Fleming College

Board of Governors

June 2020 – Public Meeting

Meeting Date:	June 24, 2020
Meeting Time:	12:00 pm
Meeting Information:	Via Zoom – details provided in the calendar invite Join Zoom Meeting https://us02web.zoom.us/j/86330973109?pwd=MkYxUnYvUlJBSUVneWl4TDRHVFErQT09

Meeting Agenda

1.	Call to Order and Confirmation of Quorum	*1 min*
2.	Declaration of Conflict	*1 min*
3.	Approval of Meeting Agenda	*1 min*
4.	Consent Agenda *The following items will be addressed through the consent agenda unless specifically requested to be removed for separate attention, by request.* - 4.1 - Minutes of the March 25, 2020 Public Meeting pages 3 - 8 - 4.2 - Summary of Investment Portfolios page 9 - 4.3 - Contracts Awarded - March 1, 2020 - May 31, 2020 page 10	*1 min*
5.	Business Arising (not otherwise covered)	*1 min*

Decision Items

6.	New Programs - 6.1 - New Program Business Case - Aquaculture Foundations Certificate pages 11 - 63 - 6.2 – New Program Business Case - Advanced Water Systems & Operations Management- Applied Research pages 64 - 124	L. Poirier and B. Goodwin	12:05 pm *15 min*
7.	Investment Performance Report for 2019-2020 pages 125 - 128	F. Clifford and C. Bailey	12:20 pm *5 min*
8.	Finance and Audit Committee Work Planner 2020-2021 page 129	F. Clifford and C. Bailey	12:25 pm *5 min*
9.	Draft 2020-2021 Financial Plan (Preliminary Budget) pages 130 – 146	F. Clifford and C. Bailey	12:30 pm *20 min*

10.	Internally Restricted Net Assets page 147	F. Clifford and C. Bailey	12:50 pm *10 min*

Information Items

11.	2019-2020 Audited Financial Statements pages 148 - 195	F. Clifford and C. Bailey	1:00 pm *10 min*
12.	Spring 2020 Enrolment Report (enclosed) pages 196 - 198	R. Srdic and D. Van Parys	1:10 pm *10 min*
13.	Board Chair Report page 199	D. Marinigh	1:20 pm *5 min*
14.	President's Report pages 200 - 205	M. Adamson	1:25 pm *5 min*

Discussion

15.	Other Business		1:30 pm *5 min*

Adjournment approximately 1:35 pm

Board of Governors

DRAFT - Public Meeting Minutes

Meeting Date: March 25, 2020
Meeting Location: Teleconference Meeting

Meeting Attendance

Present:
Mr. Dan Marinigh, Board Chair
Ms. Katherine MacIver, Vice Chair
Mr. Fred Clifford
Mr. Ben Currelly
Mr. Paul Downs
Ms. Mary-Anne Hoggarth
Ms. Nicole Grady
Mr. Mike Leonard
Ms. Mary Lou McLean
Mr. Thom Luloff
Ms. Cathy Praamsma
Ms. Maureen Adamson, President

Regrets:
Ms. Allison Galbraith
Ms. Rosemarie Jung

Senior Administration:
Ms. Cathy Bailey, Vice-President, Corporate Services
Ms. Christy DeMont, Chief Information Officer
Ms. Sandra Dupret, Vice President, Student Experience
Dr. Brett Goodwin, Vice President, Applied Research & Innovation
Ms. Sherry Gosselin, Director, Project Management and Institutional Research
Ms. Roni Srdic, Registrar
Dr. Tom Phillips, Vice President, Academic Experience
Mr. Drew Van Parys, Vice President, Economic and Community Development
Mr. Terry Williams, Director, Physical Resources

Administrative Support:
Ms. Sandra Armstrong, Executive Assistant
Ms. Sarah Beirness, Manager of Operations

Guests:
Ms. Linda Poirier, Dean, School of Health & Wellness and Justice & Community Development
Ms. Liz Stone, Academic Chair, Indigenous Perspectives
Ms. Pam Stoneham, Dean, School of Trades & Technology

1. Call to Order, Welcome to the Traditional Territory and Confirmation of Quorum
The Chair called the meeting to order at 12:34 p.m. and acknowledged that the Board of Governors hosted the March 25, 2020 public teleconference meeting on the traditional lands of the Mississauga and Anishinaabe peoples.

Quorum was confirmed, regrets noted, staff and guests in attendance were welcomed.

The Chair welcomed Ms. Mary-Anne Hoggarth as the Board's newest external Governor.

2. Declaration of Conflict
Mr. Luloff declared a conflict with agenda items 6.2 (Altitude program revision) and 7.1 (Indigenous Perspectives Designation policy).

3. Approval of Meeting Agenda
Moved by Mr. Downs and seconded by Mr. Clifford that the Board of Governors of Sir Sandford Fleming College approve the agenda of the March 25, 2020 public meeting as presented.
Carried

4. Consent Agenda
The minutes from the January 22, 2020 public meeting were removed from the consent agenda. Paul Downs was noted as putting forth a motion to approve the agenda (agenda item 3), however, he was not present for the meeting; this will be amended.

Moved by Ms. MacIver and seconded by Ms. McLean that the minutes of the January 22, 2020 public meeting be approved as amended.
Carried

Moved by Mr. Currelly and seconded by Mr. Luloff that the Board of Governors of Sir Sandford Fleming College approve the revised consent agenda for the January 22, 2020 public meeting and, through this consent, receive for information:

- *the report on contracts awarded; and*
- *the quality assurance dashboard.*

Carried

5. Business Arising
None identified.

6. Program Revisions
The Chair welcomed Dr. Tom Phillips, Vice-President, Academic Experience, Dr. Brett Goodwin, Vice-President, Applied Research and Pam Stoneham, Dean, School of Trades & Technology to present two (2) programs for revision: Adaptive Forest Management (for information) and Altitude (for approval).

6.1 - Adaptive Forest Management
Dr. Goodwin provided an update on the Adaptive Forest Management program. A comprehensive briefing note was provided in the package. It was noted that a proposal to develop a new Foundations in Forestry program will be presented to the Board at a later date.

Moved by Mr. Downs and seconded by Ms. Praamsma that the Board of Governors of Sir Sandford Fleming College receive for information the update on the new Adaptive Forest Management diploma.
Carried

6.2 - Altitude
Mr. Luloff recused himself for item 6.2 due to a previously identified conflict.

A comprehensive briefing note was provided in the Board package and Ms. Stoneham summarized the rationale for modifying the current Aircraft Interior Fundamentals local certificate to a new 20-week credential program titled Altitude.

Moved by Mr. Currelly and seconded by Mr. Downs that the Board of Governors of Sir Sandford Fleming College approve the proposed modification to what is currently the Aircraft Interior Fundamentals program to a 20-week program titled Altitude.
Carried

7. New Policies

7.1 - Indigenous Perspectives Designation Policy
Mr. Luloff recused himself for item 7.1 due to a previously identified conflict.

The Chair welcomed President Adamson and Ms. Liz Stone, Academic Chair, Indigenous Perspectives who presented to the Board a new policy entitled “Indigenous Perspectives Designation”. A comprehensive briefing note and the new policy were included in the Board package.

Ms. Stone indicated that with the support of President Adamson and the Senior Management Team Fleming College has made tremendous efforts in moving Indigenous education forward. The Indigenous Perspectives Designation policy will help ensure the highest quality standards for our College’s Indigenous education curriculum and programming.

The importance of the College fostering and maintaining relationships with Indigenous communities and engaging in consultation with traditional knowledge holders was noted. A future update on Indigenous education at Fleming College and progress on the College’s Indigenous policies and procedures will be provided at a future Board meeting.

Moved by Ms. Grady and seconded by Ms. Hoggarth that the Board of Governors of Sir Sandford Fleming College approve the new Policy Indigenous Perspective Designation, for implementation Fall 2020.
Carried

7.2 - Privacy Policies
The Chair welcomed President Adamson and Ms. Beirness who presented two new policies, provided in the Board meeting package, for approval:

- Access to Information and Protection of Privacy; and,
- Information Practices Related to Personal Health Information

The policies describe how the College will protect its records, and sets out the rules for collection, use, retention, disclosure and disposal of personal information and personal health information.

Both policies were completed following extensive research of privacy best practices and other post-secondary institutions privacy policies and procedures. DDO Law was retained to provided legal support for the development of the policies and affiliated operating procedures.

It was clarified that the College will be hiring a dedicated Privacy Officer and in the interim Ms. Beirness will continue fill this role in addition to her other job responsibilities.

The Chair stated that he will provide designation of authority to department heads, and other identified positions at Fleming, for management and oversight of Freedom of Information and Protection of Privacy as required under the Freedom of Information and Protection of Privacy Act (FIPPA).

Moved by Ms. McLean and seconded by Mr. Currelly that the Board of Governors of Sir Sandford Fleming College approve the Access to Information and Protection of Privacy and Information Practices Related to Personal Health Information policies for immediate implementation.
Carried

8. Revised Comprehensive Investment Policy Statement

The Chair welcomed Ms. Cathy Bailey, Vice-President, Corporate Services who joined the Chair of the Finance & Audit Committee, Mr. Fred Clifford, to present revisions to the Comprehensive Investment Policy Statement, policy #4-419A for Board approval.

The revised policy was provided in the Board meeting package. The Finance and Audit Committee unanimously endorsed the revised policy #4-419A on March 18, 2020. Mr. Clifford noted that the revisions made to the policy updated and diversified both the asset and geographical mix.

Moved by Mr. Clifford and seconded by Mr. Currelly that the Board of Governors of Sir Sandford Fleming College approve the revised Comprehensive Investment Policy Statement, policy #4-419A, for immediate implementation.
Carried

9. Ancillary Fees

The Chair welcomed Ms. Sandra Dupret, Vice-President, Student Experience and Ms. Bailey who presented to the Board the student ancillary and student levied fees, and the academic program ancillary fees for September 2020. A comprehensive briefing note outlining the proposed fees was provided in the Board package. All fees were previously approved by Fleming College's Student Administrative Council and the Frost Student Association.

Moved by Ms. MacIver and seconded by Mr. Downs that the Board of Governors of Sir Sandford Fleming College approve the student ancillary and student levied fees, and academic program ancillary fees for implementation September 2020.
Carried

10. Frost Student Association (FA) and Student Administrative and Council (SAC) Financial Statements

The Frost Student Association (FA) and Student Administrative and Council (SAC) Financial Statements were provided in the Board package for information by Ms. Dupret and Ms. Bailey. These statements were previously received for information by the Finance and Audit Committee meeting at their March 18, 2020 meeting.

Moved by Mr. Clifford and seconded by Ms. Praamsma that the Board of Governors of Sir Sandford Fleming College receive the Frost Student Association (FA) and Student Administrative and Council (SAC) Financial Statements for information.
Carried

11. Winter 2020 Enrolment Report

The Chair welcomed Ms. Roni Srdic, Registrar who presented the 2020 enrolment update to the Board. The Winter 2020 enrolment report was provided in the Board package. It was noted that the enrolment numbers in the report are pre-COVID-19.

Ms. Srdic clarified that the decline in domestic enrolment is on par with other Colleges. The enrolment increase for the School of General Arts and Sciences was questioned and will be looked into by Ms. Srdic.

Moved by Mr. Curelly and seconded by Mr. Luloff that the Board of Governors of Sir Sandford Fleming College receive the Winter 2020 Enrolment Report for information.
Carried

12. Report from the President

The President's report, provided in the Board package, was reviewed and included a summary of key updates and events since the January 2020 meeting.

Moved by Mr. Downs and seconded by Ms. MacIver that the Board of Governors of Sir Sandford Fleming College receive the March 2020 President's report for information.
Carried

13. Report from the Board Chair

The Chair's report, provided in the Board package, was reviewed and included a summary of key updates since the January 2020 meeting. The next public meeting will be May 27, 2020.

Moved by Mr. Clifford and seconded by Ms. MacIver that the Board of Governors of Sir Sandford Fleming College receive the March 2020 Board Chair report for information.
Carried

14. Other Business

It was requested that revenue generating reports, by campus, be provided at a future Board meeting; of particular interest was the financial viability of Fleming College's Cobourg campus. Ms. Adamson acknowledged this would be possible for a future in-camera meeting.

The Board Chair put forth a motion to acknowledge Ms. Sherry Taylor, Vice-President, Organizational Effectiveness and Human Resources who will be leaving Fleming College.

Moved by Mr. Marinigh and seconded by Ms. MacIver that the Board of Governors of Sir Sandford Fleming College recognize Ms. Sherry Taylor, Vice-President, Organizational Effectiveness and Human Resources for her contributions to Fleming College.
Carried

Adjournment

Moved by Mr. Downs and seconded by Ms. Praamsma that the public meeting of March 25, 2020 be adjourned at 1:39 p.m.

Fleming College

Board of Governors | Briefing Note

Topic:	Summary of Investment Portfolios
Report To:	Public Board Meeting *Reviewed by Finance and Audit Committee on June 15, 2020 for final submission to the Board of Governors*
Meeting Date:	June 24, 2020
Prepared By:	Cathy Bailey, Vice-President, Corporate Services

Recommended Motion

That the Board of Governors of Sir Sandford Fleming College recieve the Summary of Investment Portfolios for information.

Overview

Detailed Portfolio Reviews for the period ended March 31, 2020, were provided to the College by RBC Dominion Securities and reviewed at the June 15, 2020 Finance and Audit Committee meeting.

The College has three Investment Policy Statements (IPS) that require reporting to the Board of Governors.

The **Comprehensive Investment Policy Statement (IPS**), College Policy #4-419A, requires semi-annual reporting to the Board of Governors, including the asset allocation, performance vs the benchmarks, a written statement of compliance with relevant sections of the IPS and a market commentary. The Comprehensive Reports are in compliance with the asset mix targets, the eligible investment guidelines, the investment limits as well as the fixed income quality and diversification requirements included in the related IPS.

The overall investment performance of the Comprehensive portfolio is measured against an annual target benchmark return of 3.5%. The portfolio return for the year was (3.25%) and all periods reported were well below the 3.5% target. The significant market decline in March 2020 that impacted the portfolio was due to the COVID-19 pandemic.

As an additional measurement, the performance of the equity portion of the portfolio is compared to the S&P/TSX Equity Income Total Return Index. The equities performance, while negative during the period, outperformed the benchmark by 5.73% and 4.47% for the six month and one-year period respectively. The portfolio was significantly under-weight in the energy sector and over-weight in industrials which reduced the decline in the portfolio as compared to the benchmark.

A revised Comprehensive IPS, approved by the Board of Governors in March 2020, will be implemented in fiscal 2020/21. It increases the target equity holding to 55% from 30% and expands the eligible investments to include international holdings.

The **Ministry Endowed IPS**, College Policy #4-419D also requires semi-annual reporting to the Board of Governors which includes the asset allocation and a written statement of compliance with the Quality Guidelines. The report complies with asset mix and fixed income quality targets.

The Operating Report is in compliance with all aspects of the **Operating IPS** and is invested in GICs issued by banks listed in Schedule I or II under the Bank Act (Canada).

Risks and Considerations

☐ External Environment ☐ Internal Environment ☒ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☒ Strategic ☐ N/A

Period: **March 1, 2020 - May 31, 2020**

Procurement Contract Awards Between $500,000 and $999,999.

Award Date	Description	Vendor Name	Contract Amount (tax excluded)
No items to report			

BUSINESS CASE

Aquaculture Foundations Certificate

Date:	June 2, 2020
Board of Governors:	☐ Decision
Proposed By:	Tania Clerac, Dean
School of Study:	School of Environmental and Natural Resource Sciences
Proposed Launch Date:	Fall, 2021
Offering:	☒ Full-Time ☐ Part-Time
Student Enrolment Target:	YEAR 1 = 30 YEAR 3 = 40 YEAR 5 = 50
New Faculty Resources:	None
Semesters / Hours:	3 Semesters / 680 Hours
Applied Learning Method(s):	☒ Applied Project ☐ Co-op/Placement ☐ Other
First Graduating Class:	Class of 2022
Credential Ontario College (OC):	☒ OC Certificate ☐ OC Graduate Certificate ☐ OC Diploma ☐ Certificate (Local Board Approved) ☐ OC Advanced Diploma
Program Mapping:	Appendix I: Validation Documents
Career Opportunities:	Aquaculture Support Worker, Marine Harvest Labourers, Fish Tagger, Fish Farm Helper, Sea Farm Attendant, Fry Marker.
Proposed Tuition (per Semester):	Domestic: $1,488.33 International: $6,775.00
Program Start-up Cost:	$10,502.59
Incremental Costs:	YEAR 1= $102,299.74 YEAR 3= $115,511.07 YEAR 5= $115,511.07
Net Income:	YEAR 1 = ($24,251.72) YEAR 3 = $28,261.61 YEAR 5 = $65,231.73
OCQAS Program Validation	☐ Approved APS Number: Validation Date:
MCU Code(s):	42700
NOC Code(s):	8613
CIP Code(s):	01.0303 – Aquaculture 01.0302 - Animal/livestock husbandry and production 01.0301 - Agricultural production operations, general

Endorsed

☐ Academic Council ☒ Program Advisory or Reference Group ☒ Senior Management Team
☒ Strategic Enrolment Management ☐ Other: _____

Acknowledgements

Thank you to the members of our Aquaculture Development Team for their dedication and excellent work in engaging the college community in consultations, research, writing, and responding to feedback. Over the course of our planning and approval process this team involved Brett Goodwin, Linda Poirier, Tania Clerac, Jon Carter, Cheryl Wardell, Jason Dennison, Liz Stone, Kris McBride, Jodie Black and Yvette Maxwell.

Table of Contents

1. Executive Summary

Aquaculture is a growing industry in Ontario, nationally, and internationally. Given human population growth rates and associated demands for protein along with increasing awareness and concern about the environmental impacts of industrial-scale fisheries, the interest and demand for farmed fish is expected to continue to grow. This market demand places a strong need for trained workers to run and maintain commercial operations.

The idea for the proposed College Certificate in Aquaculture arose from discussions with both industry partners and Indigenous groups promoting aquaculture. There is a real need for trained workers to support the industry and to support aquaculture initiatives by various Indigenous groups. This would help sustainability within their communities. The proposed 'Aquaculture Foundations Certificate' would be delivered online over two semesters and in addition, would include a practical placement component. The program would run out of the School of Environmental and Natural Resource Sciences at the Frost Campus of Fleming College.

This program would align to the Colleges recent Strategic Plan as its online platform would embrace technology, include flexible delivery and in addition, would be a true partnership with industry and Indigenous organizations focused on Aquaculture. Endeavours for meeting the mission and vision listed in the draft Academic Plan regarding student empowerment through innovative education and real-world experiences in order to transform communities and create prosperity would also be included.

Students would be introduced to foundational skills and develop confidence to work safely in the aquaculture industry. They would also learn to utilize common equipment found in aquaculture settings establishing core skills as aquaculture support workers.

The alignment of the Aquaculture Certificate program with the Plans at Fleming creates an opportunity for growth at the learner, community and industry level. The combination of the program's accessible delivery format together with its practical component allows for engagement of aquaculture businesses both nationally and globally. These key components as well as its inclusion of Indigenous practices contribute to its validity and uniqueness.

This program also meets the more recent demands on the post-secondary system regarding COVID-19 implications. With likely shifts to increased demand for online distance education options for learners as well as maintenance of current market demands and economic/environmental sustainability, this certificate is a viable option to maintain Fleming's strength as a prominent player the post-secondary marketplace.

2. Program Description

The proposed program would be a 2 semester College Certificate called 'Aquaculture Foundations' under the School of Environmental and Natural Resources at the Frost Campus of Fleming College.

The program would focus on providing basic fish biology (e.g., basic anatomy and function, stress, disease recognition and control), basic aquaculture techniques (e.g., maintenance of infrastructure, water and oxygen monitoring, basic calculations), fish husbandry (e.g., feeding, breeding), and safety and environmental considerations. This material will be derived from our current Aquaculture post-grad certificate, though material will need to be winnowed and modified to match the level of the students in a certificate program. The bulk of the program would be offered via on-line delivery with a culminating practicum placement. This hands-on component would be delivered in a compressed format in our hatchery during periods that the current Aquaculture grad-certificate students are away (break weeks and the May-June period) or, alternatively at other partner facilities. This will allow for greater participation by potential students who cannot commit to moving to Lindsay or do not want to leave their Indigenous communities to attend classes on Frost campus. The proposed delivery will not place a burden on class-room space, and provides greater flexibility to provide the program to targeted employers.

An Ontario Secondary School Diploma (OSSD) or equivalent mature student status would be required as an admission requirement into the program.

Semester 1	Semester 2	Semester 3 Practicum
Math for Aquaculture 45 hours	Foundations of Fish Husbandry 60 hours	Applied Aquaculture Skills 90 hours
Intro to Certifications and Regulations in Aquaculture 30 hours	Foundations of Aquaculture Biology 45 hours	
Water Quality in Aquaculture- 45 hours	Aquaculture Infrastructure Open Net Pen- 90 hours	
Aquaculture Infrastructure Land based - 90 hours	Intro to Aquaculture Operations 60 hours	
Introduction to Aquaculture 30 hours	Foundations of Aquaculture Safety 45 hours	
Animal Welfare 30 hours		
Introduction to Indigenous Environmental Studies 30 hours		

More detailed curriculum information may be found in Appendix I: Validation Documents and Appendix II: MCU Program Delivery Information (PDI).

3. Fleming College Strategic Alignment

3.1. Alignment with Fleming College Strategic Plan

In its Strategic Plan (2019-2024), Fleming College includes 5 key commitments. The proposed Aquaculture Foundations Program aligns to each of these namely in meeting the needs of both students and employers in the labour market, creating community partnerships, as well as through utilizing technology to facilitate the content of this online certificate.

Needs of students will be met as they will be provided with a flexible delivery format for course content. They will also have the opportunity to participate in the practicum portion of the program at our Frost Campus, or if more convenient, at a local fish hatchery near their homes. In developing these student-employer partnerships, the needs of more rural companies within the aquaculture sector would be met. Companies would be provided with workers that they can train thus contributing to their learning, providing real world experience as well as meeting the gaps demonstrated within their workforce.

The community partnerships that would evolve from the practicum portion of the program would create positive impact on the social and economic development within the local Kawartha community as well as create additional potential both provincially and nationally. Future leveraging of ongoing momentum to attract additional students to the Aquaculture program would be a result of these partnerships. Potential also exists for international partnerships for Fleming college with this online certificate. Tasmania University has expressed an interest in our Aquaculture online certificate proposal.

As a result of online technology, opportunities for experiential learning will become more robust and integrated. Fleming college would continue to embrace the digital platform and create streams for additional learners within the Aquaculture industry. Participation in online classes and improved use of technology will lend well to graduates having skills needed as they enter the workforce.

Inclusion of regional, provincial, national and even global populations will encourage ongoing diversity within the Fleming culture. In addition, the importance of the integration of Indigenous content within the Aquaculture program is evident in the course content, learning outcomes as well as community partnerships.

3.2. Alignment with Fleming College Academic Plan

The primary mandate of the Academic Plan (2019-2024) at Fleming College is 'Jobs 1st'. The program as well as course outcomes include the soft skills of communication, math, problem solving and team-work that current employers are looking for. The skills training portion of the proposed certificate program will help to fill the needs of the current labour market in the Aquaculture industry. The proposed program also meets the eLearning mandates of the Academic Plan.

Through partnerships developed via the practicum portion of the program, relevant and experiential learning will also occur. Indigenous learners in rural communities will have improved ability for achieving certification and assist the needs within their local communities. This program would create pathways for continued development of knowledge and skills at both the academic as well as professional levels. Recent industry trends indicate that in the next few years, the Aquaculture industry will experience a shortage of skilled workers. In catering to both industry and community demand, the current partnerships including our Program Advisory Committee, that exists with Indigenous communities and Fleming College serve to be strengthened as a result of this program. Additional partnerships at regional though to national levels would also be developed helping to fulfil the mandate of the Academic Plan.

