F&I Committee”) to assist in the determination of UW’s overall investment philosophy, policies, objectives and strategies for the Plan, and a P&B Committee to assist in the management of the pension fund. UW assists in carrying out the responsibilities listed below.

a) PIC UW will:
   i. review this document annually and recommend any changes to P&B;
   ii. review pension fund performance on at least a semi-annual basis;
   iii. review Fund Manager performance on at least a semi-annual basis;
   iv. make recommendations on the selection of Fund Managers to P&B;
       make recommendations on the purchase of specific investments; and to P&B;
   v. adjust asset mix within Board established limits; approve asset mix changes and investment decisions where the cumulative annual transaction(s) represent less than 15% of the Plan’s total assets at the beginning of the calendar year;
   v.i. convene a meeting with the P&B Committee in the event of a significant market event or shift to discuss issues and market opportunities; and
   v.ii. provide quarterly reports to P&B Committee and the Finance & Investment Committee.

b) Working with the PIC F&I Committee, with respect to investment philosophy, policies, objectives and strategies and taking into consideration the recommendations of UW, the P&B Committee will make recommendations to the Board in the following areas:
   i. the content of this document after its annual review and in consultation with PIC;
   ii. the selection of a Consulting Actuary;
   iii. the selection of Fund Managers, and based on the recommendation from PIC;
   iii. PIC’s purchase of specific investments which exceed Board established limits; asset mix changes and investment decisions where the cumulative annual transaction(s) exceed 15% of the Plan’s total assets at the beginning of the calendar year based on the recommendation from PIC; and
   iv. the selection of a Custodian/Trustee to hold the pension fund assets.

c) In addition, the P&B Committee will:
   i. review this document annually, taking into consideration any recommended changes from UW and F&I Committee;
   ii.i. consider reports from PIC UW on pension fund performance on at least a semi-annual basis;
   iii.ii. consider reports from PIC UW on Fund Manager performance on at least a semi-annual basis;
   iv.iii. provide cash flow information to the PIC Fund Managers, if necessary;
v. iv. be responsible for the delegation of any responsibilities not specifically mentioned;
and

vi. v. report to Plan members on at least an annual basis; and

vii. review and approve the purchase of specific investments.

d) The Fund Managers will:

i. forward to UW-PIC quarterly reviews of investment performance, expectations of future returns on various asset classes and proposed investment strategies for the following 12 to 24 months;

ii. upon direction of the P&B Committee, invest in passive asset classes such as indexed bond funds, indexed equity funds, real-return bonds, etc.;

iii. manage asset mix and select securities within each asset class, subject to applicable legislation and the philosophy and other constraints set out in this document;

iv. forward to PIC quarterly reports describing their ESG analysis and approach;

v. comply with all relevant laws concerning the investment of the pension fund; and

vi. complete and deliver a compliance report (see page 10) to UW-PIC, the P&B Committee and the Fund’s Consulting Actuary each quarter. The compliance report will indicate whether or not the Fund Manager was in compliance with this Statement during the quarter. In the event that the Fund Manager is not in compliance with this Statement, the Fund Manager is required to advise UW-PIC, the P&B Committee immediately, detail the nature of the non-compliance and recommend the appropriate course of action to remedy the situation.

vii. comply, at all times and in all respects, with the Code of Ethics and Standards of Professional Conduct as promulgated by the CFA Institute.

viii. manage the assets with the care, diligence and skill that an investment manager of ordinary prudence would use in dealing with pension plan assets.

ix. use all relevant knowledge and skill that they possess or ought to possess as a prudent investment manager.

e) The Consulting Actuary (or his/her delegate approved by P&B Committee and UW-PIC) will:

i. assist in the preparation and subsequent annual reviews of this document;

ii. participate in all reviews of the Fund Managers and the Plan;

iii. report, at least semi-annually, on the performance of the Fund Managers and the Plan;

iv. comment on any changes in the Plan’s benefits, membership or contribution flow which may affect how the Plan’s assets are invested;

v. comment on the impact of potential investment opportunities/strategies/legislative changes which may affect how the Plan’s assets are invested;

vi. assist in the implementation of this document-Statement;
vii. monitor the performance of the Plan and the Fund Managers on a regular basis, and contact UW PIC the chair of the P&B Committee immediately if there are adverse changes of any kind, which warrant further review and/or investigation;

viii. support PIC UW and the P&B Committee on matters related to investment management and administration of the Plan; and

ix. meet with UW and the PIC or P&B Committee as required.

f) The Custodian/Trustee will:

i. fulfill the regular duties required by law of a Custodian/Trustee and perform the specific duties required of the Custodian/Trustee pursuant to agreements entered into from time to time with UW; and

ii. provide UW with monthly portfolio printouts of all assets of the Plan and transactions during the period.