3.3. Alignment with Fleming College Business Plan

The proposed Aquaculture Foundations program aligns with several of the pathways listed in the Business Plan (2019-2020) at Fleming College. As it has been demonstrated, the need within the Aquaculture industry for skilled workers is great and will only increase as the demand for product increases. The creation of this program is based on meeting these needs as well as providing students with opportunities to learn from a distance while building foundational technological and practical skills. The flexible delivery and practicum options will help support enrollments and enhance the student experience at Fleming College. Our external advisors and Reference Group for the development of this program were positively engaged in our process as well as supportive in the future projections to assist our students. These community partnerships and collaboration will remain instrumental in the future of the Aquaculture Program.

3.4. Alignment with Other Fleming College Plans

Flemings School of Environmental and Natural Resource Sciences (SENRS) is located at the Frost Campus. This School will be responsible for the proposed Aquaculture Foundations Certificate and has led the College in the area of sustainability. The proposed program is an ideal fit as the College continues to expand its mandate for creating a sustainable environment both on campus for

staff and students as well as in the realm of education delivery. Concern for the environment is a cornerstone in the proposed programs course material as is evidenced by content like animal welfare, environmental studies and foundations in aquaculture safety.

In addition, by providing distance eLearning options and producing students that have knowledge and capabilities around sustainability, learners will move forward in their professions enhancing their chosen industries in a positive manner.

As Fleming moves into the post pandemic phase, industries such as Aquaculture will need to remain at its forefront. Development and launch of sustainable, relevant and current programs need to maintain importance in academia post COVID-19. This program meets current market demands regarding economic sustainability through contributions to the local Canadian supply chain for the food and grocery sectors as well as maintains knowledge, training and growth options for those looking to serve these industries. These mandates are also echoed by the federal government in recent efforts and statements such as the following. "Through the new Canadian Seafood Stabilization Fund, our government is investing directly into this sector, ensuring the industry has the support it needs to adapt to current realities brought on by COVID-19. Bolstering our processing sector is vital to supporting fish harvesters and feeding Canadians."
(The Honourable Bernadette Jordan, Minister of Fisheries, Oceans, and the Canadian Coast Guard, 2020).

Students enrolled in the proposed program would have the opportunity to practice their skills and knowledge in a practical setting, either at the Frost campus or a workplace closer to their place of residence. Having a real-life practicum portion in the program allow the participants to gain knowledge and experience at the social, environmental and community level. Students from Indigenous communities would be able to provide and share their newly learned knowledge to help build aquaculture industry within their community.

The proposed program has also gained interest both nationally and internationally. The development of the proposed program as an online certificate allows learners to participate as long as they have internet access. There has also been interest expressed from Tasmania to have learners enroll in our proposed program.

4. Ministry of Colleges and Universities Funding Approval Requirements

4.1. Alignment with Strategic Mandate Agreement

The Strategic Mandate Agreement lists several areas in which the proposed Aquaculture Foundations Certificate program aligns. By offering this new

specialized program at the School of Environmental and Natural Resource Sciences, Fleming will enrich its current offerings in the agriculture and environmental industry and provide future opportunities for graduates regionally. Through the digital platform, the certificate would provide an ideal student experience for those looking to provide growth and sustainability for their remote communities. Skills gained through this program would strengthen Indigenous partnerships as well as provide graduates with transferrable skills that could be utilized in their local aquaculture labour markets. Combined, these areas provide an accessible academic and career path for growth within the Aquaculture industry.

The current programming at SENRS provides extensive learning and skills application in a variety of environmental sectors. Inclusion of the proposed Aquaculture Foundations Certificate program would provide students with an entry level option into potential growth within this or complementing programs. Students could continue their academic studies at SENRS in a variety of existing programs at the diploma or degree level.

4.2. Student Demand Analysis

The development of the proposed Aquaculture Foundations Certificate program was initiated by meetings with two primary members of the Aquaculture industry. Grieg Seafood is an international seafood company with its Canadian operations located in British Columbia and Waubetek Business Development who delivers business financing and economical support to First Nations communities. Both companies expressed demand for development of training for those workers already in the aquaculture industry. They also expressed the need to assist communities looking to enhance food production by starting their own aquaculture operations. Since the initial meetings, additional interest has been expressed from Pic River First Nation, Georgina Island First Nation, as well as additional aquaculture companies in national and international sectors including Cermaq, Mowi, Cooke Aquaculture and Tassal. All are willing to register individuals as well as existing workers from their communities through the program. Overall, input from the industry has been very positive and the development team has received ongoing encouragement through the Aquaculture Foundations Certificate program development process.

This program would offer a post-secondary experience for those in remote areas with limited access to classroom environments while also providing a college credential allowing for personal and career growth. The target audience would be students looking to train or re-train for entry into the aquaculture industry. Given our preliminary discussions with industry partners and Waubetek, we expect that many of the students will be directed to the program either from employers or Indigenous organizations who are contemplating or in the process of starting

aquaculture ventures. In particular, we would expect that those working through Waubetek training would be open to cohorts of students from particular Indigenous operations and the hands-on component could be offered at their facilities.

There has been demand from industry for micro-credential opportunities for their staff. Programs such as the proposed certificate are market-driven and ideal to fill this need as it offers remote access delivery combined with experiential on-site learning. There would also be potential for Fleming College to offer some introductory Aquaculture courses as preliminary content for interested participants.

It is important to note that supports for students, namely Indigenous students are already in place at Fleming College via Indigenous Students Services. Library resources, research assistance as well as tutoring and academic supports are also available for those students requiring assistance with distance learning.

COVID-19 has had an impact on the Aquaculture industry in Canada. Even with decreased trade and utilization of resources, consumption remains high. Aquaculture has been named as an 'essential service' during the pandemic, defined as "necessary to preserving life, health, public safety and basic societal functioning. (Aquaculture North America, 2020). As Canada moves to economic recovery post pandemic, the demand for aquaculture workers will only increase to maintain sustainability for this industry.

Admission requirements

- High school diploma.
- Specialist High Skills Majors (SHSM) from Environment or Agriculture Sector on OSSD.
- Mature Student Status- If applicant is 19 years of age or older before classes start and do not possess an OSSD, they can write the Canadian Adult Achievement test to assess eligibility for admission. Additional testing or academic upgrading may be necessary in order to meet specific course requirements.

Laddering Opportunities

This College Certificate would allow successful graduates to amass industry experience and potentially create additional interest within the Aquaculture and Environmental sector. Certificate holders could then pursue additional education pathways at the diploma or degree level within various post-secondary institutions offering Aquaculture and Environmental Studies. With additional education or

industry experience, students could potentially gain enough credentials for a case by case consideration to our post-grad certificate in Aquaculture.

4.3. Labour Market Analysis

Nationally, the Canadian Aquaculture Industry Alliance has identified the economic importance of aquaculture, as this industry itself contributes $2.2 billion in GDP, and employs over 26,000 workers nationally. Total production value for 2017 was $1.39 billion, which also includes $59 million coming primarily from Ontario's Rainbow trout, Tilapia, and Pacific White Leg shrimp. Regionally, the Ontario Aquaculture Association (OAA) has also highlighted the diversity of Ontario's aquaculture sector with 40 member businesses including: three shrimp farms, 24 fish farms, 9 hatcheries, and two research/postsecondary institutions including the University of Guelph and Fleming College. OAA membership does not include independent operators or the nine fish culture stations operated by the Government of Ontario, which represent additional employment within the aquaculture sector.

Through its current Aquaculture Co-op program, Fleming College has been able to develop a strong footprint within the aquaculture sector. This relationship is able to substantiated through successful employment opportunities for Aquaculture graduates as 21 aquaculture employers across Canada, including British Columbia (4 employer partners), Yukon (Icy Waters), Ontario (11 employer partners including the Ministry of Natural Resources and Forestry and the Ministry of Agriculture, Food and Rural Affairs), New Brunswick (Cooke Aqua), and Prince Edward Island (3 employer partners, including the Centre for Aquaculture Technologies Canada).

Industry Trends

According to the Canadian Agricultural Human Resource Council, the Aquaculture sector is expected to experience growth in Canada, with output expected to increase over 4.2% per year to meet international demand. Furthermore, the Canadian Agricultural Human resource Council estimates that by 2025, over 1,300 jobs in aquaculture will go unfilled. Labor shortages will therefore need to be addressed by creating a viable workforce to pull from. As noted by Government of Ontario's labour market information platform, 56% of the current workforce is between 15-34 years of age, and 72% of employees have less than a college certificate or diploma, thereby suggesting that Aquaculture is a budding industry with a younger, less experienced workforce.

Employment Potential

Typical employers in the Aquaculture industry include public or private fish hatcheries or commercial farms. Common job titles include aquaculture support worker, fish farm helper, fish tagger, fry marker and sea farm attendant.
The following is a summary of the main duties for this occupational group:

- Assist aquaculture technicians in the operation of fish hatcheries or other aquatic farms
- Feed aquaculture stocks, vaccinate stocks, perform culling and marking or banding techniques and report any observed irregularities in stocks
- Operate, maintain and clean pumps, filters, tanks and other aquaculture equipment and clean and maintain aquaculture enclosures
- Keep daily records of water flow and fish samples
- Grade and weigh aquaculture stocks
- Prepare aquaculture stocks for market
- May operate boats aquaculture operations

While one of the smaller agriculture industries, it is also one of the fastest growing, with output expected to increase by an average of 4.2% per year to meet a strong export market and a growing global demand. Aquaculture producers are already facing challenges in finding enough workers. In 2014, more than half of aquaculture producers (58%) reported being unable to find enough workers, and those labour shortages cost the industry $57 million. In 2025, growing labour market shortages are predicted. The rural location of most aquaculture operations is a key challenge in recruiting and retaining workers. Because aquaculture isn't on the National Commodities list, the industry also lacks access to foreign workers through temporary and seasonal work programs.

Finding Workers

Operators in aquaculture, were much more likely to identify their location in rural areas as a problem. There are some negative perceptions of the industry and a lack of applicants with sufficient skills and experience were both reported as less of an issue for aquaculture. Aquaculture also has the lowest turnover rates of any agriculture industry, suggesting that when the industry does hire workers, it tends to hire the right people. The voluntary turnover rate is less than a quarter of the agricultural average (4% compared to 18%), and the involuntary turnover rate of 2% is significantly below the agricultural average of 7%.

The forecast for 2025 indicates that "other management" jobs, such as operations and marketing managers, will be the hardest to fill, with 45% of the labour gap consisting of these jobs. The second largest gap, at 27%, will occur in "aquaculture and marine harvesting labourer" jobs. "Managers in aquaculture" will be the third largest gap at 21%. Together, these occupations will account for the majority of the jobs this industry will be challenged to fill over the next 10 years.

In regards to the market itself, The Canadian Aquaculture Industry Alliance estimates that Canada could more than double its aquaculture production within 10 years (2014-2024). The Aquaculture industry generated over $1 billion in Gross Domestic Product (GDP) in 2010, with $354 million in direct GDP and $710 million in indirect and induced impacts. The industry created 5,828 direct full-time-equivalent jobs (FTEs), with an overall employment impact of over 14,000 FTEs. It generated direct labour income of $193 million, with an overall income impact of $618 million. Canada generates an average of 178,046 tons of aquaculture product per year and is expected to nearly double production by 2028.

The aquaculture industry has helped revitalize remote, rural and coastal communities, including First Nations and other Aboriginal communities (Canadian Agricultural Human Resource Council, 2016). Overall, it is an important sector of economic activity for Canada. Aquaculture represents approx. 1/3 of Canada's total seafood value and 20% of total production. Over 50 Indigenous communities are directly involved in commercial aquaculture production in Canada and Indigenous partners are engaged in all aspects and their role in aquaculture management is evolving.

Additional Labour Market information can be found in Appendix III: Labour Market Information Details

Wage Estimates
Aquaculture sector wages in Canada have a median of $16.50 per hour and range from $12.02 to $22.00 per hour.

Sample Job postings can be found in Appendix IV- Employment Postings

4.4. Competitor Analysis

Fleming College would be the first entirely online Aquaculture one-year program available in Canada. Though there are additional college (both community and private) programs existing in Canada, they are all shorter programs (12-25 weeks) in length. Not all of these programs include an applied learning opportunity portion or meet the extensive content that accompany the proposed Aquaculture Foundations Certificate at Fleming College.

Canadian University offerings in Aquaculture include undergraduate (BSc, Dalhousie University) or post-graduate (MSc, Memorial University) degrees. While we currently offer a one-year post-graduate certificate at Fleming in Aquaculture (with co-op), this isn't the most appropriate educational pathway to prepare fish farm workers. The current program requires either a diploma or a

degree in a related field (e.g., biology, fisheries, wildlife) and is aimed more at preparing students to take on more of a management role at an aquaculture facility. The proposed 'Aquaculture Foundations Certificate' program would not require a prior diploma or degree and would address the gap in training by focusing on preparing individuals to work in the aquaculture industry.

Additional details can be found in Appendix V: Competitor Information

5. Community Collaboration

5.1. External Industry Council, Committees or Groups

Aquaculture is a thriving industry which is expected to continue to grow. With this growth comes the challenge for aquaculture companies to find trained workers to run and maintain their operations. Over the last few years, a number of large multinational aquaculture companies with operations in Canada, many of which Fleming has good relationships with (e.g. Cermaq, Mowi, Greig Seafood, Cooke Aquaculture and others), along with the Ontario Aquaculture Association have approached us expressing interest in having Fleming provide an on-line aquaculture program to prepare workers.

As well as the growth in the aquaculture industry, there is also a growing interest amongst Indigenous communities to develop aquaculture projects, which again require a trained work force to operate. The Pic River First Nation, Georgina First Nation and Waubetek (an organization representing indigenous aquaculture projects from Alberta to Ontario) have approached us about providing this sort of training for new and developing Indigenous aquaculture initiatives.

Finally, we have also had some conversations with Tassal Aquaculture in Tasmania, Australia who would also be interested in the on-line training piece. Therefore, there is the potential to also market the developed on-line program internationally.

Letters of support may be found in Appendix VI: Letters of Support.

Council, Committee or Group	Meeting Date	Endorsed (yes/no)
Reference Group	Jan 21, 2020	Yes
Reference Group	Feb 12, 2020	Yes
Program Advisory Committee (if applicable)	Feb 12, 2020	Yes
Initial meeting with Waubetek and Pic River First Nation	July 3, 2019	Yes

5.2. Reference Group or Program Advisory Committee Members

The feedback from the Reference group for the Aquaculture Certificate program at Fleming College was both informative and positive. Two separate meetings were held. The first as an introduction to the program concept, draft learning outcomes and overall themes. The second meeting helped to solidify course content and finetune the practical portion of the program. A robust discussion regarding the inclusion of Indigenous content throughout the program was also participated in by the members.

Member	Position	Organization
Steve Naylor	Senior Regional Aquaculture Specialist	Fisheries and Oceans Canada
Lisa Stewart	Communications, HR, Sustainability Officer	Creative Salmon
Mike McQuire	Aquaculture and Aquaponics Specialist	Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
Gatchel Griffin	Saltwater Training Compliance Office	Cooke Aqua
Steven Bourne	CEO / Co-Founder	Ripple Farms
Arlen Taylor	Co-Owner	Cedarcrest Trout Farms
Nellie Atleo	HR Administrator	Cermaq
Mihaela Ciocan	HR Generalist	Grieg Seafood
Alina Constantin	HR Director	Grieg Seafood
Shylo Loock	HR Manager	Mowi
Joy Stowe	DATS Administrator	Mowi
Liz Stone	Academic Chair- Indigenous Perspectives	Fleming College, School of General Arts and Sciences

5.3. Fleming College Councils and Committees

Council, Committee or Group	Meeting Date	Endorsed (yes/no)
Senior Management Team -initial	October 2019	Yes
Senior Management Team	June 2020	
Strategic Enrolment Management	September 2019	Yes
Program Implementation Committee	October 2019	Yes

5.4. Fleming College Board of Governors

Item	Meeting Date	Endorsed (yes/no)
Concept Proposal	November 27, 2019	Yes
Business Case	June 2020	

6. Resource Requirements

6.1. Staffing

There is a current full-time professor and coordinator for the Aquaculture program (Grad Cert) at Fleming College. Contract faculty would need to be hired to work collaboratively the existing coordinator to develop and deliver the online course content for the proposed Aquaculture Certificate program. Due to the online nature of the program, staff could work remotely.

6.2. Information Technology

Faculty may need the use of webcams as well as headsets in order to deliver content online. Additional equipment such as cameras and editing software may also be required in order to make videos to add to online course content. Students would need access to a computer/laptop as well as reliable internet access. Access to Windows applications together with keyboarding skills, file and folder management, email and Internet searches capability would also be recommended.

6.3. Equipment

No new equipment would be required for the delivery of the proposed Aquaculture Foundations Certificate program. The existing fish hatchery and related consumables already present at the Frost Campus of Fleming College would be utilized. If students choose to spend their Semester 3 Practicum placement at another facility than Frost, the equipment at that facility would then be used.

6.4. Space

No new space would be required for the proposed program. The existing hatchery space at the Frost Campus would be used for the practical portion of the program if students choose to utilize this location for their Semester 3 Practicum.

6.5. Capital

There are no new capital expenses that are needed for the delivery of the proposed Aquaculture Foundations Certificate Program.

7. Financial Analysis

7.1. Incremental Costing Summary

For more detailed information, please see Appendix VII: Incremental Costing Summary Details.

Description	Class of '21 (Year 1)	Class of '22 (Year 2)	Class of '23 (Year 3)	Class of '24 (Year 4)	Class of '25 (Year 5)
Incremental Revenues	78,048	125,972	143,773	162,942	180,743
Incremental Costs	102,300	115,511	115,511	115,511	115,511
Net Investment	0	0	0	0	0
NET INCOME	(24,252)	10,461	28,262	47,431	65,232

7.2. SMA 3 Funding Performance Metrics Assessment- not applicable

7.3. Program Costing Assumptions

Most of the content would be streamlined from the current Aquaculture Graduate Program. The current Coordinator for Aquaculture will also be the Coordinator for this new proposed certificate program.
There are no new technicians required and no capital assets required and no new expenses other than incidentals.
The Learning Design and Support Team would assist with the creation of the program online set-up.

7.4. Financial Risks

There would be no new significant investments needed for this program. Some minor costs incurred would be as a result of new course development. These costs could be incorporated into our existing Aquaculture graduate program or the Continuing education department.

7.5. Countermeasures

Developed content for this proposed certificate program such as videos and online material could be repurposed to also enhance existing courses and programming within the current Aquaculture graduate program.

8. Quality Assurance

Fleming College is committed to quality assurance processes that promote excellence in the development, design, delivery, and ongoing review of new and existing academic programs. Mechanisms are in place to demonstrate accountability to Fleming College students, the Board of Governors, the Ministry of Training, Colleges and Universities, and the communities we serve that will ensure all academic program meet or exceed the relevant quality standards including an ongoing and systematic program review process. *(See College Policy #2-213: Program Quality Assurance)*

9. Conclusion / Recommendation

THAT the Board of Governors of Sir Sandford Fleming College approve the Aquaculture Foundations College Certificate Program for launch in Fall 2020.

10. References

Canadian Agricultural Human Resource Council (2016). *Aquaculture: Labour market forecast to 2025.* Retrieved from https://cahrc-ccrha.ca/sites/default/files/files/Labour-Employment/AQU_reportE.pdf

Government of Canada (2020). Fisheries and Oceans Canada, April 25, 2020. *Government of Canada announces new Canadian Seafood Stabilization Fund to help Canada's fish and seafood processing sector*. Retrieved from https://www.canada.ca/en/fisheries-oceans/news/2020/04/government-of-canada-announces-new-canadian-seafood-stabilization-fund-to-help-canadas-fish-and-seafood-processing-sector.html

Mayer, L. (2020). B.C. salmon farmers adapt to new reality. *Aquaculture North America, May 13, 2020.* Retrieved from https://www.aquaculturenorthamerica.com/bc-salmon-farmers-adapt-to-new-reality/

Standing Senate Committee on Fisheries and Oceans. (June 2016). An ocean of opportunities: aquaculture in Canada. Retrieved from https://sencanada.ca/content/sen/committee/421/POFO/Reports/2016-06-22_POFO_AquacultureVolume3_Final_E.pdf

11. Appendices

11.1. Appendix I: Validation Documents

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Suite 1600, 20 Bay Street
Toronto M5J 2N8

Program Validation Decision

We have completed our validation of your application for the Aquaculture Foundations program submitted to us on March 31, 2020 and leading to the conferring of an Ontario College Certificate.

Please accept this as our validation of your proposal. As a signal of our validation decision, we have assigned the following Approved Program Sequence (APS) number to your program: FLEM01309.

A copy of this validation decision is being sent to the Ministry of Colleges and Universities (MCU) for their information and records.

However, in keeping with the MCU process for college program funding approvals, we have not sent your documents to the Ministry. Please be advised that you need to submit the documentation directly to the Ministry to complete the approval for funding request, if applicable.

The required documents for the Ministry's funding approval decision are the Board Attestation form, signed by your college president, the Program Delivery Information (PDI) form, and the completed Application for Program Validation form (CVS).

The Ministry will reply separately to your request for funding approval of your program.

Sincerely,

Karen Belfer
April 1, 2020

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Aquaculture Foundations

Fleming College | APS # FLEM01309 | MTCU # 42700
Ontario College Certificate | Funding requested - full-time

Purpose

Aquaculture Foundations is a one year college certificate that would focus on providing basic fish biology (e.g., basic anatomy and function, stress, disease recognition and control), basic aquaculture techniques (e.g., maintenance of infrastructure, water and oxygen monitoring, basic calculations), fish husbandry (e.g., feeding, breeding), and safety and environmental considerations.

Admission

Ontario Secondary School Diploma (OSSD) or equivalent, mature student status

Occupational Areas

Aquaculture Foundations falls under the National Occupation Classification code NOC 8613: Aquaculture and Marine Harvest Labourers. The following is a summary of the main duties for this occupational group:

- assist aquaculture technicians in the operation of fish hatcheries or other aquatic farms
- feed aquaculture stocks, vaccinate stocks, perform culling and marking or banding techniques and report any observed irregularities in stocks
- operate, maintain and clean pumps, filters, tanks and other aquaculture equipment and clean and maintain aquaculture enclosures
- keep daily records of water flow and fish samples
- grade and weigh aquaculture stocks
- prepare aquaculture stocks for market
- may operate boats aquaculture operations.

Common occupational job titles include:

- Aquaculture Support Worker
- Fish Farm Helper
- Fish Tagger
- Fry Marker
- Sea Farm Attendant

Laddering Opportunities

This College Certificate would allow successful graduates to amass industry experience and potentially create additional interest within the Aquaculture and Environmental sector. Certificate holders could then pursue additional education pathways at the diploma or degree level within the School of Environmental and Natural Resource Sciences for consideration to our post-grad certificate in Aquaculture.

Program VLOs

1. Evaluate biological factors and report on unusual fish behaviour to assist the identification of fish health and welfare concerns.
2. Identify, test, and inspect aquaculture components and systems to maintain industry standards, such as water quality.
3. Contribute to the collecting and processing of daily water quality and fish husbandry data to monitor fish health, welfare, and growth.
4. Perform work responsibilities in accordance to applicable provincial and federal safety and environmental regulations and company policies to ensure health and safety of fish and humans.
5. Conduct basic math calculations, such as feed conversions, mortality rates, flow rates, growth rates, to assess facility operations, fish health, and fish growth.
6. Apply common fish handling techniques to optimize fish health and maximize growth of various species approved to be raised in Canada.
7. Identify and integrate historical and contemporary Indigenous and non-Indigenous views and practices to meet the needs of non-Indigenous and Indigenous participants in aquaculture.

Curriculum

- **NEW - Math - Math for Aquaculture** (Semester 1 - 45.00 hours)
  This foundational mathematics course introduces mathematical principles and skills to prepare students for a career in aquaculture. Topics covered will include calculator skills, the use of significant digits, measurement and weight conversions, perimeter, area, percentages and volume calculations, fundamental algebraic skills, reading charts and graphs. The skills will be applied to areas such as fish growth, feed conversion ratios, tank volumes, and tank density.
- **NEW - Regulatio - Intro to Certifications and Regulations in Aquaculture** (Semester 1 - 30.00 hours)
  This course introduces students to the relevant provincial and federal legislation regarding an aquaculture operation. Students will be introduced to legislation that is relevant to Indigenous communities in Canada. In addition, third party certifications such as Best Aquaculture Practices (BAP), Aquaculture Stewardship Council (ASC) will be explored.
- **NEW - water qua - Water Quality in Aquaculture** (Semester 1 - 45.00 hours)
  In this course, students will explore various water quality parameters and their limits that are required to run an effective aquaculture facility. Topics may include: the nitrogen cycle, dissolved oxygen, temperature, ammonia, plankton, ozone and modes of applying oxygen. Microscope use will also be reviewed.
- **NEW - land base - Aquaculture Infrastructure - Land based** (Semester 1 - 90.00 hours)

In this course, students will learn about the fundamentals of land based aquaculture infrastructure, including the components of a recirculating aquaculture system (RAS). Students will be exposed to mechanical equipment such as rotor drum filters, sand filtration, UV disinfection, pumps, dissolved oxygen generators, air compressors, piping types, and degassing.

- **NEW - Intro to - Introduction to Aquaculture** (Semester 1 - 30.00 hours)
  This course explores the global history of aquaculture and different methods of raising various aquatic species in a variety of settings will be introduced. There will be a focus about the importance of aquaculture to rural and Indigenous communities, as well as global trends. We'll explore the species raised in Ontario and globally, including common myths and misconceptions about the industry.
- **NEW - Animal we - Animal Welfare** (Semester 1 - 30.00 hours)
  This course will give students an insight to Canadian Council on Animal Care (CCAC) regulations/policies and how fish and the aquaculture industry are represented in those policies. Proper welfare related operational procedures will be discussed. Students will also complete a module about safe animal handling.
- **NEW - Indigenou - Introduction to Indigenous Environmental Studies** (Semester 1 - 30.00 hours)
  In this multidisciplinary course, students will explore a variety of topics focusing on environment and ecology with an Indigenous perspective & worldview. This course will provide students with the tools that enable them to blend Indigenous & Western approached to sciences, community engagement, environmental resource management/assessment, mining, aquaculture, fish & wildlife, while critically examining health and historical impacts.
- **NEW - Husbandry - Foundations of Fish Husbandry** (Semester 2 - 60.00 hours)
  In this course, students will learn routine skills and husbandry procedures associated with working in an aquaculture environment. Fish handling, grading, feeding, and tank maintenance will be introduced and students will calculate proper flow rates, exchange rates, and densities for various species and rearing units.
- **NEW - Bio - Foundations of Aquaculture Biology** (Semester 2 - 45.00 hours)
  In this course, students will be exposed to anatomy and organ function of various species raised in aquaculture in Ontario. Students will gain an understanding of how to perform a necropsy and identify signs of basic disease. Blood sampling and organ sampling will also be covered, as well as an introduction to treatment dosages for minor diseases, therapeutic treatments, vaccines, and antibiotics, and safety.
- **NEW - Open Net - Aquaculture Infrastructure – Open Net Pen** (Semester 2 - 90.00 hours)
  In this course, students will gain an understanding of the various types of open net pen operations and the various equipment associated with. Anchoring of open net pens, variety of nets and net sizes, feed delivery and camera systems will be explored.
- **NEW - Operation - Intro to Aquaculture Operations** (Semester 2 - 60.00 hours)
  This course provides the students an introduction to the daily operations of an aquaculture facility. Topics may include: walkarounds, equipment checks, harvesting, production planning, and redundancy and emergency alarm response.
- **NEW - Safety - Foundations of Aquaculture Safety** (Semester 2 - 45.00 hours)
  This foundational safety course introduces relevant legislation that impacts student's daily work as aquaculture technicians. Safety skills, identification and practices will be reviewed including knots, lock out tag out, confined spaces, batteries, sharps, and personal protective equipment (PPE).
- **NEW - Applied - Applied Aquaculture Skills** (Semester 3 - 90.00 hours)
  In this applied course, students will work in a hands on aquaculture environment to apply the

skills learned throughout the program.

VLO Mapping

Code	1	2	3	4	5	6	7
NEW - Math					X	X	
NEW - Regulatio	X	X		X		X	X
NEW - water qua	X	X	X		X		
NEW - land base	X	X	X	X	X	X	
NEW - Intro to				X	X		X
NEW - Animal we	X	X	X	X	X	X	X
NEW - Indigenou				X			X
NEW - Husbandry	X	X	X	X	X	X	
NEW - Bio	X	X	X	X	X	X	
NEW - Open Net	X	X	X	X	X	X	X
NEW - Operation	X	X	X	X	X	X	
NEW - Safety		X		X			
NEW - Applied	X	X	X	X	X	X	X

EES Mapping

Code	1	2	3	4	5	6	7	8	9	10	11	12	13
NEW - Math	X	X	X	X	X								
NEW - Regulatio	X			X	X		X	X	X	X			
NEW - water qua	X	X	X		X	X	X						
NEW - land base	X	X	X	X	X	X	X			X			
NEW - Intro to	X				X			X	X				

NEW - Animal we	X	X		X	X		X				X		
NEW - Indigenou	X	X			X		X	X	X				
NEW - Husbandry	X	X	X	X	X	X	X			X	X		
NEW - Bio	X	X		X	X		X						
NEW - Open Net	X	X	X	X	X	X	X						
NEW - Operation	X	X	X	X	X	X	X			X	X		
NEW - Safety	X	X		X	X		X				X		
NEW - Applied	X	X	X	X	X	X	X	X	X	X	X		

Certification/Accreditation

Certification type:

There is no recognition (None exist)

Attachments

None

Contact Information

Jodie Black, Teaching and Learning Consultant
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11.2. Appendix II: MCU Program Delivery Information (PDI)

	Semester						
Funded Instructional Setting	1	2	3				Total
Classroom instruction (online)	165	150	0				
Laboratory	45	30	0				
Independent (self-paced)/seminar	90	120	0				
Field placement/work placement	0	0	80				
Total							
	Semester						
Total	1	2	3				Total
Grand Total	300	300	80				680

11.3. Appendix III: Labour Market Information Details

LABOUR MARKET

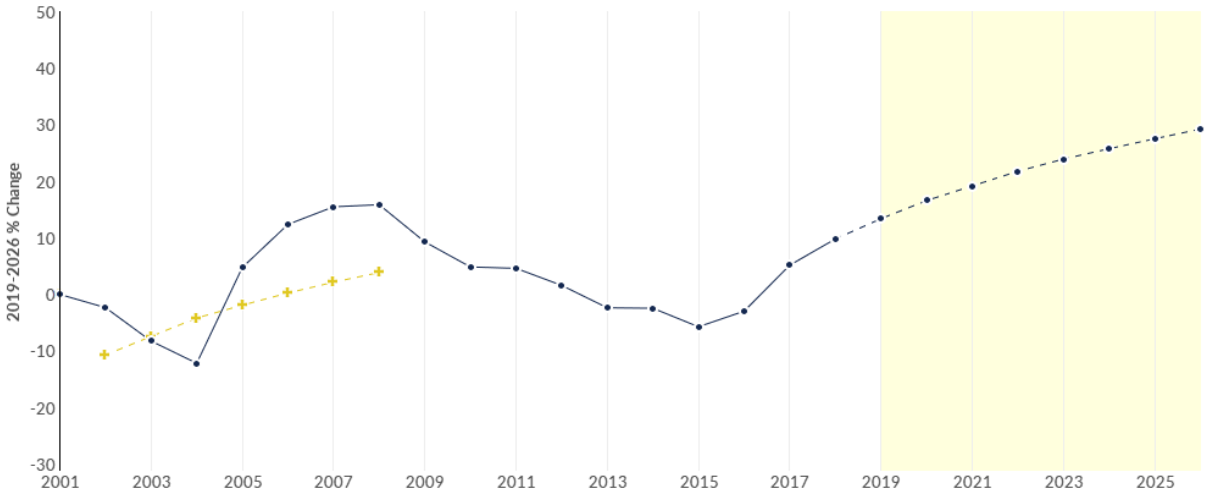
Source: EMSI Analyst

OCCUPATION SUMMARY FOR AQUACULTURE & MARINE HARVEST LABOURERS

313	**14.1%**	**$16.00/ hour**
Jobs (2019)	**% Change (2019-2026)**	**Median Hourly Wages**
65% below National average	Nation: 12.0%	Nation: $16.97/hr

REGIONAL TRENDS

Jobs per Region



	Region	2019 Jobs	2026 Jobs	Change	% Change
●	Ontario	313	357	44	14%
●	Northumberland (in Ontario)	7	8	1	14%
●	Peterborough (in Ontario)	5	5	0	0%
●	Kawartha Lakes (in Ontario)	6	6	0	0%
●	Durham (in Ontario)	10	12	2	20%
●	Simcoe (in Ontario)	2	1	-1	-50%

REGIONAL BREAKDOWN BY CENSUS DIVISION

Source: EMSI Analyst

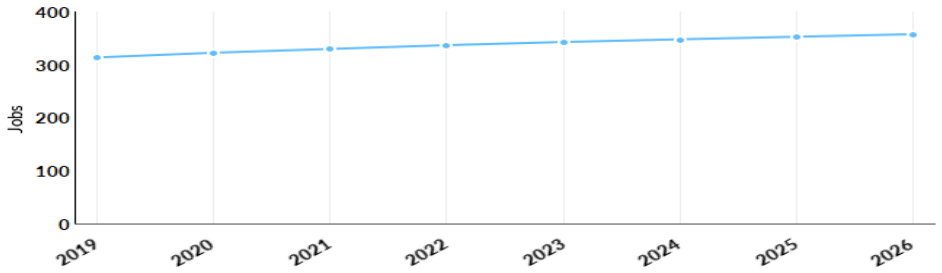
Census Metropolitan Area	2026 Jobs
Toronto	58
Leamington	18
Chatham-Kent	15
Greater Sudbury	13
Ottawa—Gatineau	13

GROWTH FOR AQUACULTURE & MARINE HARVEST LABOURERS

Source: EMSI Analyst

313	357	44	14.1%
2019 Jobs	2026 Jobs	Change (2019-2026)	% Change (2019-2026)

Jobs per



WAGE ESTIMATES

Source: Job Bank

	Wages ($/hour)		
	Low	Median	High
Canada	**12.02**	**16.50**	**22.00**
Ontario	**N/A**	**N/A**	**N/A**
Hamilton--Niagara Peninsula Region	N/A	N/A	N/A
Kingston - Pembroke Region	N/A	N/A	N/A
Kitchener--Waterloo--Barrie Region	N/A	N/A	N/A
London Region	N/A	N/A	N/A
Muskoka-Kawarthas Region	N/A	N/A	N/A
Northeast Region	N/A	N/A	N/A
Northwest Region	N/A	N/A	N/A
Ottawa Region	N/A	N/A	N/A
Stratford--Bruce Peninsula Region	N/A	N/A	N/A
Toronto Region	N/A	N/A	N/A
Windsor-Sarnia Region	N/A	N/A	N/A

11.4. Appendix IV: Employment Postings

SAMPLE POSTING 1

CERMAQ

Saltwater Husbandry Technicians (Full Time with Benefits)

Cermaq Canada is currently looking to fill multiple permanent full time **Saltwater Husbandry Technicians** positions at our sea sites located across Vancouver Island. There is company provided bus and boat transportation.

As a Husbandry Technician you'll play a critical role in growing healthy salmon in a sustainable manner. You'll spend the majority of your day outside on the water caring for the fish. You'll apply best practices in feeding techniques and use your analytical skills to collect data and report on the health of our fish. You'll get the chance to work with and live with a group of hardworking, dedicated employees. Housing is provided at the sea site and is well-equipped with exercise equipment, satellite tv, and internet, as well as a camp food allowance – a true home away from home. This role is the perfect opportunity to satisfy your love of the outdoors, expand your husbandry skills, and contribute to our communities through sustainable aquaculture.

Cermaq Canada owns and operates 28 sea sites across the Island, including operations in the Broughton Archipelago (Port McNeil), Okisollo Channel (Campbell River), and Clayquot Sound (Tofino). Company provided transportation to Tofino and Port McNeill is available from select North Island communities.

POSITION DETAILS:

Status: Permanent, full-time position
Shift: 8 days on, 6 days off; 10 hours per day for a total of 80 hours every two weeks
Wage: $18.22 per hour
Benefits: Employer-paid benefits (BC Care Card, Extended Health & Dental and matching RRSPs) after probation

WHAT YOU'LL BE DOING:

- Providing support to the sea site through general husbandry operations to ensure a healthy lifecycle of the fish from smolt intakes, to growth, to harvest
- Applying appropriate feeding strategies to grow and manage fish welfare, either through hand feeding or auto-feeding techniques
- Monitoring fish activity and conducting environmental monitoring and sampling activities to ensure proper fish welfare
- Maintaining a clean, safe, and biosecure site by performing simple maintenance, setting up sites, and closing sites
- Operating heavy machinery such as forklifts or boats

YOUR QUALIFICATIONS:

- You have previous education or work experience in aquaculture, preferably within a salmon rearing setting
- You consider yourself a team player, get along great with others and are always looking to lend a hand
- You can also work independently and without supervision; you take initiative and apply your critical thinking skills to solve problems
- You are physically fit, enjoy being outside, are willing to work in all types of weather conditions, and are comfortable being on the water
- You are dependable, work safely, and have a strong work ethic and positive attitude
- Your maintenance experience would be considered an asset

SPECIAL REQUIREMENTS:

- Prerequisites to hiring include a physical fitness test, a criminal record check and reference checks
- This position is camp-based transportation is provided to the sea site from Port McNeil, Campbell River, and Tofino
  - You can meet the transportation to Port McNeil in these communities: Courtenay and Campbell River.
  - You can meet the transportation to Tofino in these communities: Campbell River, Courtenay, Coombs, Port Alberni, and Ahousaht.
- Only applicants who are legally allowed to work in Canada will be considered

HOW TO APPLY:

If your qualifications meet the application requirements and you would like to apply for this opportunity, please forward your resume and cover letter in person, by fax, or by e-mail, stating "Saltwater Husbandry Technician" in the subject line to: Office: 203-919 Island Highway, Campbell River | Fax: 250-286-0042 | E-mail: careers.canada@cermaq.com

For more information about this opportunity please visit our careers page at www.cermaq.ca.

Cermaq Canada is an equal opportunities employer who provides a workplace that is free of discrimination.

Sea Site and Hatchery Technicians

Are you crazy about fish, love being on the water, comfortable in remote locations, and passionate about protecting our beautiful BC coastline? Do you enjoy spending your spare time outdoors, whether it's fishing, hiking or adventure seeking? Do you want to be involved in producing sustainable food for the growing global population? If you answered yes!, then we encourage you to apply as you will fit right in with our 600+ Mowi employees who share the same values and interests.

Applicants with aquaculture experience and/or relevant post-secondary education will be given preference as we are a company that embraces constant learning and industry professionalism. The ability to get along with a wide variety of people from different backgrounds and cultures is paramount. We look for employees who are self-motivated, well organized and have a positive attitude. Successful applicants must be physically fit, able to work long hours in adverse weather conditions, and have a passion for taking care of animals.

Sea Site and Hatchery Technician Responsibilities:

- Cleaning, power-washing and sanitizing to ensure a pristine environment for our fish and our employees
- Conducting flow measurements, water quality checks, environment sampling, plankton monitoring using specialized technology and equipment
- Feeding and all other care required for our fish
- Accurate reporting, record keeping and document management.
- Assisting with fish health sampling and grading fish by size
- Monitoring fish behaviour, appearance and health
- Operating forklift and other site equipment when authorized and trained
- Must be able to work a camp shift with an 8 on/6 off schedule

Our starting rate is **$20/hour**. We also offer extended healthcare benefits, kids camp and wellness program, annual bonus and pension plan after 3 months.

To be considered for upcoming opportunities with a progressive, growth-oriented company, please submit your resume and cover letter online at:

https://mowi.com/caw/people/vacancies/

The Province of British Columbia has designated aquaculture an Essential Service under the current state of emergency in response to the COVID-19 pandemic. Maintaining the food supply to Canadians at this time is a significant responsibility. Mowi has implemented strong measures across all of its operations to ensure the health and safety of all of its employees and will continue to refine them in line with best practice as it develops.

SAMPLE POSTING 3

Overview

HATCHERY TECHNICIAN

Kelly Cove Salmon Ltd., a division of Cooke Aquaculture Inc., a dynamic and growing east coast family company, with Platinum Member status in the Canada's Best Managed Companies Program, is offering a unique opportunity for a highly motivated individual to join the Company's team as a **Hatchery Technician** for our Anchorage Hatchery, Grand Manan.

Cooke is a global seafood company with operations in North America, Europe, and South America. Our company's success is driven by our dynamic, highly-skilled and innovative management team, supported by dedicated employees who live in coastal communities and contribute to the local area's economy and sense of community.

The Role:
Positions offer fulltime, year around employment. Primary duties include monitoring feed and oxygen, completing water quality tests, data collection and input, daily farm routines, clean and maintain equipment.

The ideal candidate will have completed aquaculture training from a recognized educational institute. This requirement may be substituted with sufficient hands-on experience in spawning, egg incubation and early rearing of salmon fry. Previous experience with water quality testing would be considered an asset.

The Opportunity:
The role description is just one part of the story. This is an opportunity to grow, to stretch, to work within the parameters of the role but stretch to your fullest potential. We are a team that counts performance, we reward contribution and we recognize talent. It is about being at the center of the fastest growing company in New Brunswick and knowing you are part of that

growth. The ability to bring your passion for learning, desire for growth, and energy for moving your career forward is what we offer.

The Why:
Why Cooke...simple because we are a company that rewards initiative, resourcefulness and work ethic. We will champion your growth and provide you with the platform to create your path, your career, and your future.

NOTE: The recruiter is reviewing and interviewing eligible applicants for this position as they are received. If you are interested in this posting, you are encouraged to apply as soon as possible.

We thank all candidates for their interest, however, only those selected for interviews will be contacted.

Apply for this job online

Email this job to a friend

Share on your newsfeed

Need help finding the right job?

We can recommend jobs specifically for you! Click here to get started.

SAMPLE POSTING 4

Source: Indeed.ca

Fish Processor

Cole-Munro Foods Group Inc. - St. Thomas, ON

$16 an hour

Cole-Munro is a family run grower and processor of fresh, locally sourced Ontario rainbow trout. As part of the aquaculture industry, we grow farm raised rainbow trout in deep water net-pen sites in Lake Huron. Fresh rainbow trout are then shipped to St. Thomas, ON to be processed, packaged and sold to your local grocery stores.

We are looking for a Fish Processor to work with our operations in St. Thomas. The fish processor will work in the production area processing rainbow trout. Quality and food safety standards. All personal protective equipment is supplied (boots, smocks, gloves, hair/beard nets). After six months of successful employment, benefits and contributions to an RRSP are offered.

Duties and Responsibilities

- Fish Processing includes examining, grading, trimming, pin-bone removal, washing, sorting, weighing, packaging and shipping rainbow trout
- Thoroughly hose down walls, floors and equipment
- Clean personal protective wear including boots, apron, gloves and hang to dry
- Other duties as assigned
- Ensure compliance with Health and Safety Regulations and perform all duties in a safe and productive manner

Requirements

- Prior experience in a food processing facility preferred, but not required
- Commitment to food safety regulations
- Ability to work as an effective team member
- Must be able to lift up to 60 lbs
- Flexibility to work long hours
- Ability to work in a moderate to cold working environment
- Ability to multi-task and remain standing or moving for long periods of time
- Excellent attendance record
- Work in a fast-paced environment based on supply and demand
- Must be able to perform frequent lifting, standing, bending, twisting, reaching and grasping

11.5. Appendix V: Competitor Information Details

Educational Competitors

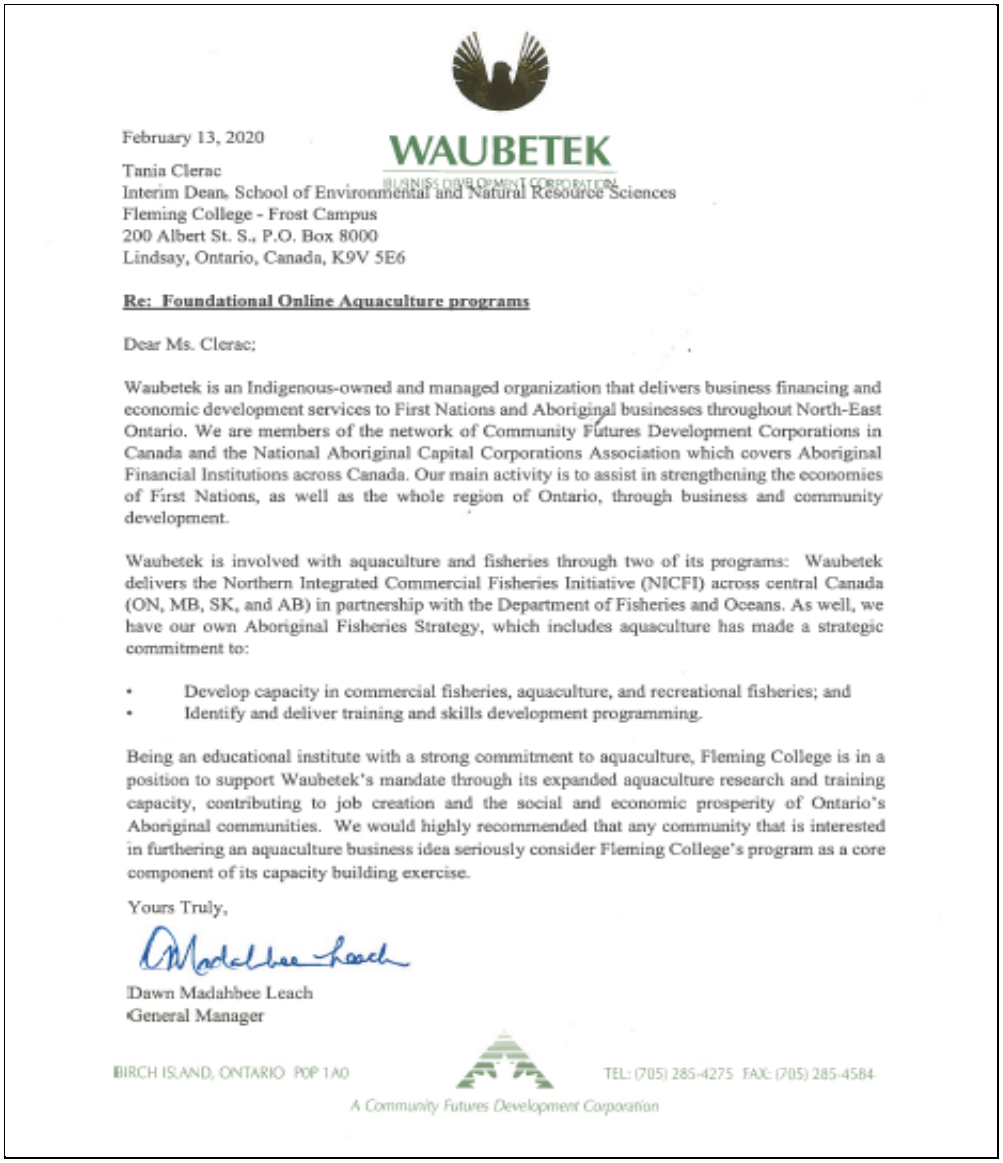
Community College/ University Information

COLLEGE	PROGRAM TITLE	LENGTH, TYPE (DIPLOMA, CERT., POST)	DELIVERY METHOD(S)	OTHER (UNIQUE TO THE PROGRAM)
Nova Scotia Community College	Oceans Resources - Fisheries and Aquaculture	1-year Diploma (as per website)	In class	5 weeks applied learning (can be a research project, work placement not required) Research skills project
New Brunswick Community College	Aquaculture Operations	12 weeks Certificate	In class	
Fleming College	Aquaculture	Post-graduate Certificate, 3 semesters	Co-Op	
Dalhousie University	Aquaculture	Undergraduate Degree (BSc) 4- years	In-class and experiential learning	Aquaculture, aquatic science and hands-on experience.
Memorial University	Aquaculture	Graduate Degree (MSc) 2-years	In-class and experiential learning	Courses and Thesis

Provincial Private Colleges & Other Educational Opportunities

INSTITUTION	PROGRAM TITLE	LENGTH, TYPE (DIPLOMA, CERT., POST)	DELIVERY METHOD(S)	OTHER (UNIQUE TO THE PROGRAM)
University of Guelph, Aquaculture Centre	Getting Started in Aquaculture	1-day workshop 125.00		Held at the Alma Aquaculture Research Station
Excel Career College	Aquaculture Technician Training	25 weeks	In class and practicum	40- hour workplace training
North Island College	Aquaculture Technician Certificate	4 months	In class and practicum	370 hours of instruction and hands-on training, with an additional 85 hours of industry certifications delivered over four months.