4.02 Performance Measurement

For purposes of evaluating the performance of the Plan and the fund managers, all rates of returns are measured over rolling four-year periods. Return objectives are net of fees and include realized and unrealized capital gains or losses plus income from all sources.

(a) Total Fund

Investment weightings and results for the Plan are to be tested regularly against a long-term Benchmark Portfolio comprising:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTSE TMX Canada 91-Day T-Bill</td>
<td>2.0</td>
</tr>
<tr>
<td>FTSE TMX Universe Bond</td>
<td>33.0</td>
</tr>
<tr>
<td>S&amp;P/TSX Composite</td>
<td>15.0</td>
</tr>
<tr>
<td>MSCI World (CAD)</td>
<td>40.0</td>
</tr>
<tr>
<td>UBS 50/50 (CAD)</td>
<td>5.0</td>
</tr>
<tr>
<td>FTSE EPRA/NAREIT Developed (CAD)</td>
<td>5.0</td>
</tr>
</tbody>
</table>

(b) Investment Manager Mandates

Fund managers are subject to the following objectives on a gross of fees basis and over rolling four-year periods:

<table>
<thead>
<tr>
<th>Investment Manager and Mandate</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDAM Universe Bond Index</td>
<td>Tracking error within +/- 6 basis points of index return</td>
</tr>
<tr>
<td>TDAM Short Term Corporate Bond</td>
<td>Index + 50 basis points</td>
</tr>
<tr>
<td>TDAM Emerald US Equity Index</td>
<td>Tracking error within +/- 8 basis points of index return</td>
</tr>
<tr>
<td>TDAM Emerald International Equity Index</td>
<td>Tracking error within +/- 20 basis points of index return</td>
</tr>
<tr>
<td>Sionna Canadian Equity</td>
<td>Index + 100 basis points</td>
</tr>
<tr>
<td>Oldfield Global Equity</td>
<td>Index + 200 basis points</td>
</tr>
</tbody>
</table>
(c) Qualitative Monitoring

In addition to performance criteria, the following qualitative factors will also be monitored and evaluated:

i. Stability of the investment firm (personnel, assets under administration, operational capabilities, etc.);

ii. Investment objective and portfolio composition;

iii. Changes in the investment philosophy used in the investment fund;

iv. Consistency of style or approach; and

v. Adherence to investment policy statement; and

vi. ESG analysis and reporting.

4.03 Compliance Reporting by Investment Manager

The investment manager is required to complete and deliver a compliance report to UW and the Plan’s investment consultant each quarter. The compliance report will indicate whether or not the investment manager was in compliance with this Policy, including its ESG requirements, during the quarter.

In the event that an investment manager is not in compliance with this Policy, the investment manager is required to advise UW/PIC immediately, detail the nature of the non-compliance and recommend an appropriate course of action to remedy the situation.

The Plan invests in pooled funds with separate investment policies. Should a conflict arise between those investment policies and this Policy, the investment manager’s pooled fund policy shall dominate. However, the investment manager is required to advise PIC/UW immediately, detail the nature of the conflict and recommend an appropriate course of action to remedy the situation.

4.04 Audit

At such time as an audit is required by the regulatory authorities, the Plan shall be audited annually as at the fiscal year of the Plan, by external auditors appointed by UW.
Section 5 — Administration

5.01 Conflicts of Interest

a) Responsibilities

This standard, which is consistent with UW Policy 69 (Conflict of Interest) applies to UW and the members of UW, as well as to all agents employed by them, in the execution of their responsibilities under the PBA (the “Affected Persons”).