11.6. Appendix VI: Letters of Support



WAUBETEK
BUSINESS DEVELOPMENT CORPORATION

February 13, 2020

Tania Clerac
Interim Dean, School of Environmental and Natural Resource Sciences
Fleming College - Frost Campus
200 Albert St. S., P.O. Box 8000
Lindsay, Ontario, Canada, K9V 5E6

Re: Foundational Online Aquaculture programs

Dear Ms. Clerac:

Waubetek is an Indigenous-owned and managed organization that delivers business financing and economic development services to First Nations and Aboriginal businesses throughout North-East Ontario. We are members of the network of Community Futures Development Corporations in Canada and the National Aboriginal Capital Corporations Association which covers Aboriginal Financial Institutions across Canada. Our main activity is to assist in strengthening the economies of First Nations, as well as the whole region of Ontario, through business and community development.

Waubetek is involved with aquaculture and fisheries through two of its programs: Waubetek delivers the Northern Integrated Commercial Fisheries Initiative (NICFI) across central Canada (ON, MB, SK, and AB) in partnership with the Department of Fisheries and Oceans. As well, we have our own Aboriginal Fisheries Strategy, which includes aquaculture has made a strategic commitment to:

- Develop capacity in commercial fisheries, aquaculture, and recreational fisheries; and
- Identify and deliver training and skills development programming.

Being an educational institute with a strong commitment to aquaculture, Fleming College is in a position to support Waubetek's mandate through its expanded aquaculture research and training capacity, contributing to job creation and the social and economic prosperity of Ontario's Aboriginal communities. We would highly recommended that any community that is interested in furthering an aquaculture business idea seriously consider Fleming College's program as a core component of its capacity building exercise.

Yours Truly,

Dawn Madahbee Leach
General Manager

BIRCH ISLAND, ONTARIO P0P 1A0 TEL: (705) 285-4275 FAX: (705) 285-4584

A Community Futures Development Corporation

February 20, 2020

To whom it may concern:

I am writing on behalf of Cooke Aquaculture Inc. to express our full support for Fleming College's Foundations in Aquaculture Ontario College Certificate program.

Cooke Aquaculture Inc. is an Atlantic Canadian family owned, fully-integrated company that has grown from a single marine cage site to become a leader in the global seafood industry with operations in New Brunswick, Newfoundland, Maine, Nova Scotia, Scotland and Chile. Cooke operates sea bass and sea bream farming operations in Spain and recently acquired shrimp aquaculture operations in Nicaragua and Honduras. In addition to these aquaculture operations, the company has diversified into wild capture fisheries in USA, Argentina and Uruguay.

Our company's mission is to be a global seafood leader driven by an innovative team that delivers superior products, services, and value to our customers in a safe and sustainable manner. We believe in farming fish with care to ensure the long-term social, economic, and environmental sustainability of our ocean resources.

A skilled aquaculture workforce is needed to ensure practices are both ecologically sustainable and modern, and there is a need for education to help address many industry-specific topics. The addition of Fleming College's proposed online program will be a meaningful asset for the aquaculture industry, directly improving the creation and adoption of modern technologies, processes and practices.

We offer our full support for the for the development of this program. If you have any questions or would like any additional information, we would be happy to discuss further.

Sincerely,

Michael Szemerda
Vice President, Saltwater Operations

660 Main Street, Blacks Harbour NB E5H 1K1
www.cookeaqfood.com - 506-456-6600 - www.cookeseafood.com

February 11, 2020

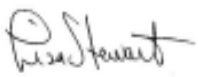
As there is a significant need for skilled workers within the aquaculture industry, I am writing to express my support for Fleming College's development of an online, foundation based aquaculture course. I anticipate that the training students will receive in the program will meaningfully improve the practices, techniques, and methods of industry and work to build long-term sustainability. Once the program is developed we will see if there is a possibility of some of our employees benefiting from the additional education the course would allow.

Creative Salmon is proud to raise certified organic indigenous Pacific Chinook (King) salmon in the waters of Clayoquot Sound on the west coast of Vancouver Island. We achieved our organic certification by committing to sustainable, responsible farming practices and through continual care for the health and quality of our fish. This success and industry presence has been the result of innovative leadership and the ability to hire skilled workers who share our vision.

We believe in farming fish with care to ensure the long-term social, economic, and environmental sustainability of our resources. Training of aquaculture workers is needed to ensure practices are both ecologically sustainable and profitable.

The addition of Fleming College's proposed online training program will be a meaningful asset to the aquaculture industry, directly improving the creation and adoption of modern technologies, processes, and practices. I offer my full support for their development of the program.

Sincerely,



Lisa Stewart

Communications, Human Resources, Sustainability Officer

Box 265, 612 Campbell Street, Tofino, BC Canada V0R 2Z0 | T 250 725 2884 F 250 725 2885 |
creativesalmon.com

February 21, 2020

Sir Sandford Fleming College

To Ms. Clerac

Re: Sir Sandford Fleming College – Foundations in Aquaculture College Certificate

On behalf of Grieg Seafood, I am pleased to express our support for Fleming College' Foundations in Aquaculture College Certificate.

Grieg Seafood ASA is one of the world's leading fish farming companies, specializing in Atlantic salmon. The company has a global annual production target of 100,000 tonnes gutted weight in 2020. Our farming facilities are in Finnmark and Rogaland in Norway, British Columbia in Canada and Shetland in the UK. Over 800 people are employed by Grieg globally.

In Canada, Grieg Seafood BC Ltd. has been responsibly farming salmon off Vancouver Island for 20 years. Operating 22 farm sites and a land-based freshwater hatchery in the town of Gold River, Grieg is licensed to produce 23,400 tonnes of salmon annually to North American and Asian markets. This level of production directly employs over 160 people and indirectly supports hundreds of contractors, suppliers, and family-owned businesses in the province.

Grieg prides itself and supports the ongoing education of its employees to ensure they work safely, with sustainability in mind, and maintain animal welfare as a priority.

There have been many articles written in aquaculture publications raising concern about the long-term availability of skilled workers to enter the aquaculture workforce. Fleming College and Grieg have enjoyed an excellent working relationship and we continue to travel to their Frost Campus to interview and recruit their students from their post graduate aquaculture program annually. Their proposal to add an online foundational course in aquaculture, will help to ensure that there is increasing pool of potentially skilled employees from across Canada to draw from. I am, therefore, writing to express my support for Fleming College's development of an online, foundation-based aquaculture course. I anticipate that the training students will undertake in the program will improve the recruitment and retention issues sometimes faced in the industry when hiring employees who have no formal aquaculture training.

Grieg Seafood BC Ltd.
108-1180 Ironwood Street
Campbell River, BC
Canada V9W 5P7
+1 250 286 0838
griegseafoodcanada.com

Grieg Seafood
ROOTED IN NATURE

We look forward to maintaining our relationship with Fleming's Aquaculture Post Graduate Program and providing input for the creation of the new online program.

Please feel free to contact me with any questions.

Sincerely,

Alina Constantin
Human Resources Director
Grieg Seafood BC Ltd.

Grieg Seafood BC Ltd.
106-1180 Ironwood Street

Campbell River, BC
Canada V9W 5P7

+1 250 286 0838
griegseafoodcanada.com

Grieg Seafood
ROOTED IN NATURE

Ministry of Agriculture
and Food
Ministry of Rural Affairs

Ministère de l'Agriculture
et de l'Alimentation
Ministère des Affaires rurales

Ontario

3rd Floor
1 Stone Road West
Guelph, Ontario N1G 4Y2
Tel: 226-979-3876

3e étage
1 Stone Road West
Guelph (Ontario) N1G 4Y2
Tél.: (226) 979-3876

March 6, 2020

Tania Clerac
Interim Dean, School of Environmental and Natural Resource Sciences
Sir Sandford Fleming College
Frost Campus
200 Albert St. S., PO Box 8000
Lindsay, Ontario, Canada. K9V 5E6

Dear Ms. Clerac,

I am pleased to provide a letter of support for Fleming College's plan to develop an online Ontario College Certificate in Foundations in Aquaculture.

The Ontario Ministry of Agriculture, Food and Rural Affairs recognizes that training and education is fundamental to the development of a highly skilled workforce and the success of industries. The aquaculture sector in particular has highlighted the need for foundational educational programming to provide the industry with the skilled workforce it will need for the future. This program will facilitate that training and skill development, and with its online offering, particularly in more remote areas of the province.

The Government of Ontario values the important economic and social contribution agriculture—including farmed fish—brings to Ontario. We support the development of training and education opportunities that develop the workforce for successful agriculture, food and rural sectors in the province

Sincerely,

Tim Metzger
Manager, Beef, Small Ruminant, Alternative Livestock
Agriculture Development Branch
Ontario Ministry of Agriculture, Food and Rural Affairs

11.7. Appendix VII: Incremental Costing Summary Details

Foundations in Aquaculture									
Certificate program - 3 semesters									
online - all new courses									
launch: Fall 2020		changed to Fall 2021							
only 1 intake - Fall									
Tuition:									
Blasting	3,252.51	8,670.00							
OAS	2,263.27	8,086.00	has a lot of certifications and same as ODE tuition (diploma)						
PSW	1,359.18	6,775.00							
Plumbing	1,359.18	6,910.50							
Trade Fundementals	1,359.18	6,910.50							
Blacksmith	2,718.36		1 sem						
Pharm Asst	1,359.18	6,775.00							
UF	1,359.18	6,910.50							
ARB	1,488.33	6,910.50	closer to Fdn AQU						
Faculty									
Jon Carter to teach one course									
remaining courses taught by contract faculty									
80% of development will be completed by Jon Carter and LDS									

Summary Details.

Description	Class of '21 (Year 1)	Class of '22 (Year 2)	Class of '23 (Year 3)	Class of '24 (Year 4)	Class of '25 (Year 5)
Incremental Revenues	78,048	125,972	143,773	162,942	180,743
Incremental Costs	102,300	115,511	115,511	115,511	115,511
Net Investment	0	0	0	0	0
NET INCOME	(24,252)	10,461	28,262	47,431	65,232

12. Forms

12.1. Form I: Launch Plan

Timelines

Item	Planned Date
Registration	*semester, year*
Promotion	*semester, year*
Webpage development	*semester, year*
Expected Launch	*semester, year*
Expected first cohort of graduates	Class of *year*
Program Review	*year/year*

Admission requirements

- High school diploma.
- Specialist High Skills Majors (SHSM) from Environment or Agriculture Sector on OSSD.
- Mature Student Status- If applicant is 19 years of age or older before classes start and do not possess an OSSD, they can write the Canadian Adult Achievement test to assess eligibility for admission. Additional testing or academic upgrading may be necessary in order to meet specific course requirements.

Laddering Opportunities

This College Certificate would allow successful graduates to amass industry experience and potentially create additional interest within the Aquaculture and Environmental sector. Certificate holders could then pursue additional education pathways at the diploma or degree level within various post-secondary institutions offering Aquaculture and Environmental Studies. With additional education or industry experience, students could potentially gain enough credentials for a case by case consideration to our post-grad certificate in Aquaculture.

Student Success Considerations

Supports for students, namely Indigenous students are already in place at Fleming College via Indigenous Students Services. These services would be available via email and/or phone regardless of the remote learning with the proposed certificate as participants would remain as Fleming students. Additionally, supports through local community Education Counsellors, 3rd party Education & Training

institutions/organizations like Waubetek and existing Indigenous Friendship Centres or other Urban Indigenous Organizations would be of value to potential registrants.

In addition, several other resources are available to help students achieve success with distance learning. Library services are available online through the College website and include research assistance, virtual reference chat service, one on one appointments and email communication. Tutoring is also provided at Fleming through the Tutoring and Academic Skills Centre using the WC Online system via Webex. Finally, more recent developments at the College include the creation of a more encompassing Student Online Learning Resource Hub that is expected to launch by Fall 2020.

Curriculum Grid Information

Below is the curriculum grid information required by Academic Operations. Full course descriptions may be found in Appendix I: Validation Documents

Curriculum Grid Information Table												
Semester	Course Code	Course Name	Hours	Delivery Pattern	Pre-requisite	Co-requisite	Equivalencies	Graded Component	Session Dates	General Education or Elective	Room Requirements	Section Capacity
1	Math	Math for Aquaculture	45	Online	None	None	None			No	None	
1	Regulatio	Intro to Certifications and Regulations in Aquaculture	30	Online	None	None	None			No	None	
1	Water qua	Water Quality in Aquaculture	45	Online	None	None	None			No	None	
1	Land based	Aquaculture Infrastructure- Land based	90	Online	None	None	None			No	None	
1	Intro to	Introduction to Aquaculture	30	Online	None	None	None			No	None	
1	Animal we	Animal Welfare	30	Online	None	None	None			No	None	
1	Indigenou	Introduction to Indigeous Environmental Studies	30	Online	None	None	None			No	None	
2	Husbandry	Foundations of Fish Husbandry	60	Online	Sem 1	None	None			No	None	
2	Bio	Foundations of Aquaculture Biology	45	Online	Sem 1	None	None			No	None	
2	Open Net	Aquaculture Infrastructure-Open Net Pen	90	Online	Sem 1	None	None			No	None	
2	Operation	Intro to Aquaculture Operations	60	Online	Sem 1	None	None			No	None	
2	Safety	Foundations of Aquaculture Safety	45	Online	Sem 1	None	None			No	None	
3	Applied	Applied Aquaculture Skills	90	Field	Sem 1 and 2	None	None					

12.2. Form II: Academic Plan Alignment Assessment

Academic Plan Alignment Evaluation			
Action Item	Alignment Evidence	Measure of Support (0-2)	Weighting Factor (1-3)
#3 Empower our Program Advisory Committees	*Does new program enhance our existing PACs?*		
#4 Partner with Industry to Help Ensure their Success	*Does new program include new partnership opportunities?* *Does new program enhance an existing partnership?* *Will program partner with our communities?* *Will program support community needs?*		
#5 Seek out Special Projects	*Does new program include a new area of applied research?* *Does new program support new community-based research projects?* *Is there an opportunity for new program to partner on projects that generate funding?*		
#6 Create a Culture of Innovation, Entrepreneurship & Intrapreneurship	*Does new program include VLOs and/or courses in Innovation, Entrepreneurship and/or Intrapreneurship?* *Does new program support students' starting their own businesses outside of curriculum?*		
#7 Create a Student-Employers Partnerships Network to boost Experiential Learning	*Does new program include experiential learning component?* *What types and durations of experiential learning occur?* *What is the proportion of EL in the program (# courses/hours of EL/total program courses/hours)*		
#8 Expand Student Involvement in Applied Research	*Does new program include applied research activity? For students, for faculty?* *Does new program include VLOs and/or courses in applied research?*		
#10 Establish a Student Success Strategy	*Does new program have mechanism built in to increase student success? Or, increase retention?*		
#11 Increase Employment Rates for Graduates	*Does LMI support entry-level labour demand in Ontario? In our area? Do KPIs of same program at other colleges support related employment?*		

#12 Ensuring Students Acquire the Soft Skills Employers Value	*Does program have VLOs (if graduate certificate) and/or courses focused on communication, numeracy, critical thinking/problem solving, information management, inter-personal, and/or personal, soft skills? If so, how many and to what depth?* *Are the labour market soft skill development needs addressed in program?*		
#13 Expand Employment Services	*Does program include employment skills (e.g., portfolios, resumes, employment searches, interview skills and workplace skills) in the curriculum?*		
#14 Incorporating Indigenous Perspectives	*Does program incorporate indigenous perspectives in the curriculum? Are there VLOs and/or courses that support indigenous perspectives? Does program plan to include Indigenous Designation?*		
#15 Labour-Market Responsive Programs	*Does LMI support labour market need in Ontario? In our area?*		
#16 Enhancing Pathways	*Does program include educational pathway opportunities:* • *Externally – coming into and out of college?* • *Internally – opportunities to pathway into or out of other Fleming programs?* *Does program include articulated pathways with other institutions? Does it intend to?* *Does program include international pathway opportunities?*		
#17 Preparing Students for Jobs through Advanced Skills Training	*Is program an advanced apprenticeship program pilot?*		
#18 Fostering Lifelong Learning	*Is program designed to meet needs of Fleming graduates or those wishing to upskill?*		
#19 Expanding Digital Learning	*Does the program include digital learning? Is the program delivered online or blended?*		
#20 Achieving the Optimum Enrolment Mix	*What is the target student market:* • *Domestic students?* • *Indigenous students?* • *International students?* • *Students from across Canada/Ontario?* • *At-risk student groups?*		

#21 Attracting Domestic, International & Indigenous Learners	*What is the target student market:* • *Domestic students* • *Indigenous students?* • *International students?* • *Students from across Canada/Ontario?*		
#22 Diversifying Program Types	*Does program include opportunities for micro-credentials, badges, PT options, delivery types/times (e.g., fast track, hybrid, weekends/evenings)?*		
#23 Ensure We Are a Welcoming Place for All	*Does the program have design elements that specifically support inclusion and diversity?*		
#24 Strategic Enrolment Management	*Does program meet enrolment management targets? How reliable are the projected targets? How likely will program be oversubscribed?*		
#26 Advancing Learning Technologies	*Does the program include digital learning technologies? Is the program delivered online, or blended?*		
#27 Micro-credentials and laddering	*Does program include opportunities for laddering, micro-credentials, badges?*		
#30 Optimizing and Expanding Teaching Complement	*Does School plan to hire an additional FT faculty member in new program?*		
#31 Building on a Culture of Engagement with Students	*Identify any exceptional considerations for this program as it relates to the student experience.*		
		Total Score	

Program Costing

current version: April 30, 2020

Program Name	Foundations in Aquaculture	**Date/Version**	4/30/2020
Credential	Ontario College Certificate	**School Dean**	Tania Clerac
Gross Domestic Tuition (per semester)	$ 1,488.33	**Net Domestic Tuition (less financial aid 8%)**	$ 1,369.26
Gross International Tuition (per semester)	$ 6,775.00	**Net International Tuition**	$ 4,975.00
WFU (WtxFu)	1.4	**Base Operating Grant (BOG) Allocation per WFU (@ corridor mid point)**	$ 4,150.00
WFU per semester	0.466666667	**Small Northern Rural (SNR) Grant Enhancement**	$ 272.00

Domestic Enrolment Projections

Description	FY01	FY02	FY03	FY04	FY05		Assumptions/Requirements
Sem1	30	35	40	45	50		FY - aligns with budget year.
Sem 2	27	32	36	41	45		
Sem 3	0	25	29	33	37		
Sem 4		0	0	0	0		
Sem 5		0	0	0	0		
Sem 6		0	0	0	0		
Total enrolment	57	92	105	119	132		
Co-op if applicable							Input anticipate co-op enrolments in applicable fiscal

International Enrolment Projections

Description	FY01	FY02	FY03	FY04	FY05		Assumptions/Requirements
Sem1	0	0	0	0	0		
Sem 2	0	0	0	0	0		
Sem 3	0	0	0	0	0		
Sem 4		0	0	0	0		
Sem 5		0	0	0	0		
Sem 6		0	0	0	0		
Total enrolment	0	0	0	0	0		
Co-op if applicable							Input anticipate co-op enrolments in applicable fiscal

Program Costing

current version: April 30, 2020

Program Name	Foundations in Aquaculture	**Date/Version**	4/30/2020
Credential	Ontario College Certificate	**School Dean**	Tania Clerac

Incremental Costing

Revenues/Source of Funding

Description	FY01	FY02	FY03	FY04	FY05	Total	Assumptions
Domestic Tuition	78,048.03	125,972.25	143,772.68	162,942.37	180,742.80	**$ 691,478.12**	
International Tuition	-	-	-	-	-	**$ -**	
MTCU International clawback	-	-	-	-	-	**$ -**	$375 per semester international enrolments
Other *(list)*						**$ -**	
Co-op funding	-	-	-	-	-	**$ -**	$557 per co-op semester
						$ -	
						$ -	
						$ -	
	$ 78,048.03	**$ 125,972.25**	**$ 143,772.68**	**$ 162,942.37**	**$ 180,742.80**	**$ 691,478.12**	
						691,478.12	balance

Program Delivery Costing

Description	FY01	FY02	FY03	FY04	FY05	Total	Assumptions
Salaries & Benefits							
FT Faculty	35,795.96	41,165.36	41,165.36	41,165.36	41,165.36	**$ 200,457.40**	
PT Faculty	52,279.54	60,121.47	60,121.47	60,121.47	60,121.47	**$ 292,765.42**	
Program Co-ordinator	14,124.24	14,124.24	14,124.24	14,124.24	14,124.24	**$ 70,621.19**	
FT Technician						**$ -**	no tech
PT Technician						**$ -**	no tech
other direct staffing						**$ -**	
Course Supplies/Instructional Cost						**$ -**	Costs estimates net of student supply fees charged
Computer Software & Maintenance	-	-	-	-	-	**$ -**	
Faculty Travel						**$ -**	With programs offering field trips and overnight camps etc..
Equipment Rental and/or Maintenance						**$ -**	For programs with significant equipment usage
Other-*Office Supplies, Hospitality,Duplicating, e*	100.00	100.00	100.00	100.00	100.00	**$ 500.00**	List all costs that you would consider for program operating budget not already caputured above
add rows above this line as needed							
Program Delivery Costing	**$ 102,299.74**	**$ 115,511.07**	**$ 115,511.07**	**$ 115,511.07**	**$ 115,511.07**	**$ 564,344.01**	
						564,344.01	balance

Incremental Academic Overhead - program supports not directly related to delivery

Description	FY01	FY02	FY03	FY04	FY05	Total	Assumptions
Faculty support costs							
Travel and Professional Development						**$ -**	Consider added costs for new faculty - orientation, annual professional development budget
Circulum Quality supports - Review/Renewal						**$ -**	Consider ongoing costs to ensure program quality (i.e. faculty release time)
Other (list and add rows as needed)						**$ -**	Consider any other non-direct program supports
						$ -	
						$ -	
	$ -	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	

Program Costing				current version: April 30, 2020
Program Name	Foundations in Aquaculture	**Date/Version**	4/30/2020	
Credential	Ontario College Certificate	**School Dean**	Tania Clerac	

Program Development/Investment							
Description	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**
Development	10,502.59						**$ 10,502.59**
Equipment							**$ -**
Consulting costs							**$ -**
Capital expenditures	-	-	-	-	-	-	**$ -**
Other *(list)*							**$ -**
add rows above this line as needed							
Total program development	**$ 10,502.59**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 10,502.59**
							10,502.59

Incremental Costing Summary							
	FY00	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**
Incremental Revenues		$ 78,048.03	$ 125,972.25	$ 143,772.68	$ 162,942.37	$ 180,742.80	$ 691,478.12
Incremental Costs		$ 102,299.74	$ 115,511.07	$ 115,511.07	$ 115,511.07	$ 115,511.07	$ 564,344.01
Net Investment	$ 10,502.59	$ -	$ -	$ -	$ -	$ -	$ 10,502.59
NET INCOME/CASH	-$ 10,502.59	-$ 24,251.72	$ 10,461.18	$ 28,261.61	$ 47,431.30	$ 65,231.73	$ 116,631.52

Contribution to Overhead							
Non-Incremental Program Distributions							**Assumptions**
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**	
MTCU Grant	110,390.00	178,173.33	203,350.00	230,463.33	255,640.00	**$ 978,016.67**	enrolment*per semester WFU * (BOG+SNR) - Assumes College maintains WFU within Corridor ~ @ mid-point.
Dean & Other academic staffing supports	1,873.15	3,023.33	3,450.54	3,910.62	4,337.83	**$ 16,595.47**	% academic overhead to be determined by prior year program costing

program revenue	188,438.03	304,145.58	347,122.68	393,405.70	436,382.80	1,669,494.79	1,669,494.79
program expense	102,299.74	115,511.07	115,511.07	115,511.07	115,511.07	564,344.01	564,344.01

Net Contribution to Overhead	**$ 86,138.28**	**$ 188,634.52**	**$ 231,611.61**	**$ 277,894.63**	**$ 320,871.73**	**$ 1,105,150.78**
% CTO	**46%**	**62%**	**67%**	**71%**	**74%**	
College Overhead Target	**62,184.55**	**100,368.04**	**114,550.48**	**129,823.88**	**144,006.32**	**228,187.78**

Curriculum Summary
Program Name Foundations in Aquaculture

# of semesters 3 exclude any term that is 100% Co-op

ensure all courses are 14 weeks

Sem	Course Code (if exists)	Course Name (if exists)	Delivery Hrs/Wk LEC	LAB	Sem	Alternate	Alternate 2	Tot Hrs	Total @ 14 weeks (excludes break week)
1		Math for Aquaculture	2	1				3	42
1		Intro to Certifications and Regulations in Aquaculture	1		1			2	28
1		Water Quality in Aquaculture	1	2				3	42
1		Aquaculture Infrastructure - Land based	3		3			6	84
1		Introduction to Aquaculture	1		1			2	28
1		Animal Welfare	1		1			2	28
1		Introduction to Indigenous Environmental Studies			2			2	28
1								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		9	3	8	0	0	20	280
2		Foundations of Fish Husbandry	2		2			4	56
2		Foundations Aquaculture Biology	1	2				3	42
2		Aquaculture Infrastructure - Sea cage	3		3			6	84
2		Intro to Aquaculture Operations	2		2			4	56
2		Foundations of Aquaculture Safety	2		1			3	42
2								0	0
2								0	0
2								0	0
2								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		10	2	8	0	0	20	280
3		Applied Aquaculture Skills				6		6	84
3								0	0
3								0	0
3								0	0
3								0	0
3								0	0
3								0	0
3								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0	6	0	6	84
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0	0	0	0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0	0	0	0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0	0	0	0	0
							Total	26	**644**

input fields

			FY 01	FY 02	FY 03	FY 04	FY 05
Technician rate of pay	Hours/week	# weeks	shared over x# programs (with option to adjust annually)				
= 27	=12	=30	=3	=3	=2	=2	=2
			n/a	n/a	n/a	n/a	n/a

Moveable Assets & Capital Requirements with Refresh schedule
Program Name: Foundations in Aquacultı

Item	Quantity	Unit Cost	Total (includes tax net rebate @ 3.41%)	Year of purchase and renewal planned FY00	FY01	FY02	FY03	FY04	FY05
Small items list including software licenses:									
Computer Licensing									
item 2									
item 3									
…									
insert new rows above this line									
Captial Asset list									
item 1									
item 2									
item 3									
…									
insert new rows above this line									

input fields

Foundations in Aquaculture
Certificate program - 3 semesters
online - all new courses

launch: Fall 2020 changed to Fall 2021
only 1 intake - Fall

Tuition:

Blasting	3,252.51	8,670.00	
OAS	2,263.27	8,086.00	has a lot of certifications and same as ODE tuition (diploma)
PSW	1,359.18	6,775.00	
Plumbing	1,359.18	6,910.50	
Trade Fundementals	1,359.18	6,910.50	
Blacksmith	2,718.36		1 sem
Pharm Asst	1,359.18	6,775.00	
UF	1,359.18	6,910.50	
ARB	1,488.33	6,910.50	closer to Fdn AQU

Faculty
Jon Carter to teach one course
remaining courses taught by contract faculty

80% of development will be completed by Jon Carter and LDS

BUSINESS CASE

Advanced Water Systems & Operations Management- Applied Research

Date:			
Board of Governors:	☒ Decision		
Proposed By:	*Tania Clerac, Interim Dean/Principal*		
School of Study:	School of Environmental and Natural Resource Sciences		
Proposed Launch Date:	*January 2021*		
Offering:	☒ Full-Time	☐ Part-Time	
Student Enrolment Target:	YEAR 1 = 60	YEAR 3 = 60	YEAR 5 = 60
New Faculty Resources:	None required		
Semesters / Hours:	3 Semesters / 780 Hours		
Applied Learning Method(s):	☒ Applied Project	☐ Co-op/Placement	☐ Other
First Graduating Class:	Class of 2021		
Credential Ontario College (OC):	☐ OC Certificate ☐ OC Diploma ☐ OC Advanced Diploma	☒ OC Graduate Certificate ☐ Certificate (Local Board Approved)	
Program Mapping:	Appendix I: Validation Documents		
Career Opportunities:	Water Treatment Technician; Water/ Wastewater Mechanic; Water Treatment Level 1 Operator; Water Treatment Plant Operator		
Proposed Tuition (per Semester):	Domestic: $2914.08 International $9300.00		
Program Start-up Cost:	$0		
Incremental Costs:	YEAR 1 = $118,275	YEAR 3 = $155,431	YEAR 5 = $134,430
Net Income:	YEAR 1 = $634,439	YEAR 3 = $993,747	YEAR 5 = $1,014,749
OCQAS Program Validation	☒ Approved	APS Number: FLEM01310	Validation Date: April 20, 2020
MCU Code(s):	72705		
NOC Code(s):	9212 Supervisors, petroleum, gas & chemical processing & utilities 9243 Water & waste treatment operators		
CIP Code(s):	41.0301 Chemical Technology/ Technician; 14.0805 Water Resources Engineering; 15.0506 Water Quality and Wastewater Treatment Management and Recycling Technology/ Technician		

Endorsed

☐ Academic Council ☒ Program Advisory or Reference Group ☐ Senior Management Team
☐ Strategic Enrolment Management ☐ Other: _____

Acknowledgements

Thank you to the members of our Advanced Water Systems and Operations Management- Applied Research team for their dedication and excellent work in engaging the college community in consultations, research, writing, and responding to feedback. Over the course of our planning and approval process this team involved Brett Goodwin, Dean, SENRS; Tania Clerac, Interim Dean/Principal, SENRS, Terri Geerinck, Program Development Lead, Jodie Black, Teaching and Learning Specialist, Kristine McBride, Acting Director of Strategic and Program Development; Cheryl Wadell Petherick, Library Technologist; Jason Dennison, Workforce and Labour Market Advisor.

Table of Contents

1. Executive Summary

The provision of safe, potable water is vital to the health and wellness of all people. The World Health Organization estimates that 2 billion people are affected by contaminated drinking water, and this includes communities in Canada (WHO, 2019). Notably, the National Collaborating Centre for Environmental Health reported that there are currently 56 First Nations Reserves in Canada that have long-term drinking water advisories (LTDWA) for public systems, including 42 in Ontario, which includes Curve Lake First Nation and Alderville First Nation, whose communities have only recently been able to implement plans to lift LTDWA status (Government of Canada, 2019).

Water and wastewater treatment and testing is equally important for Ontario municipalities, which includes 659 residential drinking water systems tested in 2017-2018, and a total of 6,937 certified operators to run these systems (Ministry of the Environment, Conservation and Parks, 2019). The existing Advanced Water Systems Operations and Management Co-op Program (AWS) curriculum focusses on issues in water and wastewater systems and includes the key knowledge areas for successful completion of certification by the Ministry of Environment and Climate Change for operators related to drinking water systems, wastewater facilities, and water quality analysis.

The School of Environmental and Natural Resource Sciences is proposing a new three semester program- Advanced Water Systems and Operations Management- Applied Research (AWS-R). The new program will focus on these same areas and add an applied research project in lieu of a co-op semester. This program with the addition of an applied research project will alleviate the issues with co-op without compromising the quality or rich experience students have in the program. The new program will share the first two semesters of the current program and have an applied research project in the third semester.

This program aligns with the Strategic Mandate Agreement in the area of strength and expansion of programs relating to Resources. The program also meets the strategic directions of meeting the needs of students and employers. Co-ops are difficult for many students as there is saturation in co-ops and reduced funding for co-op positions, difficulty getting to remote locations where many co-ops take place, and visa restrictions for international students. Small employers cannot afford co-op students but would welcome students with an applied research project in areas of mutual interest and benefit.

The program will provide students with the knowledge and practical expertise in both water and wastewater to assist and lead organizations, government agencies and other industries in the provision of safe drinking water and safe treatment of wastewater. Graduates will be prepared to work in water treatment, water distribution, water supply and wastewater treatment.

2. Program Description

The original program has been highly successful in enrolment since the beginning. The Advanced Water Systems and Operations Management Co-op program (AWS) is a postgraduate certificate which was launched in September 2014. The program has a mandatory co-op in the third semester totaling 480 hours, which equates to approximately 45% of total program hours (1062 hours). As there is more than a 25 per cent change in the curriculum, this program must be developed as a new one under Ministry of Colleges and Universities (MCU). This business case is proposing an Advanced Water Systems and Operations Management- Applied Research program be offered with a third semester applied research project.

Enrolment in the Advanced Water Systems Operations and Management-Co-op program has grown considerably to more than 120 registered in 2018-2019 for a total of 159 students. These large numbers have led to placement saturation for co-ops, aggravated by recent funding reductions from government, as well as issues with transportation to rural jobs (most co-ops are rural) and visa implications for many international students. The inability to find suitable co-op positions has a direct impact on many students as they are not able to graduate before completing the mandatory co-op. The new program will assist these students thus underscoring our strategic commitment to focus on the needs of students and to be a welcoming place for all by eliminating the barriers that co-op presents for many students.

This program shares the first two semesters with the current program and includes a variety of delivery methods including experiential labs, face-to-face classes and some online components. Instead of the co-op, the third semester has an applied research practices course and an applied research project.

By the end of AWS-R students will have had the opportunity to obtain their Operator in Training, a mandatory starting license for work in the field (exam and pass of 70%). A true bonus of this program is that students can obtain their Entry Level Course, a certificate through the Walkerton Clean Water Centre (WCWC). The college applied and received approval that the AWS program is equivalent to WCWC course. Currently, workers in the industry who do not have a college program such as AWS must take the course on their own for a cost of approximately $2000. This is a significant cost to the individual or municipality if they choose to sponsor their employees. Students in the program need to pass all courses in the program and write the final exam and obtain 70% to complete the license. Lastly, students will have the knowledge to write the class 1 exams in Water Treatment and/ or Wastewater Treatment. Completion of these licenses gives graduates a competitive advantage for jobs.

The applied research project can be conducted in collaboration with industry partners or by utilizing facilities on campus (e.g., CAWT). This would strengthen our relationship with industry and community partners and be in line with Fleming College's strategic priorities. The Applied Research Project is designed to provide students with similar experiential learning outcomes to those students who opt for the co-op. To that end, and, working with our industry representatives, several research projects will challenge students to undertake real-world scenarios associated with the operation in the water/wastewater industry.

Students will complete the Applied Research Project in one of several key areas of interest including, but not limited to, Water Treatment, Wastewater Treatment, Distribution and Collection Systems, Project Management, Process Control, Data Management, and Energy Management. Each project will include not only problem identification and background, but also the development of innovative solutions to challenges facing the Water/Wastewater industries. Other projects will require students to do a detailed literary review of specific processes and/or industrial challenges facing the water/wastewater sector such as emerging contaminants/pathogens, regulatory changes, or innovative treatment options. Regardless of the approach to the Applied Research Project, all students will be required to submit a detailed technical report and subsequent presentation on their Project.

Graduates will be prepared to work in water treatment, water distribution, water supply and wastewater treatment in a variety of industries.

Students applying to Advanced Water Systems Operations and Management- Applied Research must meet the following admission requirements:

- Ontario College Diploma, Ontario College Advanced Diploma, Degree or equivalent in related field

Applicants who do not meet the requirements listed above who possess a combination of education and relevant experience may be considered on an individual basis.

Appendix I includes more detailed curriculum information including Vocational Learning Outcomes, courses, and hours. Appendix II includes the MCU Program Delivery Information of labs, classes, and the applied research project.

3. Fleming College Strategic Alignment

3.1. Alignment with Fleming College Strategic Plan

This program continues to align with the new College Strategic Plan (2019- 2024) by focusing on the needs of students and employers in the labour market (Commitment 1). The program teaches specific skills required in the water and wastewater industry while also developing soft skills that are transferable including project planning, project management, advanced mathematical skills, and critical

thinking. The applied project will benefit the students who cannot complete co-ops, particularly international students who may not possess driver's licenses or who have visa restrictions around paid work. Employers will also benefit when students choose projects to help these community and industry partners.

This program aligns with being a welcoming place for all (Commitment 5). Since the beginning of the current program, there are increasing numbers of international students. The college has supports to assist all students including tutoring, counselling, health care, housing assistance and supports for students with learning challenges. International students have additional student advising and cultural trips and events which helps them feel part of the community. The research project option is a direct response to many international students' concerns about their ability to complete the program with a co-op for the reasons stated earlier in this case.

3.2. Alignment with Fleming College Academic Plan

This program aligns with the Academic Plan, *Putting Jobs First* (2019- 2024) by responding to the needs in the Labour Market (Priority 1) with employment opportunities in water and wastewater management to ensure safe drinking water and management of wastewater in environmentally responsible ways. Climate change and new technologies have significantly impacted communities locally and globally in how to ensure a safe water supply and the safe disposal of waste. Strongly aligned to this plan, students will be involved in applied research. These research projects with community partners will deepen relations with local business and industry. Students will be able to examine relevant issues to industry and match these projects with their career interests.

This program will attract domestic, Indigenous, and international students, part of Priority 4: Sustainability through Strategic Enrolment Management. The current co-op program has large numbers of international students and this new program will continue to attract this population in even greater numbers as many international students cannot participate in co-op semesters but can engage in applied research projects. A concern in many Indigenous communities is safe drinking water and the environmental disposal of waste (Human Rights Watch, 2016). This program may attract Indigenous students who want to assist their communities who can design and carry out applied research projects directly relevant to their community needs.

3.3. Alignment with Fleming College Business Plan

The Business Plan (2019- 2020) aligns with the Strategic Plan to meet the goals laid out in the Strategic Plan.

The new program aligns with two priorities in the plan. The first priority is to focus on the needs of students and employers in the labour market and more specifically, to develop programs responsive to community needs and future trends (1.2.1). With expanding job opportunities in the field, the program will meet the needs of employers in the labour market.

Priority 2 of being true partners in our community is met by increasing applied research activity (2.3.1) with a third semester applied research project. Through applied research, new partnerships can be fostered with smaller businesses and industries that currently don't have the capacity or funding to offer co-op jobs. These projects will be meaningful to industry who may use the results to further their interests in the community. This program will foster new relationships within the community.

3.4. Alignment with Other Fleming College Plans

This program aligns closely with the Fleming College Sustainability Plan. Program curriculum underscores the need to protect the environment and to mitigate the impact of climate change on water supply and water quality and the safe and responsible management of waste and wastewater. Students examine the impacts of human population growth on the environment and sustainability.

The Internationalization Plan is currently under revision. Once this new plan is in place, the new program will be aligned with the plan in terms of opportunities for our international students. One of the major benefits of this program is that international students may find the research project more suitable for their needs.

4. Ministry of Colleges and Universities Funding Approval Requirements

4.1. Alignment with Strategic Mandate Agreement

Alignment with Areas of Strength and/or Growth

The program area of strength and expansion is in the area of Resources. Protection of water and water resources is an integral part of this program. Since the start of the co-op program, there has been a steady increase in student numbers, particularly international students. Safe drinking water and the protection of water as a resource is a global concern.

This program adds to the suite of programs that focus on the protection of diminishing natural resources. Protection of water resources is especially important as climate change impacts water supply and the availability of water and methods of sanitizing water for human consumption. Similarly, the environmental disposal of human waste is of global concern with population growth.

A critical area of management of water resources and wastewater is infrastructure in small communities, large cities, and industrial sites. This program includes courses on the management of infrastructure including water distribution, wastewater collection and treatment, and stormwater collection. Flood prevention and reducing the contamination of water are increasing concerns for countries experiencing weather and climate changes.

Impacts on Related Fleming Programming and Pathways

The addition of this graduate level program complements several programs within the school including the diplomas and advanced diplomas in Environmental Technician/ Technology, Ecosystem Management Technician/ Technology, Forestry Technician, Urban Forestry and Fish and Wildlife Technician/ Technology. These programs have components of the protection of the environment, resources and methodologies to protect and improve these resources. Graduates of these programs may want to continue their education with this graduate certificate or one of the campus's other environmentally focused graduate certificate programs.

Lastly, this program provides an alternative from AWS-Co-op for students who may not be able to complete a co-op semester.

4.2. Student Demand Analysis

This program, as a unique one in the province, will appeal to students who are keenly interested in the environment and the protection and proper use of natural resources and have degrees or diplomas as technicians, technologists or engineers. These students want to work in the environmental cluster of water and wastewater management and add to their current degrees and diplomas. There are large numbers of applicants for environmental technician and technology programs, a major advertising market and student pool for this program.

The co-op program continues to attract domestic and international students. By offering a program with an applied research project, the college will be able to accommodate students who want to take the program but may not want or be able to complete a co-op experience. Students will benefit from conducting an applied research project in their area of interest and will enhance their hands-on and research skills and networking with professionals in their field.

Domestic and international students are attracted to this program. Since 2014, AWS has increased its international student (53.6% of total historical enrolment). Domestic student demand has also grown steadily since the inaugural cohort. In 2019-20 alone, there are 70 domestic registrants. Current business investment and attraction efforts by the City of Peterborough and Trent University's Clean Tech Commons, and research conducted by the Centre for Advancement of Water and Wastewater Technologies (CAWT) provides additional exposure to the local water sector, which can be used as a leverage to attract both international and domestic students.

Diploma programs at other colleges including Algonquin, Durham and Loyalist provide key postsecondary markets that Fleming College can leverage in its recruitment efforts for the new program. This program does not take away from other programs at the college, but instead offers an additional pathway after completion of other diploma and advanced diploma programs. External graduates of similar environmental programs from other colleges will also find this program of interest, particularly because of the immediate job-related opportunities in the water safety industry and the need for qualified water and wastewater plant operators.

4.3. Labour Market Analysis

Program employment encompasses the following NOC groups:

- NOC 9243 – Water and waste treatment plant operators
- NOC 9212 – Supervisors, petroleum, gas and chemical processing and utilities

The regional labour market for both NOC groups is expected to increase by 13.9 % between 2019-2026. The highest region is Haliburton with an expected increase of 25% with the next highest being Durham with 21.4 % for both occupational areas. Peterborough can expect a 4.2 % increase in employment.

Regional growth in occupations related to water and wastewater treatment plant operators (NOC 9243) is expected to increase by 404 jobs by 2026 with the bulk of this growth coming from Durham Region (21.8% project job growth) compared to 14.2% for the province and 11.8% nationally (Economic Modelling, 2019). The Canadian Occupational Projection System also shows an estimated need for 1,400 employees in the future between projected openings (n=12,600) and projected job seekers (N=11,200) (Gov. of Canada, 2019). However, as noted by the World Health Organization, an estimated 2 billion people are affected by contaminated drinking water. The development of water and wastewater treatment solutions to support the need of international markets is a key area where Fleming graduates can make an important societal impact. Wage estimates range from a low of $14.00 per hour to a high of $38.00 with a median wage in our region of $28.00 per hour.

Regional and Provincial growth with employment outlook (Supervisors-NOC 9212) has not been assigned to this occupation due to low levels of employment. The Canadian outlook for jobs in NOC 9212 is optimistic due to higher number of retirees. Over the period 2017-2026, job openings are expected to total 15,700 with 14,900 to fill them. Wage estimates range from a low of $17.00 per hour to a high of $52.00 with a median wage in our region of $30.00- $32.00 per hour.

Refer to Appendix III for more detailed labour analysis and Appendix IV for sample job postings. Jobs postings range from entry-level internships to higher level positions. Relevant qualifications are highlighted in yellow.

4.4. Competitor Analysis

As a graduate certificate, this program has little comparison with competitors. There are virtually no competitors for this program. A major advantage of this program is that it is an Ontario Graduate Certificate and many graduates of competitor programs offer a pool of possible students for this program. There are large numbers of applications and registrations for the technician-level and technology-level programs environmental programs (refer to charts below). This will translate into a large pool of potential applicants for this graduate certificate.

The new program prepares students to write the Ministry of Environment Licensing and Certification exams for Water and Wastewater Operators. The new program is dedicated solely to water and wastewater and better prepares graduates to work in this field. Program details for other colleges are located in Appendix V.

Central Region Graduate Certificates

Georgian College

Only one central college, Georgian, offers an Ontario Graduate Certificate program in Advanced Water and Wastewater Treatment. This program is a two-semester program in partnership with Laurentian University. Students work in multi-disciplinary teams to develop projects to provide sustainable, potable water and to identify and treat emerging contaminants in wastewater streams.

The only competitive program may be a four-year degree that Georgian does in partnership with Lakehead University. The program is an Honours Bachelor of Arts and Science- Environmental Sustainability. Students finish their Environmental Technician diploma and then spend two years at Lakehead doing a specialization in Ecosystem Management.

There are no other Ontario College Graduate Certificate programs in this field. Competitor colleges offer Ontario College Diploma or Advanced Diploma programs in Environmental Technician/ Technology. Some of these programs concentrate on water and wastewater. The new proposed program would offer a pathway for graduates of these programs to continue learning at a graduate level. Below are colleges that offer environmental technician and technology programs whose graduates are a potential market for the new program.

Central Region Colleges Technician/ Technology Level Programs (Environmental)

Georgian

Georgian also has both Environmental Technician and Environmental Technology programs. The programs include three courses on water and wastewater treatment. Both programs offer a co-op option.

Mohawk

Mohawk offers an Environmental Technician program that examines a number of environmental areas including pollutants, sample analyses, water and wastewater treatment processes and remediation methods including site assessment, monitoring, mitigation and remediation.

Niagara

Niagara has an Environmental Technician- Field and Laboratory Co-op program. There is one dedicated course on hydrology and water quality.

Other Colleges (Environmental)

Algonquin

Algonquin has a diploma program in Water and Wastewater Technician. The Water and Wastewater Technician Ontario College Diploma program equips students with the knowledge and skills to effectively manage water and wastewater infrastructure and includes skills and knowledge to prevent waterborne illnesses, manage industrial waste, and operate off-site wastewater treatment units. The program is condensed to 42 weeks. They also have an Environmental Technician program which does include some courses in water and wastewater.

Durham (local competitor)

Durham has a Water Quality Technician program which has been suspended until 2020. This program teaches students the skills and knowledge water treatment and wastewater treatment. Students will complete the Ontario Ministry of the Environment, Conservations and Parks entry-level Drinking Water course. There is an optional co-op or placement. Durham also offers an Environmental Technology program.

Loyalist (local competitor)

Loyalist has both Environmental Technician and Environmental Technology programs. There are fourth semester courses in Waste Management and Water/ Wastewater Treatment.

St. Lawrence

St. Lawrence offers an Environmental Technician program that can also be taken fast-track. The program offers a four-week work placement. The program offers courses in solid waste management and water treatment and distribution.

Below are charts for Water and Wastewater Technician, Environmental Technician and Environmental Technology at central and local colleges that may be competitors. For detailed program information, please refer to Appendix V.