An “agent” is defined to mean a company, organization, association or individual, as well as its employees who are retained by UW to provide specific services with respect to the investment, administration and management of the assets of the Plan.

b) Disclosure

In the execution of their duties, the Affected Persons shall disclose any material conflict of interest relating to them, or any material ownership of securities, which could impair their ability to render unbiased advice, or to make unbiased decisions, affecting the administration of the Plan assets.

Further, it is expected that no Affected Person shall make any personal financial gain (direct or indirect) because of his or her fiduciary position. However, normal and reasonable fees and expenses incurred in the discharge of their responsibilities are permitted if documented and approved by UW.

No Affected Person shall accept a gift or gratuity or other personal favour, other than one of nominal value, from a person with whom they deal with in the course of performance of his or her duties and responsibilities for the Plan.

It is incumbent on any Affected Person who believes that he or she may have a conflict of interest, or who is aware of any conflict of interest, to disclose full details of the situation to the attention of UW immediately. UW, in turn, will decide what action is appropriate under the circumstances but, at a minimum, will table the matter at the next regular meeting of the appropriate committee - P&B Committee.

No Affected Person who has or is required to make a disclosure as contemplated in this Policy shall participate in any discussion, decision or vote relating to any proposed investment or transaction in respect of which he or she has made or is required to make disclosure.

5.02 Monitoring of Asset Mix

In order to ensure that the assets of the Plan operate within the minimum and maximum ranges, as prescribed in the Policy in Section 2.05 (Asset Mix), UW-PIC shall review the asset mix at least quarterly. Rebalancing will be conducted as required.

5.03 Selecting Fund Managers

In the event that a new investment manager must be selected or additional investment manager(s) added, UW-PIC will undertake an investment manager search. The criteria used for selecting an Investment Manager will be consistent with the investment and risk philosophy set out in Sections 2.02 (Investment and Risk Philosophy) and 3.05 (Environmental, Social and Governance Factors).
5.04 Monitoring Manager Performance

At least quarterly, the PIC P&B Committee and UW will monitor and review:

a) Each investment manager’s staff turnover, consistency of style and record of service;

b) Each investment manager’s current economic outlook and investment strategies (including ESG approach);

c) Each investment manager’s compliance with this Policy; and

d) Investment performance of the assets of the Plan in relation to the rate of return expectations outlined in this Policy.

5.05 Dismissal of an Investment Manager

Reasons for considering the termination of the services of an investment manager include, but are not limited to, the following factors:

a) Performance results which are below the stated performance benchmarks;

b) Changes in the overall structure of the Plan’s assets such that the investment manager’s services are no longer required;

c) Change in personnel, firm structure or investment philosophy which might adversely affect the potential return and/or risk level of the portfolio; and/or

d) Failure to adhere to this Policy.

The failure to achieve the goals stated in Section 4.02 (Performance Measurement) over a period of four consecutive years will require a reassessment of such goals and/or the appointment of an alternative investment manager.

5.06 Voting Rights

The voting rights acquired through the investments held by the Plan are delegated to the fund managers of the securities. Fund managers are expected to exercise all voting rights related to investments held by the Plan in the interests of the Plan’s members.

5.07 Valuation of Investments Not Regularly Traded

The following principles will apply for the valuation of investments that are not traded regularly:

a) Equities
   Average of bid-and-ask prices from two major investment dealers, at least once every month.

b) Fixed Income
   Same as for equities.
Section 6 — General Provisions

6.01 Related Party Transactions

UW, on behalf of the Plan, may not enter into a transaction with a related party unless:

a) The transaction is made for the operation or administration of the Plan under terms and conditions that are not less favourable to the Plan than market terms and conditions and such transaction does not involve the making of loans to, or investments in, the related party; or

b) The combined value of all transactions with the same related party is nominal or the transaction(s) is immaterial to the Plan.

For the purposes of this section, only the market value of the combined assets of the Plan shall be used as the criteria to determine whether a transaction is nominal or immaterial to the Plan. Transactions less than 0.5% of the combined market value of the assets of the Plan are considered nominal.