	Total Applications/ Registrations by College for Programs mapped to MTCU code 52705 Water and Wastewater Technician				
College	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Algonquin		104/34	99/26	105/35	101/36
Durham		71/14	81/11	75/17	66/10

**Colleges in the Ontario Central Region*

	Total Applications/ Registrations by College for Programs mapped to MTCU code 52700 Environmental Technician				
College	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Algonquin	136/26	140/22	139/27	133/25	132/22
Fleming	471/138	410/131	400/132	335/128	386/104
Georgian*	114/32	132/42	117/31	130/34	111/28
Loyalist	70/15	73/16	63/44	63/53	75/22
Mohawk*	185/84	195/81	178/84	152/80	134/54
Niagara*	130/45	126/45	113/37	122/42	129/28
St. Lawrence	70/23	95/42	97/45	76/32	81/17

*Colleges in the Ontario Central Region

	Total Applications/ Registrations by College for Programs mapped to MTCU code 62700 Environmental Technology				
College	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
Durham	168/22	153/19	173/21	138/29	149/41
Fleming	63/31	118/54	134/55	128/41	NA/9
Georgian*	122/55	123/54	126/55	131/41	115/9
Loyalist	37/10	35/11	36/	35/	11/

*Colleges in the Ontario Central Region

5. Community Collaboration

5.1. External Industry Council, Committees or Groups

Letters of support may be found in Appendix VI: Letters of Support.

Council, Committee or Group	Meeting Date	Endorsed (yes/no)
Program Advisory Committee (if applicable)	November 15, 2019	yes

5.2. Program Advisory Committee Members

Member	Position	Organization
Bill Peeples	Environmental Services Manager	Town of Cobourg
Chris Sullivan	Senior Project Specialist	SGS Canada Inc.
Dan Dunn	Manager, Training	Ontario Clean Water Agency
Rodney Bouchard	General Manager	Union Water Supply
Jeff Murray	Superintendent	Duffin Creek WPCP, Regional Municipality of Durham
Rene Gagnon	Water Treatment Plant Manager	PUG Services Corp.
Amber Hayter	Supervisor, Water & Wastewater Operations	City of Kawartha Lakes

5.3. Fleming College Councils and Committees

Council, Committee or Group	Meeting Date	Endorsed (yes/no)
Senior Management Team	November 12, 2019	yes
Strategic Enrolment Management		yes
Academic Council		yes
Program Implementation Committee	October 2019	yes

5.4. Fleming College Board of Governors

Item	Meeting Date	Endorsed (yes/no)
Concept Proposal	November 27, 2019	yes
Business Case	June 2020	

6. Resource Requirements

6.1. Staffing

Current full-time and part-time faculty and staff will teach in this program. Additional part-time faculty may be required for the Applied Research Practices course and the research project.

6.2. Information Technology

Current hardware and software are adequate for the program.

6.3. Equipment

No new equipment is required for this program.

6.4. Space

No additional space is required for this program. Current labs and classrooms are adequate and will be shared with the co-op program.

6.5. Capital

No capital investments will be made in this program.

7. Financial Analysis.

7.1. Incremental Costing Summary

For more detailed information, please see Appendix VII: Incremental Costing Summary Details.

Description	Class of '21 (Year 1)	Class of '22 (Year 2)	Class of '23 (Year 3)	Class of '24 (Year 4)	Class of '25 (Year 5)
Incremental Revenues	752,714	1,135,774	1,149,179	1,149,179	1,149,179
Incremental Costs	118,275	152,200	155,431	155,431	134,430
Net Investment	-	-	-	-	-
NET INCOME	634,439	983,574	993,747	993,747	1,014,749

7.2. Program Costing Assumptions

Program costing is based on the assumption that enrollment for International students will continue as it has in the past and that domestic tuition remains the same as the current year. Further, we assume that most domestic students will enroll in the Co-op stream and international students will enroll in the applied research stream.

7.3. Financial Risks

There are few financial risks with this program as it shares the first two semesters with the co-op stream. No additional capital investments are required to run this program and staffing requirements will remain the same, with the exception of staffing for the applied research practices course and the research project.

Overall enrollment in the current Co-op program will likely be reduced by 70% as international students will likely enroll in this new stream. The Co-op income in the current program will be reduced by 70%.

7.4. Countermeasures

If enrolment targets are not met, students in the applied research program have the option to transfer into the co-op program. Students who enter the co-op program but cannot secure a co-op position will be offered the option to transfer into the applied research program for alternate experiential learning activities equivalent to the co-op.

8. Quality Assurance

Fleming College is committed to quality assurance processes that promote excellence in the development, design, delivery, and ongoing review of new and existing academic programs. Mechanisms are in place to demonstrate accountability to Fleming College students, the Board of Governors, the Ministry of Training, Colleges and Universities, and the communities we serve that will ensure all academic program meet or exceed the relevant quality standards including an ongoing and systematic program review process. *(See College Policy #2-213: Program Quality Assurance)*

9. Conclusion / Recommendation

THAT the Board of Governors of Sir Sandford Fleming College approve the Advanced Water Systems and Operations Management- Applied Research program for launch in January 2021.

10. References

Economic Modelling Inc. (2019). Occupational summary for water and wastewater treatment plant operators. Retrieved October, 2019 from https://www.economicmodeling.com/

Government of Canada. (2019). Canadian occupational projection system: utilities equipment operators and controllers (924) occupational outlook. Retrieved October, 2019 from http://occupations.esdc.gc.ca/sppc-cops/occupationsummarydetail.jsp?&tid=273

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Human Rights Watch (June7, 2016). *Make is Safe: Canada's Obligation to End First Nations Water Crisis.* Accessed November 8, 2019 at https://www.hrw.org/report/2016/06/07/make-it-safe/canadas-obligation-end-first-nations-water-crisis

Ministry of the Environment, Conservation and Parks. (Oct. 22, 2019). 2017-2018 Chief drinking water inspector annual report. Retrieved from https://www.ontario.ca/page/2017-2018-chiefdrinking-water-inspector-annual-report

World Health Organization. (2019). Drinking-water key facts. Retrieved November 15, 2019 from https://www.who.int/en/news-room/fact-sheets/detail/drinking-water

11. Appendices

11.1. Appendix I: Validation Documents

Ontario College Quality Assurance Service

Service de l'assurance de la qualité des collèges de l'Ontario

Advanced Water Systems Operations and Management- Applied Research

Fleming College | APS # FLEM01310 | MTCU # 72705
Ontario College Graduate Certificate | Funding requested - full-time

Purpose

This one-year Graduate Certificate program in Advanced Water Systems Operations and Management - Applied Research provides students with the knowledge and practical expertise in both water and wastewater to assist and lead organizations, government agencies, and other industries in the provision of drinking water and the treatment of wastewater. Graduates will also be able to interpret and apply government regulations on the treatment of water and wastewater.

Graduates will complete an Applied Research Project in one of several key areas of interest including, but not limited to, Water Treatment, Wastewater Treatment, Distribution and Collection Systems, Project Management, Process Control, Data Management, and Energy Management. Each project shall examine not only the problem identification and background, but also develop potential and innovated solutions to challenges facing the Water/Wastewater industries.

Admission

Ontario College Diploma, Ontario College Advanced Diploma, Degree, or equivalent in a related field.

Applicants must provide proof of English proficiency, choosing one of the following options:

Option 1: Submission of English Language Test Scores.

Applicants may receive direct admission by submitting one of the following recognized English language test scores with their application.

• Test of English as a Foreign Language (TOEFL) test with a minimum score of 88 with no score less than 22 for the Internet-based test (iBT) or a minimum score of 577 for the Paper-based test (PBT);

• International English Language Testing System (IELTS) Academic test with an overall score of 6.5 with no band less than 6.0;

• Canadian Academic English Language (CAEL) test with an overall score of 70;

• Pearson Test of English Academic (PTE) with a minimum score of 60; or

• Michigan English Language Assessment Battery (MELAB) score of 85.

Option 2:

Successful completion of a minimum three (3) years of full-time secondary or post-secondary education with English as the primary language of instruction, in a country where English is the principal language.

Applicants who do not meet any of the above criteria may apply for conditional admission with one of the following:

· Successful completion of English as a Second Language (ESL) or English for Academic Preparation (EAP) at an Ontario Community College or University

· Successful completion of English as a Second Language (ESL) program at a partner institution

· Successful completion of one (1) semester of study in a full-time post-secondary program at an accredited college or university located in Canada

Occupational Areas

NOC 9243 – Water and waste treatment plant operators
NOC 9212 – Supervisors, petroleum, gas and chemical processing and utilities

The regional labour market for both NOC groups is expected to increase by 13.9 % between 2019- 2026. The highest region is Haliburton with an expected increase of 25% with the next highest being Durham with 21.4 % for both occupational areas. Peterborough can expect a 4.2 % increase. Regional growth in occupations related to water and wastewater treatment plant operators (NOC 9243) is expected to increase by 404 jobs in 2026 with the bulk of this growth coming from Durham Region (21.8% project job growth) compared to 14.2% for the province and 11.8% nationally (Economic Modelling, 2019). The Canadian Occupational Projection System also shows an estimated need for 1,400 employees in the future between projected openings (n=12,600) and projected job seekers (N=11,200) (Gov. of Canada, 2019). However, as noted by the World Health Organization, an estimated 2 billion people are affected by contaminated drinking water. The development of water and wastewater treatment solutions to support the need of international markets is a key area where Fleming students and graduates can make an important societal impact. Wage estimates range from a low of $14.00 per hour to a high of $38.00 with a median wage in our region of $28.00 per hour.

Regional and Provincial growth with employment outlook (NOC 9212) has not been assigned to this occupation due to low levels of employment. The Canadian outlook for jobs in NOC 9212 is optimistic due to higher number of retirees. Over the period 2017-2026, job openings are expected to total 15,700 with 14,900 to fill them. Wage estimates range from a low of $17.00 per hour to a high of $52.00 with a median wage in our region of $30.00- $32.00 per hour.

The regional labour market for both NOC groups is expected to increase by 13.9 % between 2019- 2026. The highest region is Haliburton with an expected increase of 25% with the next highest being Durham with 21.4 % for both occupational areas. Peterborough can expect a 4.2 % increase. Regional growth in occupations related to water and wastewater treatment plant operators (NOC 9243) is expected to increase by 404 jobs in 2026 with the bulk of this growth coming from Durham Region (21.8% project job growth) compared to 14.2% for the province and 11.8% nationally (Economic Modelling, 2019). The Canadian Occupational Projection System also shows an estimated

need for 1,400 employees in the future between projected openings (n=12,600) and projected job seekers (N=11,200) (Gov. of Canada, 2019). However, as noted by the World Health Organization, an estimated 2 billion people are affected by contaminated drinking water. The development of water and wastewater treatment solutions to support the need of international markets is a key area where Fleming students and graduates can make an important societal impact. Wage estimates range from a low of $14.00 per hour to a high of $38.00 with a median wage in our region of $28.00 per hour.

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Laddering Opportunities

From Fleming, Environmental Technician/ Technology graduates and Ecosystem Management Technician/ Technology graduates who are interested in pursuing more environmentally-related programs will find this program an attractive option. Adding this graduate certificate to the suite of programs at SENRS, adds another internal pathway for students to pursue their educational and career plans to find employment in the water and wastewater sector.

External graduates of similar environmental programs from other colleges will also find this program of interest, particularly because of the immediate job-related opportunities in the water safety industry and the need for qualified water and wastewater plant operators.

After completing this graduate certificate, other graduate certificates may be of interest such as Sustainable Waste Management, Health, Safety and Environmental Compliance or Applied Planning-Environmental. Completing two graduate certificates is a pathway that international students often pursue according to their visa lengths and restrictions.

Program VLOs

1. Utilize a wide variety of instrumentation and standardized protocols for the collection and analysis of samples and data required in the operation of water and wastewater facilities
2. Collaboratively test and troubleshoot processes from various water treatment, distribution facilities, wastewater collection, and treatment facilities to identify issues within the relevant systems.
3. Evaluate system design and operations based on current legislation, regulations and standards affecting water and wastewater treatment plants, scope and authority of certificates of approval and owner/operator responsibilities to ensure compliance to relevant legislature.
4. Develop risk management strategies, including emergency response and disaster preparedness for water and wastewater systems, to ensure effective and safe responses to emergency situations.
5. Test and monitor microbiological parameters in water and wastewater applications and propose remediation strategies to reduce/ eliminate contaminants
6. Assess current infrastructure in water operations for ongoing maintenance plans to address future needs and changes in such areas as disaster preparedness, population growth and climate change

7. Analyze requirements and make recommendations for the maintenance, renewal, and replacement of utility infrastructure using project planning, budgeting, and personnel allocation.
8. Develop plans and practices to meet legislative safety requirements and ensure a safe working environment for personnel and projects.
9. Apply research skills to solve a variety of issues and challenges common in the wastewater industry to make informed decisions/recommendations about issues and technologies in the field.

Curriculum

- **ENVR 94 - Large Wastewater Treatment Systems** (Semester 1 - 45.00 hours)
  Wastewater treatment methodologies are the main focus in this course. This will course will examine the major physical, chemical and biological processes involved in conventional treatment processes. Students will investigate various methods of wastewater treatment such as activated sludge processes, rotating biological contactors, trickling filters and sequencing batch reactors. Students will learn to interpret data to better understand operational processes, and concepts will be expanded through the use of scenario based process examples. Students will also investigate solids removal, handling and treatment and the generation and use of biosolids.
- **MATH 147 - Introduction to Water/Wastewater Mathematics** (Semester 1 - 30.00 hours)
  Students will learn the basic concepts required to perform calculations essential in the water/wastewater industry. Subsequently, with these skills, students will be required to solve problems common to the industry. Topics include isolating variables in equations; working with units; hydraulics and flow; dilutions and concentrations; detention time; and mass balance.
- ENVR 91 - Infrastructure Management: Water Distribution and Wastewater Collection (Semester 1 - 45.00 hours)
  This course examines municipal infrastructure management, including distribution systems (pipes, valves, booster facilities, hydrants, and reservoirs) and wastewater collection systems (pipes and pumping stations). Additionally, students are introduced to design concepts for stormwater managment (flow calculations and retention pond sizing). An integral component of this course is the understanding of fundamental hydraulics concepts such as flow, pressure, headloss, pipe sizing in both pressurized and gravity fed systems. The planning required for renewal / maintenance of these systems and the development of protection plans for public health and property from water-related disasters are covered. Current and emerging/new technologies in infrastructure management are also discussed.
- **ENVR 89 - Human Populations, Water, and the Environment** (Semester 1 - 30.00 hours)
  This course provides students with knowledge of human population growth and the evolution of water and wastewater treatment processes over time. The biology of humans, the impacts of human population growth, and the basic processes of water and wastewater treatment are discussed. Students learn how contaminants move through the environment and the implications of these pathways for source water protection. Relevant legislation related to water quality in Canada will be presented. Students will review case studies on water contamination both in Canada and Internationally.
- **ENVR 90 - Small Water and Wastewater Treatment Systems** (Semester 1 - 45.00 hours)
  In this course, students investigate small systems and their configuration, operation, legislation and reporting requirements. The course also provides site specific variations of physical and chemical units of a treatment plant. Point-of- use and point- of-entry and on site systems will be explored.
- **ENVR 137 - Wastewater Treatment Lab** (Semester 1 - 45.00 hours)
  The focus of this course is to introduce the students to lab skills associated with working in a lab

at a wastewater treatment facility. The primary goal is to instruct students in lab procedures in a safe manner, respecting and following established protocols. Specifically, students will learn common procedures including SVI, BOD, Suspended Solids/VSS/TSS, titrations, and jar testing to determine proper chemical dosing.

ENVR 98 - Water and Wastewater Industrial Relations and Career Development (Semester 1 - 45.00 hours)

- This course provides students with an insight into the working environment for water and wastewater facilities with a heavy focus on Health and Safety. Students will learn about the Ontario Health and Safety Act and how to apply the specific regulations including Construction Projects, Industrial Establishments, Confined Spaces, and Occupational Injuries / illnesses. Students will also learn about corporate functionality of Human Resources and Health and Safety. Students will also learn about how to search for relevant jobs in the industry. Finally, students will have an opportunity to hone their resume and interview skills through a mock interview.

ENVR 139 - Advanced Math and Critical Thinking for Water/Wastewater (Semester 2 - 30.00 hours)

- This course is a follow-up course to ENVR 138 in which students will use the skills previously taught to critically think and assess numeracy in the water/wastewater sector. Specifically, students will be perform detailed analysis on water/wastewater problems then determine and respond to their legitimacy (i.e. do the numbers make sense) and troubleshoot to correct the problem. An integral part of this course how to use excel, including developing spreadsheets and logic statements to assist with solving problems.

ENVR 97 - Advanced Operations and Process Control (Semester 2 - 45.00 hours)

- Students learn to apply current theory and laboratory observations to conventional and advanced water and wastewater treatment plant operations. Students are introduced to SCADA, maintenance management systems and remote operation technologies. Students are introduced to the development of process flow diagrams and how they relate to SCADA control. SCADA demonstrations will be an integral component in this course.

ENVR 96 - Industrial Water/Wastewater Treatment (Semester 2 - 45.00 hours)

- This course covers waste streams and common treatment techniques for various industrial sectors that fall under MISA Regulations including mining, Iron and steel, petroleum refining, and pulp and paper. Additionally, this course will cover high purity water applications and process requirements for cogeneration power plants (steam turbines). Students will discuss the impact of assessment techniques associated with industrial wastes and regulatory frameworks, specifically MISA and develop strategies to meet these discharge requirements. Students will also apply water cooling applications to the industrial wastewater treatment process. Site visits and the use of sampling for enforcement will be an integral part of this course including sampling and analysis of waste streams.

ENVR 92 - Large Water Treatment Systems (Semester 2 - 45.00 hours)

- Water treatment operations in large water treatment facilities are the focus in this course. Chemical unit operations including flocculation, coagulation, sedimentation, adsorption, chlorination, ozonation, and UV disinfection are also covered. This course includes site visits to treatment facilities. Safe sampling operational procedures, quality analysis and assurance will be emphasized. Facility security and risk management planning are included in this course. Students will be provided the opportunity to obtain their ELC (Entry Level Course) certificate in this course.

ENVR 95 - Project Management (Semester 2 - 45.00 hours)

- Developing short-and long-term plans/ projects for management is a major focus in both large and small facilities as well as industry. Students write a project plan in a chosen area of utility management (water, wastewater, conservation, disaster management, sustainability) including defining the project, identifying stakeholder expectations to ensure efficient management, monitoring, ongoing quality maintenance and planning for risk mitigation. Human resource

planning as an essential component in a plan is emphasized.

- **ENVR 99 - Utility Management** (Semester 2 - 30.00 hours)
  This course provides a general overview of utility management specifically related to the water and wastewater industry. A focus of the course will be the development and admistration of budgets (both operating and capital), developing and retaining personnel, and examining new and emerging issues and possible technological solutions to local, national, and international issues associated with water and wastewater systems. Energy sources from waste and new technologies are also discussed. Planning for future issues and infrastructure upgrades is also included as part of this course as well as the development of plans for the long-term sustainability of water supplies through the process of asset management.
- **ENVR 140 - Water Treatment Lab** (Semester 2 - 45.00 hours)
  This course is a follow up course to ENVR 137 in which students will further develop lab skills, specifically related to water treatment. Time will also be spent on preparing students to write their Water Quality Analysts exam as defined in O. Reg. 128. Specific topics include jar testing for optimal chemical dosage, precipitation chemistry, disinfection of water and chlorine reactions, and spectrophotomery.
- **NEW - 1 - Applied Research Project - AWSOM** (Semester 3 - 180.00 hours)
  The Applied Research Project, students will have a choice from a variety of applied research projects. Some students will be working with our industry representatives and projects will challenge students to undertake real-world scenarios associated with the operation of water/wastewater industry. Other projects will require students to do a detailed literary review of specific processes and/or industrial challenges facing the water/wastewater sector such as emerging contaminants/pathogens, regulatory changes, or innovated treatment options. Regardless of the approach to the Applied Research Project, all students will be required to submit a detailed technical report and subsequent presentation on their Project.
- **NEW - 2 - Applied Research Practices** (Semester 3 - 30.00 hours)
  In this course, students will build on their previously garnered academic studies by learning about the research process, including developing a project plan that incorporates the required research methods and properly citing resources. Students will work together to produce a coherent final report and learn how to use excel to incorporate and analyze data. The course will conclude with a formal presentation for students to share their research findings.

VLO Mapping

Code	1	2	3	4	5	6	7	8	9
ENVR 94	X	X	X	X	X	X			
MATH 147	X	X	X						
ENVR 91	X	X	X	X	X	X		X	
ENVR 89			X	X	X	X			
ENVR 90	X	X	X	X					
ENVR 137					X			X	

ENVR 98				X				X	
ENVR 139	X	X	X	X			X		
ENVR 97	X	X				X			
ENVR 96		X	X	X	X		X		
ENVR 92		X	X	X	X	X			
ENVR 95	X			X		X	X	X	
ENVR 99		X	X	X		X		X	
ENVR 140	X				X				
NEW - 1			X		X				X
NEW - 2			X		X	X		X	X

Certification/Accreditation

Certification type:

There is a voluntary (i.e., not required by legislation) licensing or certification for entry to practice in the profession or trade (Voluntary recognition of a regulatory authority is being sought)

Details

Name of voluntary association:

Entry Level Course certificate through Walkerton Clean Water Centre and overseen by the MECP

Recognition has been received

Date of recognition

2019

Type of recognition

We submitted and received approval for our program to be equivalent to the WCWC program. Students only have to pass (70%) an exam as well as pass all courses in the program.

The association does not recognize educational programs directly or through designated third party. Formal recognition (e.g. in its published requirements) that the program graduates will be eligible to write any required certifying or registration exam(s) or that the program is otherwise recognized for the purposes of certifying or registering a graduate is being sought.

Attachments

None

Contact Information

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T: 705-749-5530;1619 | E: jodie.black@flemingcollege.ca

11.2. Appendix II: MCU Program Delivery Information (PDI)

	Semester						
Funded Instructional Setting	1	2	3	4	5	6	Total
Classroom instruction	240	240	30				510
Laboratory/workshop/fieldwork	45	45					90
Independent (self-paced)							
One-on-one instruction							
Clinical placement							
Field placement/work placement			180				180
Small group tutorial							
Total	285	285	210				780

	Semester						
Non Funded Instructional Settings	1	2	3	4	5	6	Total
Co-op work placement - Mandatory							0
Co-op work placement - Optional							0
Degree work placement – Mandatory (shorter than Co-op)							0
Total							0

Total	1	2	3	4	5	6	Total
Grand Total	285	285	200				780

11.3. Appendix III: Labour Market Information Details

NOC9212 Supervisors, petroleum, gas and chemical processing and utilities

Supervisors in this unit group supervise and co-ordinate the activities of workers in the following unit groups: *Petroleum, Gas and Chemical Process Operators* (9232), *Power Engineers and Power Systems Operators* (9241), *Water and Waste Treatment Plant Operators* (9243), *Chemical Plant Machine Operators* (9421) and *Labourers in Chemical Products Processing and Utilities* (9613). They are employed by petroleum and natural gas processing, pipeline and petrochemical companies, chemical and pharmaceutical companies, electric power utilities, water and waste treatment utilities and in a range of other industries and institutions.

Main duties

Supervisors in this unit group perform some or all of the following duties:

- Supervise, co-ordinate and schedule the activities of workers who operate petroleum refineries, chemical plants, water and waste treatment plants and equipment, pipelines, heating plants and power stations and systems
- Identify, investigate, correct and document potential environmental and safety problems
- Establish methods to meet work schedules and co-ordinate work activities with other departments
- Resolve work problems and recommend measures to improve productivity and product quality
- Provide information for maintenance plans to ensure that maintenance and production objectives are met
- Requisition materials and supplies
- Train staff in job duties, safety procedures and company policy
- Recommend personnel actions such as hirings and promotions
- Prepare production and other reports and develop and manage operating budget for area of responsibility
- May also supervise, co-ordinate and schedule the activities of trades workers, labourers or other workers.

Common Job Titles:

Job titles include water treatment plant supervisor; chief operator, water treatment; water treatment operations supervisor; plant superintendent, water treatment

NOC 9243: Water and Waste Treatment Plant Operators

Main duties

Occupations in this unit group perform some or all of the following duties:

- Operate and monitor computerized control systems and related equipment in water filtration and treatment plants to regulate the treatment and distribution of water
- Monitor and inspect plant equipment and systems to detect equipment malfunctions and to ensure plant systems are operating normally
- Read flow meters, gauges and other recording instruments to measure water output and consumption levels, bacterial content, chlorine and fluoride levels
- Collect and test water samples for chemical and bacterial content, analyze test results and instrument readings and make adjustments to plant equipment and systems to ensure quality control
- Provide verbal or written instructions for process control changes to waterworks system to ensure water produced meets standardized quality requirements
- Perform security checks in plant and on grounds
- Respond to public enquiries regarding water quality issues and emergencies
- Complete and maintain plant logs, reports and statistics
- May perform minor maintenance or assist skilled tradespersons with installation and repair of plant machinery

Common Job titles include:

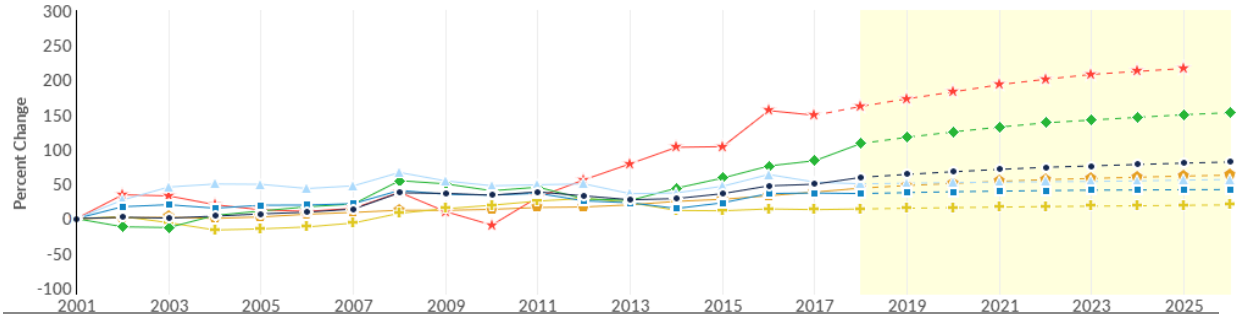
- Operator, pumphouse – water treatment
- Operator, water filtration plant
- Operator, water treatment plant
- Water treatment plant process technician
- Water treatment systems operator

Occupation Summary for both NOC Groups (ESMI Analyst, 2019)

1,369	13.9%
Jobs (2018)	**% Change (2018-2026)**
42% above National average	Nation: 13.0%

Regional Trends

Jobs per Region



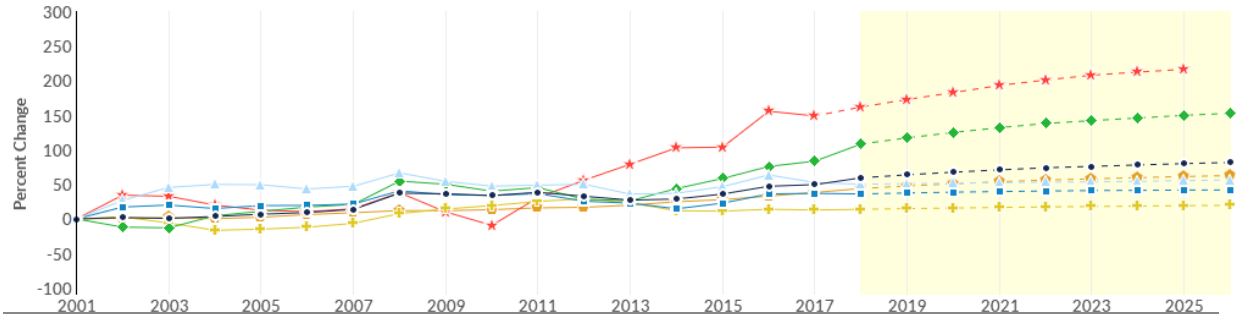
	Region	2018 Jobs	2026 Jobs	Change	% Change
●	Region	1,369	1,559	190	13.9%
●	Northumberland (in Ontario)	104	109	5	4.8%
●	Peterborough (in Ontario)	119	124	5	4.2%
●	Durham (in Ontario)	720	874	154	21.4%
●	Simcoe (in Ontario)	350	368	18	5.1%
●	Haliburton (in Ontario)	28	35	7	25.0%
●	Canada	30,646	34,621	3,975	13.0%
●	Region	1,369	1,559	190	13.9%

Occupation Summary for both NOC Groups

1,369	13.9%
Jobs (2018)	**% Change (2018-2026)**
42% above National average	Nation: 13.0%

Regional Trends

Jobs per Region



	Region	2018 Jobs	2026 Jobs	Change	% Change
●	Region	1,369	1,559	190	13.9%
●	Northumberland (in Ontario)	104	109	5	4.8%
●	Peterborough (in Ontario)	119	124	5	4.2%
●	Durham (in Ontario)	720	874	154	21.4%
●	Simcoe (in Ontario)	350	368	18	5.1%
●	Haliburton (in Ontario)	28	35	7	25.0%
●	Canada	30,646	34,621	3,975	13.0%
●	Region	1,369	1,559	190	13.9%

Regional Breakdown by Census Division

Source: EMSI 2019.3

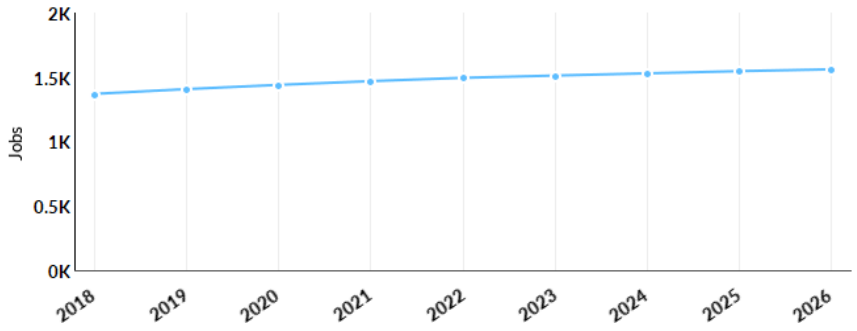
Census Division	2026 Jobs
Durham (in Ontario)	874
Simcoe (in Ontario)	368
Peterborough (in Ontario)	124
Northumberland (in Ontario)	109
Kawartha Lakes (in Ontario)	50

Growth for Water and Waste Treatment Plant Operators

Source: EMSI 2019.3

1,369	1,559	190	13.9%
2018 Jobs	2026 Jobs	Change (2018-2026)	% Change (2018-2026)

Jobs per



Occupation	2018 Jobs	2026 Jobs	Change	% Change
Supervisors, petroleum, gas and chemical processing and utilities (9212)	1,013	1,155	142	14%
Water and waste treatment plant operators (9243)	356	404	48	13%

Employment potential

	Local	Ontario	Canada
Water and Waste Treatment Plant Operators (9243)	**Fair** (2018-2020)	**Fair** (2018-2020)	**Balance** (2017-2026)
Supervisors, petroleum, gas and chemical processing and utilities (9212)	**Undetermined** (2018-2020)	**Undetermined** (2018-2020)	**Balance** (2017-2026)

Local/Regional Outlook

Water and Waste Treatment Plant Operators (9243)

Source: Job Bank

The employment outlook will be fair for Water and waste treatment plant operators (NOC 9243) in the Muskoka - Kawarthas region for the 2018-2020 period.

The following factors contributed to this outlook:

- Employment growth will lead to a moderate number of new positions.
- Not many positions will become available due to retirements.
- There are a small number of unemployed workers with recent experience in this occupation.

Several projects are underway to upgrade local water and wastewater infrastructure across the region. This includes a large improvement to the Peterborough Waste Water Treatment Plant. These investments will help support work in this field over the forecast period.

Here are some key facts about Industrial instrument technicians and mechanics in the Muskoka - Kawarthas region:

- Approximately 260 people work in this occupation.
- Water and waste treatment plant operators mainly work in the following sectors:
  - Local, municipal, regional, aboriginal and other public administration (NAICS 913-919): 44%
  - Utilities (NAICS 22): 22%

- Management and Administrative Services (NAICS 55-56): 13%
- Provincial and territorial public administration (NAICS 912): 6%
- Professional, scientific and technical services (NAICS 54): 6%

Provincial Outlook

Water and Waste Treatment Plant Operators (9243)

Source: Job Bank

The employment outlook will be fair for Water and waste treatment plant operators (NOC 9243) in Ontario for the 2018-2020 period.

The following factors contributed to this outlook:

- Employment growth will lead to a moderate number of new positions.
- Not many positions will become available due to retirements.
- There are a small number unemployed workers with recent experience in this occupation.

The majority of these operators work either for the municipal government or in the utilities industry at water filtration or sewage treatment facilities.

Employment growth in this field will likely remain moderate over the forecast period.

- There have been several large investments to upgrade and expand municipal water and wastewater infrastructure to support population growth and meet health standards.
- These investments should lead to more opportunities in this occupation across Ontario's municipalities.
- There may also be some openings at industrial plants as the manufacturing industry continues to see modest gains.
- Job prospects may be better for skilled operators that have experience with new industry technologies and treatment options.
- In northern Ontario, initiatives to improve water and wastewater systems on some First Nations communities may increase the need for operators in the region.

To work in this field, individuals must obtain the appropriate water and/or wastewater certification through the Ontario Water Wastewater Certification Office (OWWCO).

- There are various types of certificates and levels depending on the type of water system operated and the scope of the position.
- Those with prior experience in a treatment plant and knowledge of related policies such as the Clean Water Act, Safe Drinking Water Act, and Environmental Protection Act, will likely fare better in the job market.
- Employers may prefer candidates that completed post-secondary training in a related field and that are familiar with safety practices such as the Occupational Health and Safety Act.
- Most positions require the use of computerized monitoring (SCADA) and maintenance management systems (CMMS).
- Operators often have to work rotational shifts and be on call for emergency needs. Job seekers may also need a valid driver's licence.

Here are some key facts about Water and waste treatment plant operators in the Ontario region:

- Approximately 3,950 people work in this occupation.
- Water and waste treatment plant operators mainly work in the following sectors:
  - Local, municipal, regional, aboriginal and other public administration (NAICS 913-919): 38%
  - Utilities (NAICS 22): 29%
  - Management and administrative services (NAICS 55, 56): 11%
- The distribution of full-time and part-time workers in this occupation is:
  - Full-time workers: more than 95% compared to 79% for all occupations
  - Part-time workers: less than 5% compared to 21% for all occupations
- 80% of water and waste treatment plant operators work all year, while 20% work only part of the year, compared to 63% and 37% respectively among all occupations. Those who worked only part of the year did so for an average of 34 weeks compared to 31 weeks for all occupations.

National Outlook: 10 Year Projection

Water and Waste Treatment Plant Operators (9243)
Source: Canadian Occupational Projection System (COPS)

Occupations in this Group:

- Power engineers and power systems operators (9241)
- Water and waste treatment plant operators (9243)

Skill Type: Occupations in manufacturing and utilities
Skill Level: Occupations usually require college or vocational education or apprenticeship training.

Employment in 2016:	39,600
Median Age of workers in 2016:	44
Estimated Median Age of Retirement in 2016:	64

- For **Utilities equipment operators and controllers**, over the period 2017-2026, new job openings (arising from expansion demand and replacement demand) are expected to total **12,600**, while **11,200** new job seekers (arising from school leavers, immigration and mobility) are expected to be available to fill them.
- Over the 2014-2016 period, employment in this occupational group grew at a faster pace than the average for all occupations, allowing it to exceed its pre-recession level.
- The unemployment rate increased slightly at 5.1% in 2016, which was above its long-term range.
- The average hourly wage growth of this occupational group was similar to the average for all occupations.
- The analysis of key labour market indicators suggests that the number of job seekers was sufficient to fill the job openings in this occupational group over the 2014-2016 period.

As job openings and job seekers are projected to be at relatively similar levels over the 2017-2026 period, the balance between labour supply and demand seen in recent years is expected to continue over the projection period.

- Almost two-thirds of the job openings will result from retirements. The retirement rate in this occupational group is expected to be similar to the national average.
- Employment is expected to grow at a slightly lower rate than the rest of the economy over the 2017-2026 period, and it will only represent one-fifth of the job openings.
- The long-term production outlook remains relatively optimistic for the utilities industry, supported by strong demand from the industrial and commercial sectors.
- Higher oil sands production, an energy intensive process, and electricity exports to the United States will continue to be positive drivers.
- Furthermore, utilities investment in the country will be sustained by a number of energy mega-projects.
- Employment level is expected to grow in line with industry output.
- However, employment will be held back somewhat by the industry's need to preserve productivity gains to control its costs in a regulated environment.
- With regard to labour supply, school leavers will account for 80% of the job seekers.
- The other 20% will be split between immigration and mobility.

Due to low employment numbers, there is no information on regional and provincial outlook for NOC 9212: Supervisors, petroleum, gas and chemical processing utilities

National Outlook: 10 Year Projection NOC 9212

Source: Canadian Occupational Projection System (COPS)

Occupations in this Group:

- Supervisors, mineral and metal processing (9211)
- Supervisors, petroleum, gas and chemical processing and utilities (9212)

Skill Type: Occupations in manufacturing and utilities
Skill Level: Occupations usually require college or vocational education or apprenticeship training.

Employment in 2016:	31,500
Median Age of workers in 2016:	45.8
Estimated Median Age of Retirement in 2016:	61

- For **Supervisors, mineral and metal processing & Supervisors, petroleum, gas and chemical processing and utilities**, over the period 2017-2026, new job openings (arising from expansion demand and replacement demand) are expected to total **15,700**, while **14,900** new job seekers (arising from school leavers, immigration and mobility) are expected to be available to fill them.
- Over the 2014-2016 period, employment growth in this occupational group was above the average for all occupations.
- The unemployment rate decreased slightly to reach 3.7% in 2016, significantly below the national average of 7.0%.
- The average hourly wage posted a modest decline.
- Hence, analysis of key labour market indicators suggests that the number of job seekers was sufficient to fill the job openings in this occupational group over the 2014-2016 period.
- The outlook for the utilities industry remains relatively optimistic, but employment level will be held back by the industry's need to preserve productivity gains to control costs in a regulated environment.
- In addition to the jobs that will be created, the number of retirements will be significant.
    - This is because workers in this occupational group tend to retire earlier in their career and are older than the average for all occupations, resulting in many job openings.
    - The majority of job seekers will come from other occupations in the manufacturing sector, while school leavers will represent only about one-quarter of the labour supply.
    - This is typical of supervisory jobs, which require some degree of labour market experience.

11.4. Appendix IV: Employment Postings

Sample 1 (new graduate)

Water Operations Intern
Niagara Region
Niagara, ON8 days ago$23 an hour

Apply Now
Education

- Upper Secondary Education

Skills

- Analysis Skills
    - Excel
- Microsoft Powerpoint

Division

Water & Wastewater

Temporary Duration

Approximate Duration: 12 months (anticipated start date May 2020)

Job Description

JOB SUMMARY

Niagara Region has one full time Water Operations Intern position available for May 2020. This is an excellent opportunity for a recent graduate of Engineering, Engineering Technology, Environmental Science/Studies or a related program.

The Water and Wastewater services division is part of the Public Works Department and is responsible for Water and Wastewater facilities that service 11 Niagara municipalities. It is divided into four working sections; Water Operations and Maintenance, Wastewater Operations and Maintenance, Engineering, and Integrated Systems.

Location of work: Environmental Centre (near Brock University); The incumbents will be required to travel between this location and other treatment facilities throughout the Region. As a result, access to a reliable vehicle and a minimum of a G2 driver's license is required (G is preferred).

Typical hours of work: 8:30-4:30. Monday-Friday (35 hours/week).

This position will be responsible for:

- Monitoring for quality control and assurance at several water treatment plants as they undergo filter media Replacements.
- Working with the staff and contractors to ensure the replacement follows all internal and external specifications.
- Reviewing and analyzing operational data
- Assisting with bench scale and/or full scale process optimization projects
- Conducting laboratory tests, as required
- Working with Operations and Maintenance staff to organize full scale testing and process modifications
- Assisting with report preparation
- Assisting with document and records control
- Other duties, as assigned

EDUCATION

- Completion of an high school diploma, plus;
- Must have successfully completed a post-secondary degree/diploma in Engineering, Engineering Technology, Environmental Science/Studies or a related field within the last 12 months (or will prior to September 2020)
- Previous co-op experience is an asset
- Operator-in-Training (OIT) certification is an asset
- WHMIS training or related health & safety training is an asset

KNOWLEDGE

- Environmental training and/or experience in a water quality, water or wastewater treatment, resource management, or related environmental field is an asset
- Working knowledge of the Microsoft Office suite of products, including PowerPoint and Excel
- Knowledge and/or experience with the Safe Drinking Water Act, 2002, and associated regulations is an asset
- Environmental training and/or experience in a water quality, water or wastewater treatment, resource management, or related environmental field is an asset
- Knowledge and/or experience with a quality management system or an environmental management system is an asset

SKILLS

- Excellent analytical skills
- A self-motivated individual with proven initiative
- Excellent oral and written communication skills
- Ability to work independently and as part of a team
- Ability to effectively manage multiple deadlines
- Technical writing experience is an asset

SPECIAL REQUIREMENTS

- Must provide proof of meeting the educational requirements outlined above
- In accordance with the Corporate Criminal Record Check Policy, the position requires the incumbent to undergo a Criminal Records Check and submit a Canadian Police Clearance Certificate
- A valid, restriction free driver's license (minimum G2) is required and access to a vehicle is required. A valid G-class license is preferred.
- The successful candidate will be required to provide their own CSA-approved safety footwear
- Must be available to start work in May 2020.

Closing Statement

Uncover the wonder of the Niagara Region and join a team dedicated to meeting tomorrow's challenges today!

Let us know why you would be an excellent team member by submitting your online application. Please include an email address you regularly check as part of your application.

We thank all candidates for their interest however, only those candidates selected for an interview will be contacted.

Sample 2 – new graduate

Wastewater Treatment Plant Operator/ Operator in Training

Water Refined Inc.

Guelph, ON13 days ago

$22 an hour

Apply Now

Water Refined Inc. is seeking a Level 1 Wastewater Treatment Plant Operator or Operator in Training to assist in the operation and management of a commercial wastewater plant in Guelph, ON.

Required Education: Wastewater Treatment Plant Operator Level I OR Operator In Training

Candidate must be reliable and punctual, able to work independently, have access to a reliable vehicle and skilled at problem solving. He/she must have hands-on experience in waste water and be comfortable conducting water sampling, on-site lab testing and interpreting results. The candidate must be knowledgeable in the operation of DAF, polymer tanks, pumps, SBR, and possess overall wastewater treatment plant knowledge, and be comfortable working in a wastewater environment.

Hours: 15 hours per week, Saturday and Sunday 8:30-4:40

Wage: ($22/hr) Potential 3-year contract

To Apply: Please submit a cover letter with resume by 5pm on February 1st, 2019. We thank all who apply, however, only those selected for an interview will be contacted.

Job Type: Part-time

Experience:

- Wastewater Treatment: 1 year (Preferred)

Sample 3 (new graduate)

Environment Technician (Waste Water Operator)
Olymel SEC/LP
Cornwall, ON Estimated: $35,000 - $48,000 a year

POSITION TITLE: Environment Technician (Waste Water Operator)

SHIFT: Day/Afternoon/Night

STATUS: Full-time

LOCATION: Cornwall, Cornwall, Ontario, CA

JOB SUMMARY:
Under the direction of the Manager of Environment and Special Projects, The Environment Technician will operate, monitor, maintain and control the plants water treatment operation.

Determine effluent water qualities;
Perform operational process functions;
Perform limited repair and troubleshooting;
Adjust operations to provide required operational specs, complete logs, reports;
Apply knowledge of WHMIS when conducting laboratory testing;
Respect HACCP and Health and Safety regulations and policies.

REQUIREMENTS:
Environment Technician college diploma;
Wastewater Operator Licence;
Capable of working autonomously;
Must be able to work days, evenings, nights, weekends;
Experience an asset;
Proficiency in a computerized environment (Microsoft Office).

Please send your resume, quoting the position in the subject line, to: hrcornwall@olymel.com

Olymel is an Equal Opportunity Employer. Accommodation will be provided in all parts of the hiring process as required. Applicants need to make their needs known in advance.

Thank you for your consideration

If this position interests you, please forward your curriculum vitae

to the attention of Heather Jiujias by email at:#contact_email#

before 02/21/2020

REQUIREMENTS:
Environment Technician college diploma;

Wastewater Operator Licence;
Capable of working autonomously;
Must be able to work days, evenings, nights, weekends;
Experience an asset;
Proficiency in a computerized environment (Microsoft Office).

Please send your resume, quoting the position in the subject line, to: hrcornwall@olymel.com

Olymel is an Equal Opportunity Employer. Accommodation will be provided in all parts of the hiring process as required. Applicants need to make their needs known in advance.

Sample 4 (some experience)

Water and Wastewater Mechanic/Operator Class 1
Jacobs
Seaforth, ONEstimated: $53,000 - $72,000 a year
Apply Now

Reporting to the Water and Wastewater Operations Manager and/or Supervisor, the Water and Wastewater Operator is responsible for the overall day-to-day operation, maintenance and compliance for the Water and Wastewater Systems. The incumbent will work in a team environment alongside other operators and contractors to ensure proper operation of the Municipal Water and Wastewater Systems while following all applicable regulations, legislation, laws and the Drinking Quality Management Standard (DWQMS).

Must have a good working knowledge of water and wastewater treatment processes, water distribution systems, wastewater collection systems and computer software applications utilized to operate, maintain and report. The incumbent will be required to respond to after hour calls and alarms associated with the Municipality's Water and Wastewater Systems and is required to live within a 1 hour radius of the project to be able to respond as per the contract agreement.

Qualifications

Successful completion of a three (3) year Community College Diploma in Chemical or Environmental Technology or a University degree in Environmental Studies or Sciences, or an equivalent combination of education and experience related to water and wastewater treatment
Minimum three years of experience in municipal drinking water and municipal or industrial wastewater operations and regulatory compliance
Possess the following licenses: Level 1 Water Distribution and Supply Operator Certificate of Competency (or higher), Level 1 Wastewater Treatment Operator Certificate of Competency (or higher), and Level 1 Wastewater Collection Certificate of Competency (or higher) or ability to obtain
Strong knowledge of water and distribution system and wastewater treatment operations and collection systems to facilitate proper operations of the facilities
Demonstrated experience/knowledge in the repair, replacement, installations and maintenance of water and wastewater systems
Strong knowledge of the relevant regulatory and legislative acts, codes, policies, guidelines and procedures related to water operations and maintenance

Knowledge of laboratory analytical procedures and QA/QC programs
Ability to read and interpret maintenance manuals, blueprints and other technical specifications, use and storage of industrial chemicals
Familiarity with computers, including monitoring and operating systems (SCADA) and other operational and process data collection/reporting systems
Analytical, problem-solving, planning and scheduling skills required to effectively inspect, operate and monitor the facilities processes and equipment
Ability to perform routine preventive maintenance; take samples, interpret results and make process control adjustments to resolve operating issues
Good oral and written communication skills to liaise with a variety of people including coworkers, clients, suppliers, while keeping accurate logs and writing reports
Ability to work in a team environment and take initiative, manage multiple and changing demands and priorities while working independently and with other staff
Possess a valid Class G driver's license throughout the course of employment
Ability to work in a physically demanding environment

Sample 5 (more experience)

Senior Water Treatment Plant Operator
Vale
Ontario11 days ago
Estimated: $66,000 - $94,000
Skills

- Excel
- Computer Literacy
- Writing Skills
- Microsoft Word
- Microsoft Outlook

Who We Are

Vale is one of the world's largest mining companies, with a presence in more than 30 countries across five continents worldwide. Our mission is to transform natural resources into prosperity and sustainable development.