In addition, the prohibition to entering into transactions with a related party does not apply to investments:

a) In an investment fund in which investors other than the Administrator and its affiliates may invest and that complies with the requirements set out in Sections 9 and 11 of Schedule III to the PBSA;

b) In an unallocated general fund of a person authorized to carry on a life insurance business in Canada;

c) In securities issued or fully guaranteed by the Government of Canada, the government of a province, or an agency of either one of them;

d) In a fund composed of mortgage-backed securities that are fully guaranteed by the Government of Canada, the government of a province, or an agency of either one of them;

e) In a fund that replicates the composition of a widely recognized index of a broad class of securities traded at a marketplace (as that term is defined in the PBSA); and

f) That involve the purchase of a contract or agreement in respect of which the return is based on performance of a widely recognized index of a broad class of securities traded at a marketplace (as that term is defined in the PBSA).

A “related party” in respect of the Plan means:

a) A person who is the administrator of the Plan including any officer, director or employee of the administrator. It also includes the Managers and their employees, a union representing employees of the employer, a member of the Plan, a spouse or child of the persons named previously, or a corporation that is directly or indirectly controlled by the persons named previously, among others. Related party does not include government or a government agency, or a bank, trust company or other financial institution that holds the assets of the Plan, where that person is not the administrator of the Plan;

b) An officer, director or employee of one of the administrators of the Plan;

c) A person responsible for holding or investing the assets of the Plan, or any officer, director or employee thereof;

d) An association or union representing employees of UW, or an officer or employee thereof;
e) A member of the Plan;
f) The spouse or child of any person referred to in any of paragraphs (a) to (e);
g) An affiliate of UW;
h) A corporation that is directly or indirectly controlled by a person referred to in any of paragraphs (a) to (g); and/or
i) An entity in which a person referred to in paragraph (a) or (b), or the spouse or a child of such a person, has a substantial investment.

6.02 Policy Review

The P&B Committee shall review and either confirm or amend this Policy at least annually. The P&B Committee will also provide any amended copy of this Policy to the investment manager and the Plan’s actuary.
Appendix A — Investment Manager Compliance Letter

To be completed by fund managers immediately prior to each quarterly review.

UNIVERSITY OF WATERLOO

____________________, 201_

This is to certify that I/we have adhered to the guidelines contained in the January September November 2018 version of the “Statement of Investment Policies and Procedures” for the University of Waterloo Pension Plan (2011), approved by the Board of Governors of the University of Waterloo.

Signed _________________________

On behalf of _____________________

Date ___________________________
This report is submitted for inclusion in the regular agenda.

RECOMMENDATION

1. Approval of the Terms of Reference for the Pension Investment Committee

Motion: To approve the terms of reference for the Pension Investment Committee (the “PIC”). See Attachment #1.

Background: This new committee, as well as its relationships with other relevant committees of the Board of Governors, was approved in principle at the 5 June 2018 meeting of the Board. In the interim, additional required work toward the implementation of the PIC has occurred (see item #3 of this report), such that it is now timely to establish properly the PIC within the Board governance framework. It is anticipated that the PIC membership will be populated in 2019, with the committee to commence operations thereafter.

/sg

Karen Jack
University Secretary
The Pension Investment Committee (the “committee”) is a subcommittee of the Finance & Investment Committee and Pension & Benefits Committee that oversees the investment of the assets of the University of Waterloo Pension Plan (“the Plan”).

Mandate
The committee is mandated to oversee the investments of the Plan recognizing that (a) the Plan is funded through employee and employer contributions and (b) investment decisions are based on a full understanding of the underlying liabilities, within acceptable risk tolerances, while remaining mindful of liability matching requirements and optimization of fees.

The details of the mandate are as follows:
1. To review, at least annually, the Statement of Investment Policy and Procedures (SIPP) with input from the Finance & Investment Committee, and to recommend any amendments of the SIPP through the Pension & Benefits Committee to the Board of Governors
2. To review reports provided by the Pension & Benefits Committee including the annual valuation, investment-related risk/return assessments, and asset-liability studies and to advise the Pension & Benefits Committee on those reports
3. To meet annually with the investment managers that the Plan has retained
4. To make recommendations to the Board of Governors from time to time, through the Pension & Benefits Committee, on the selection and termination of investment managers or specific investments of the Plan
5. To review at each meeting the investment returns of the Plan assets, the performance of the investment managers, the profile of the Plan assets with respect to acceptable risk tolerances and asset allocation, and the profile of the Plan assets with respect to applicable liability matching requirements
6. To provide written reports quarterly to the Pension & Benefits Committee and to the Finance & Investment Committee outlining the Pension Investment Committee’s activities, decisions, recommendations, future agenda items, and any other applicable information. The Chair will meet at least annually with the Pension & Benefits Committee and the Finance & Investment Committee. A summary report will be provided quarterly to the Board of Governors through the Pension & Benefits Committee and the Finance & Investment Committee
7. To approve asset mix changes and investment decisions in compliance with the SIPP amongst the approved investment vehicles where the cumulative annual transaction(s) represents less than 15% of the Plan’s total assets at the beginning of the calendar year. This activity includes allocations to newly-approved managers, or existing approved managers. The committee may at its discretion place investment managers on watch based on criteria developed by the committee. Written reports of all such investment decisions shall be provided to the Pension & Benefits Committee, the Finance & Investment Committee and the Board of Governors
8. To consult with the Finance & Investment Committee prior to recommending investment decisions and/or asset mix changes to the Board of Governors through the Pension & Benefits Committee, where the cumulative transactions in that calendar year would result in exceeding 15% of the Plan(s) total assets
9. To convene a meeting with the Pension & Benefits Committee in the event of a significant market event or shift, to discuss issues such as: specifics of significant changes in the investment environment; desirable changes to asset mix; overall risk appetite; the quality of specific investments and/or performance of investment managers during the event or shift; and market opportunities that may be presented due to the event or shift
10. To advise and/or make recommendations to the Board of Governors and/or the Pension & Benefits Committee on any matter pertaining to the management of the assets of the Plan
Meetings
The committee normally will meet four times per year, approximately quarterly, from September to June. Additional meetings will be called as required. In person attendance at meetings is encouraged, however, members may attend meetings electronically when the university and members have appropriate alternate means at their disposal. Between meetings, at the direction of the chair, the secretary may facilitate voting on a motion or motions through email or another suitable platform, provided none of the members object on the grounds that further information or discussion is reasonably required in order to make a proper decision. Meetings are restricted to committee members and guests invited by the committee.

Membership
The three voting constituencies among members are as follows:

1. Three (3) voting members appointed from and by the Board of Governors, with pension risk management and/or investment expertise
2. Two voting members having pension risk management and/or investment expertise, drawn from the complement of regular faculty, staff, and retirees and appointed via consensus agreement by the presidents of Faculty Association of the University of Waterloo (FAUW), the University of Waterloo Staff Association (UWSA), Canadian Union of Public Employees Local 793 (CUPE), and the University of Waterloo Retirees Association (UWRA)
3. Two voting members to be drawn from the external community with expertise in pension risk and/or investment, appointed by the Governance Committee of the Board of Governors. The prospective members in this category will be recommended by the Pension & Benefits Committee to the Governance Committee, and the Pension & Benefits Committee would be responsible to prepare a master list of potential members for the Governance Committee and update it annually to ensure that the Governance Committee has a list of members with relevant expertise for the PIC.

The committee will include four non-voting members: two from university administration appointed by the university president, and two from the employee groups appointed via consensus of the presidents of CUPE, FAUW, UWSA, and UWRA. It is intended that all of CUPE, FAUW, UWSA and UWRA would be represented through the two voting plus two non-voting members.

At least three voting members shall have investment expertise and at least three voting members shall have experience in managing pension risk. The committee may engage experts from industry or academia if specific advice is required.

Appointments are for one (1) three-year term with the option to reappoint for one (1) additional three-year term. Members may be reappointed for two (2) additional three-year terms thereafter following a two-year break from the end of their most recent term.

Quorum
At least four voting members, with: at least two members appointed from the Board, one member from the employee/retiree constituency, and one member from the external community.

Chair
The chair of the Committee is appointed from among the committee membership by the Board of Governors, on the recommendation of the Governance Committee.

Voting
Where a question is to be decided with a formal vote, the result of the vote must have the support of at least one member from each of the three voting constituencies to validly carry the motion.