Vale is also the world's largest producer of nickel, with its Base Metals business headquartered in Toronto. Operating in Canada for more than 100 years, our Canadian operations also produce copper, cobalt, platinum group metals, gold and silver. We aim to produce profitably but only as a safe, high-quality and sustainable mining company where our most important value is "life matters most". We are an equal opportunity employer who recognizes and promotes diversity in our work force.

Vale's operations in Sudbury are home to one of the largest integrated mining complexes in the world, including six mines, a mill, a smelter and a refinery. It is also one of the safest, with the mines being awarded the national John T. Ryan award in several recent consecutive years. Sudbury is also the heart of Vale's environmental initiatives. In partnership with the community, Sudbury has made great strides in its environmental recovery program and through improved mining practices and support in the re-greening of

the region. For these and other efforts globally, in 2013 Vale was named one of the 50 most sustainable corporations in the world, according to the 9th edition of the Global 100 list of the world's most sustainable corporations.

Our Sudbury Operations is currently seeking a:
LEVEL III SENIOR WATER TREATMENT PLANT OPERATOR, Local 2020-05

The Opportunity:
The Level III Senior Water Treatment Plant Operator's role is critical to the operation of Vale's drinking water and wastewater treatment facilities and remote pumping and control systems. We require a Senior Water Treatment Plant Operator with experience operating and maintaining a drinking water plant and waste water treatment plants.

Accountabilities:
Follow Safety Plan developed for department.

Responsible for care and efficient operation of Vale WTP's through performance of a variety of skilled and technical work in operating, maintaining, repairing, recording treatment plant operations on assigned rotating shifts. Work can include covering a large working area, which contains several operating areas from storage tanks, booster stations and dam control structures during an assigned shift. Employees in this class normally work independently on the basis of general and specific instruction for the day.

Employee works independently and provides technical support after hours to the control room on issues that arise within the plants outside scheduled shift.

Keep legislated standards, design criteria and industry best practices related to waste water treatment and domestic water production.

Ensure all water management system operations are in compliance with applicable regulations and permits.

Liaise with VALE Environment Department to ensure appropriate reporting and monitoring conditions are met and that necessary permit revisions are anticipated and applied for in due course

Act as management's operator in control to maintain all plant effluent in accordance with the regulations and operating parameters.

Work collaterally with members of his/her work group and cross functionally with all other areas of the operations.

Inventory management of all chemicals used to maintain and operate treatment facilities.

Other duties and tasks as needed or assigned by management.

Hours of Work: 12 Hour Shift Schedule

Location: Copper Cliff and Vermilion Treatment Plants

Posting date: January 30, 2020

Closing date: February 16, 2020

QUALIFICATIONS AND SPECIFIC SKILLS:
Education: Graduate Environmental or Chemical Engineering Technologist or equivalent.

Experience: 3 to 5 years of relevant experience preferred.

Analytical: Ability to read and understand chemical formulas and dosage calculations and basic ability to follow electrical/mechanical prints and drawings.

Processes: Thorough knowledge of water treatment systems and typical industry equipment associated with water treatment and supply systems.

Specific Computer Skills: Proficiency with SCADA and HMI control equipment, Working knowledge of Microsoft Office products including Word, Excel and Outlook.

OTHER REQUIRED SKILLS:
Further information will be gained through the technical interview, possible testing and reference check regarding other required skills (including abilities and knowledge, reading and writing skills, equipment knowledge) needed for a role.

Job Knowledge: Ability to react quickly and competently to changing operating conditions and arrives at solutions to overcome barriers in designing and implementing new and improved systems.

Innovation/creativity on an ongoing basis to assist in modifying or restructuring operating procedures or to develop more effective methods or techniques.

Ability to perform the work assigned with minimal supervision, with only unusual problems being referred to the supervisor.

Comments:
These positions are covered under the Collective Agreement between Vale and the Local 2020-05 United Steelworkers.

Vale is an equal opportunity employer. In accordance with the Accessibility for Ontarians with Disabilities Act, accommodation is available throughout our recruitment process for applicants with disabilities.

11.5. Appendix V: Competitor Information Details

College Competitors (Technician/ Technology):

Community College/Institute Information

College	Program Title	Length, Type (Diploma, Cert., Post)	Delivery Method(s)	Other (Unique to the Program)
Algonquin	Water and Wastewater Technician	Diploma 42 weeks	Condensed into 3 intensive terms Field trips/onsite visits and laboratory experience	
Durham	Water Quality Technician	Diploma 4 semesters	Co-op option	***Suspended until Sep 2020***
Fleming	Advanced Water Systems Operations and Management	Certificate 3 semesters	Co-op experience: 16 weeks, paid	
Lambton	Environmental Technician – Water and Wastewater Systems Operations	Diploma 2 years, 6 semesters	Co-op – 3 work terms	Prepares students to write the Ontario Operator-in-Training examinations and the Drinking Water Operators Entry-Level Course through the Walkerton Clean Water Centre and the Ontario Ministry of the Environment and Climate Change. In combination with the co-op work terms, graduates will obtain the practical experience required to graduate with a Class 1 Operator license.
Northern	Environmental Technician – Water and Wastewater Systems Operations	Diploma 4 semesters or 6 semesters with co-op	Co-op	
Algonquin	Environmental Technician	Diploma 42 weeks	Co-op option for students with a minimum GPA of 2.7	
Confederation	Environmental Technician	Diploma 2 years	Co-op, 2 optional	Ontario's entry-level drinking water operator certificate possible upon graduation
Fanshawe	Environmental Technology	Advanced Diploma 90 weeks	Paid co-op (12-16 months)	
Loyalist	Environmental Technician	Diploma 2 year	1 week placement	
Loyalist	Environmental Technologist	Advanced Diploma 3 year	1 week placement	

College	Program Title	Length, Type (Diploma, Cert., Post)	Delivery Method(s)	Other (Unique to the Program)
Niagara	Environmental Technician – Field and Laboratory	Diploma 2 year	Co-op work term in partnership with the Niagara Peninsula Conservation Authority	Hands-on experiential training working on a 125 acre campus that features living and environmental labs comprised of 15 acres of student-restored wetlands and Canada's first nationally recognized postsecondary wildlife sanctuary Graduate with additional credentials: Drinking Water Operator (Ministry of the Environment), Canadian Environmental Practitioner in Training (CEPIT), Water Quality Analyst (WQA), and Ontario Association of Certified Engineering Technicians & Technologists (OACETT) certification.
Ridgetown, U of Guelph	Environmental Management	Associate Diploma		Students taking the Sewage and Waste Water course experience their lab components at the wastewater treatment facility in Ridgetown
Mohawk	Environmental Technician	Diploma 2 years	Co-op, optional	

11.6. Appendix VI: Letters of Support

DURHAM REGION

The Regional Municipality of Durham

Works Department

605 ROSSLAND RD. E.
PO BOX 623
WHITBY, ON L1N 6A3
CANADA
905-668-7711
1-800-372-1102
FAX: 905-668-2051
E-mail:
works@durham.ca

www.durham.ca

Susan Siopis, P. Eng.
Commissioner of Works

"Service Excellence for our Communities"

February 20, 2020

Tania Cleric
Acting Dean, School of Environmental and Natural Resources
Sir Sandford Fleming College
200 Albert St. S
Lindsay, ON K9V 5E6

Dear Tania:

The Program Advisory Committee for the Advanced Water Systems and Operations Management Program has recommended changes that includes two options for students: a semester long applied research project or a 16-week co-operative work experience term. I am writing you to support these changes as a new program.

I have been involved with the Advanced Water Systems and Operations Management (AWSOM) program as a member of the Program Advisory Committee for several years. In addition, I have had the opportunity to interact directly with AWSOM students as contract faculty instructing the Utility Management course which is part of the curriculum. I have been employed in the water and wastewater industry for over 20 years and am currently Superintendent of the Duffin Creek Water Pollution Control Plant with the Regional Municipality of Durham – one of the largest wastewater treatment facilities in Canada.

I can tell you with a great deal of confidence that the AWSOM program provides graduates with a high level of relevant industry knowledge that translates into quality candidates for employment. The program features a diverse combination of technical, practical and administrative curriculum that reflects the current needs of the water and wastewater industry.

Allowing the students the flexibility to choose between an applied research or cooperative work experience term to suit their development needs and career goals can only enhance the quality of

1

graduates entering the workforce. These options reflect the needs of the industry – graduates with experience gained through the co-op work option, ready for employment in a hands-on operational role, or graduates that have chosen an applied research project, who will then be ready for opportunities in technical roles. The Region has hired many AWSOM graduates in permanent full-time positions, temporary positions and paid co-op positions.

The Regional Municipality of Durham has always supported the AWSOM program and that will continue in the future. Regional staff have been provided for the Program Advisory Committee and guest lecture speakers. In addition, Regional wastewater and water facilities have be offered for tours and job shadowing. As a growing region with both large and small facilities, there will be opportunities for short- and long-term research projects and case studies.

I look forward to working with the college – both faculty and students in the future and am excited to see the opportunities that will arise from the new program.

Sincerely,

THE CORPORATION OF THE TOWN OF COBOURG

WATER POLLUTION CONTROL PLANT #1
420 KING STREET WEST
COBOURG, ONTARIO, K9A 2N7

Telephone: (905) 372-7332
Fax: (905) 372-4439
www.cobourg.ca

Brett Goodwin
Dean, School of Environmental and Natural Resource Sciences
Sir Sandford Fleming College
200 Albert St. S.
Lindsay, ON
K9V 5E6

Dear Mr. Goodwin:

I understand that you have put forth a proposal to modify the ***Advanced Water Systems and Operations Management (AWSOM)*** program at Sir Sandford Fleming College, to include an alternative to the mandatory co-op segment in the form of an ***Applied Research Option***. This option is to be made available to students of the AWSOM program who, through no fault of their own, are unable to obtain a co-op placement. I would like to compliment you on this decision and express my full support for this change. I feel this is a value added modification that can only serve to benefit your graduating students.

The Town of Cobourg has been an active participant in the AWSOM co-op program since its inception and we certainly recognize the benefit of experience that the co-op placement provides the students. We are however, also aware that, due to the success of the AWSOM program, there are now far more students seeking co-op placements than there are co-op positions available to them. It is therefore obvious that the logistics no longer support the traditional co-op format and I am pleased to see that Fleming College is being proactive in dealing with this situation in support of their students.

Best Regards,

Bill Peeples, BSc, CET
Manager, Environmental Services
Town of Cobourg
bpeeples@cobourg.ca

11.7. Appendix VII: Incremental Costing Summary Details

Program Costing				
Program Name	Advanced Water Systems and Operations Management -	**Date/Version**	2020-04-02	
Credential	Ontario Grad Certificate	**School Dean**	Tania Clerac	
Gross Domestic Tuition (per semester)	$ 2,914.08	**Net Domestic Tuition (less financial aid 8%)**	$ 2,680.95	
Gross International Tuition (per semester)	$ 9,300.00	**Net International Tuition**	$ 7,500.00	current Int'l tuition = 8,670
WFU (WtxFu)	1.08	**Base Operating Grant (BOG) Allocation per WFU (@ corridor mid point)**	$ 4,150.00	
WFU per semester	0.54	**Small Northern Rural (SNR) Grant Enhancement**	$ 272.00	

Domestic Enrolment Projections							Assumptions/Requirements
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**		
Sem1	**10**	**10**	**10**	**10**	**10**		Multiple intakes per year (Sept, May, no winter intake)
Sem 2	**5**	**10**	**10**	**10**	**10**		
Sem 3	**0**	**5**	**10**	**10**	**10**		
Sem 4		**5**	**0**	**0**	**0**		
Sem 5		**5**	**0**	**0**	**0**		
Sem 6		**0**	**0**	**0**	**0**		
Total enrolment	**15**	**35**	**30**	**30**	**30**		
Co-op if applicable	**0**	**0**	**0**	**0**	**0**		Input anticipate co-op enrolments in applicable fiscal

International Enrolment Projections							Assumptions/Requirements
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**		
Sem1	**50**	**50**	**50**	**50**	**50**		
Sem 2	**25**	**50**	**50**	**50**	**50**		
Sem 3	**25**	**50**	**50**	**50**	**50**		
Sem 4		**0**	**0**	**0**	**0**		
Sem 5		**0**	**0**	**0**	**0**		
Sem 6		**0**	**0**	**0**	**0**		
Total enrolment	**100**	**150**	**150**	**150**	**150**		
Co-op if applicable	**0**	**0**	**0**	**0**	**0**		Input anticipate co-op enrolments in applicable fiscal

Incremental Costing							
Revenues/Source of Funding							**Assumptions**
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**	
Domestic Tuition	40,214.30	93,833.38	80,428.61	80,428.61	80,428.61	**$ 375,333.50**	
International Tuition	750,000.00	1,125,000.00	1,125,000.00	1,125,000.00	1,125,000.00	**$ 5,250,000.00**	
MTCU International clawback	- 37,500.00	- 56,250.00	- 56,250.00	- 56,250.00	- 56,250.00	**-$ 262,500.00**	$375 per semester international enrolments
Other *(list)*							
Co-op funding	-	-	-	-	-	**$ -**	$557 per co-op semester
	$ 752,714.30	###########	###########	###########	###########	**$ 5,362,833.50**	

Program Delivery Costing							Assumptions
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**	
Salaries & Benefits						**$ -**	
FT Faculty	15,831.85	15,831.85	15,831.85	15,831.85	15,831.85	**$ 79,159.26**	
PT Faculty	76,251.36	110,176.76	113,407.75	113,407.75	92,406.31	**$ 505,649.94**	
Program Co-ordinator	4,113.20	4,113.20	4,113.20	4,113.20	4,113.20	**$ 20,566.00**	
FT Technician	-	-	-	-	-		
PT Technician	13,048.64	13,048.64	13,048.64	13,048.64	13,048.64	**$ 65,243.18**	
other direct staffing							
						$ -	
Course Supplies/Instructional Cost	700.00	700.00	700.00	700.00	700.00	**$ 3,500.00**	Costs estimates net of student supply fees charged
Computer Software & Maintenance	-	-	-	-	-	**$ -**	
Faculty Travel	4,900.00	4,900.00	4,900.00	4,900.00	4,900.00	**$ 24,500.00**	With programs offering field trips and overnight camps etc..
Equipment Rental and/or Maintenance	700.00	700.00	700.00	700.00	700.00	**$ 3,500.00**	For programs with significant equipment usage
Other-*Office Supplies, Hospitality,Duplicating, et*	280.00	280.00	280.00	280.00	280.00	**$ 1,400.00**	List all costs that you would consider for program operating budget not already caputured above
add rows above this line as needed							
Program Delivery Costing	**$ 115,825.05**	**$ 149,750.45**	**$ 152,981.44**	**$ 152,981.44**	**$ 131,980.00**	**$ 703,518.37**	

Incremental Academic Overhead - program supports not directly related to delivery							Assumptions
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**	
Faculty support costs						**$ -**	
Travel and Professional Development	2,450.00	2,450.00	2,450.00	2,450.00	2,450.00	**$ 12,250.00**	Consider added costs for new faculty - orientation, annual professional development budget
Circulum Quality supports - Review/Renewal						**$ -**	Consider ongoing costs to ensure program quality (i.e. faculty release time)
Other (list and add rows as needed)						**$ -**	Consider any other non-direct program supports
						$ -	
	$ 2,450.00	**$ 2,450.00**	**$ 2,450.00**	**$ 2,450.00**	**$ 2,450.00**	**$ 12,250.00**	

Program Development/Investment							
Description	**FY00**	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**
Development	-	-	-	-	-	-	**$ -**
Equipment	-	-	-	-	-	-	
Consulting costs	-	-	-	-	-	-	**$ -**
Capital expenditures	-	-	-	-	-	-	**$ -**
Other *(list)*							
add rows above this line as needed							
Total program development	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

12. Forms

12.1. Form I: Launch Plan

Timelines

Item	Planned Date
Registration	Fall 2020
Promotion	Spring/ Summer 2020
Webpage development	Spring/ Summer 2020
Expected Launch	January 2021
Expected first cohort of graduates	Class of 2021
Program Review	*2021/2022*

Registration and Admissions

Students applying to Advanced Water Systems Operations and Management- Applied Research must meet the following requirements:

- Ontario College Diploma, Ontario College Advanced Diploma, Degree or equivalent in related field

Applicants who do not meet the requirements listed above who possess a combination of education and relevant experience may be considered on an individual basis.

Applicants must provide proof of English proficiency, choosing one of the following options:

Option 1: Submission of English Language Test Scores.

Applicants may receive direct admission by submitting one of the following recognized English language test scores with their application.

- Test of English as a Foreign Language (TOEFL) test with a minimum score of 88 with no score less than 22 for the Internet-based test (iBT) or a minimum score of 577 for the Paper-based test (PBT)
- International English Language Testing System (IELTS) Academic test with an overall score of 6.5 with no band less than 6.0;
- Canadian Academic English Language (CAEL) test with an overall score of 70;
- Pearson Test of English Academic (PTE) with a minimum score of 60; or
- Michigan English Language Assessment Battery (MELAB) score of 85.

Option 2:

Successful completion of a minimum three (3) years of full-time secondary or post-secondary education with English as the primary language of instruction, in a country where English is the principal language.

Applicants who do not meet any of the above criteria may apply for conditional admission with one of the following:

- Successful completion of English as a Second Language (ESL) or English for Academic Preparation (EAP) at an Ontario Community College or University
- Successful completion of English as a Second Language (ESL) program at a partner institution
- Successful completion of one (1) semester of study in a full-time post secondary program at an accredited college or university located in Canada

Student Success Considerations

Students receive out of class support with faculty and technicians as needed by appointments. Due to the high number of international students in the current AWS program, faculty and staff are experienced with teaching this population. This program is a direct result of supporting these students with an alternative to co-op. As with all programs, counselling, tutoring, AODA requirements, and medical services are available.

Program Promotion Strategy

There is no other program like this in the Ontario College system. This program will provide an excellent pathway to Fleming students as well as external students who want to work in the water and wastewater industry. Graduates of environmental programs will be a target for promotion of this program. A true selling feature is that this program leads directly to jobs. This program will attract domestic and International students. Indigenous students may be attracted to this program if they wish to work within their community to better address clean water issues as this is a real problem in many First Nations.

This program will meet the needs of students, particularly International students. who may not be able to complete a co-op due to various challenges including visa restrictions and lack of transportation to remote co-op sites.

Domestic and international students are attracted to this program. Since 2014, AWS has increased its international student (53.6% of total historical enrolment). Current business investment and attraction efforts by the City of Peterborough and Trent University's Clean Tech Commons, and research conducted by the Centre for Advancement of Water and Wastewater Technologies (CAWT) provides additional exposure to the local water sector, which can be used as a leverage to attract both international and domestic students. To that end, domestic student demand has also grown steadily since the inaugural cohort. In 2019-20 alone, there are 70 domestic registrants.

Students will be able to earn some necessary licensing by the end of the program which will give them a competitive edge in the job market. By the end of this program students will have had the opportunity to obtain their Operator in Training, a mandatory starting license for work in the field (exam and pass of 70%). A true bonus of this program is that students can obtain their Entry Level Course, a certificate through the Walkerton Clean Water Centre (WCWC). The college applied and received approval that the AWS program is equivalent to WCWC course. Currently, workers in the industry who do not have a college program such as AWS must take the course on their own for a cost of approximately $2000. Some municipalities may be able to send an employee on this course, but smaller water plants may not be able to afford this significant cost. Students in the program need to pass all courses in the program and write the final exam and obtain 70% to complete the license. Lastly, students will have the knowledge to write the class 1 exams in Water Treatment and/ or Wastewater Treatment. Completion of these exams and levels gives graduates a competitive advantage for jobs.

Curriculum Grid Information

Below is the curriculum grid information required by Academic Operations. Full course descriptions may be found in Appendix I: Validation Documents.

Curriculum Grid Information Table												
Semester	Course Code	Course Name	Hours	Delivery Pattern	Pre-requisite	Co-requisite	Equivalencies	Graded Component	Session Dates	General Education or	Room Requirements	lectSection Capacity
1	ENVR 89	Human Populations, Water & the Environment	30	1-1hr lec, 1-1 hr sem					*Full**	*N/A*		
1	ENVR 91	Infrastructure Management: Water Distribution & Wastewater Collection	45	1-2hr lec, 1-1hr sem								

1	MATH 147	Introduction to Water/ Wastewater Mathematics	30	1-1hr lec, 1-1hr sem								
1	ENVR 94	Large Wastewater Treatment Systems	45	1-2hr lec, 1-1hr sem								
1	ENVR 90	Small Water & Wastewater Treatment Systems	45	1-2hr lec, 1-1hr sem								
1	ENVR 98	Water and Wastewater Industrial Relations & Career Development	45	1-1hr lec, 1-2hr sem								
1	ENVR 137	Wastewater Treatment Lab	45	1-3hr lab								
2	ENVR 139	Advanced Math & Critical Thinking for Water/ Wastewater	30	1-1hr lec, 1-1hr sem	MATH147							
2	ENVR 97	Advanced Operations & Process Control	45	1-2hr lec, 1-1hr sem								

2	ENVR 96	Industrial Water/ Wastewater Treatment	45	1-2hr lec, 1-1hr sem	ENVR94							
2	ENVR 92	Large Water Treatment Systems	45	1-2hr lec, 1-1hr sem	ENVR94							
2	ENVR 95	Project Management	45	1-2hr lec, 1-1hr sem			Equiv. course or PM Certificate					
2	ENVR 99	Utility Management	30	1-1hr lec, 1-1hr sem	ENVR98							
2	ENVR 140	Water Treatment Lab	45	1-3hr lab								
3	NEW 1	Applied Research Practices	30	1- 2 hr sem								
3	NEW 2	Applied Research Project	180		All sem 1 and 2 courses							

* All courses run the full semester.

12.2. Form II: Academic Plan Alignment Assessment

Academic Plan Alignment Evaluation			
Action Item	Alignment Evidence	Measure of Support (0-2)	Weighting Factor (1-3)
#3 Empower our Program Advisory Committees	*Does new program enhance our existing PACs?*		
#4 Partner with Industry to Help Ensure their Success	*Does new program include new partnership opportunities?* *Does new program enhance an existing partnership?* *Will program partner with our communities?* *Will program support community needs?*		
#5 Seek out Special Projects	*Does new program include a new area of applied research?* *Does new program support new community-based research projects?* *Is there an opportunity for new program to partner on projects that generate funding?*		
#6 Create a Culture of Innovation, Entrepreneurship & Intrapreneurship	*Does new program include VLOs and/or courses in Innovation, Entrepreneurship and/or Intrapreneurship?* *Does new program support students' starting their own businesses outside of curriculum?*		
#7 Create a Student-Employers Partnerships Network to boost Experiential Learning	*Does new program include experiential learning component?* *What types and durations of experiential learning occur?* *What is the proportion of EL in the program (# courses/hours of EL/total program courses/hours)*		
#8 Expand Student Involvement in Applied Research	*Does new program include applied research activity? For students, for faculty?* *Does new program include VLOs and/or courses in applied research?*		
#10 Establish a Student Success Strategy	*Does new program have mechanism built in to increase student success? Or, increase retention?*		

#11 Increase Employment Rates for Graduates	*Does LMI support entry-level labour demand in Ontario? In our area? Do KPIs of same program at other colleges support related employment?*		
#12 Ensuring Students Acquire the Soft Skills Employers Value	*Does program have VLOs (if graduate certificate) and/or courses focused on communication, numeracy, critical thinking/problem solving, information management, inter-personal, and/or personal, soft skills? If so, how many and to what depth?* *Are the labour market soft skill development needs addressed in program?*		
#13 Expand Employment Services	*Does program include employment skills (e.g., portfolios, resumes, employment searches, interview skills and workplace skills) in the curriculum?*		
#14 Incorporating Indigenous Perspectives	*Does program incorporate indigenous perspectives in the curriculum? Are there VLOs and/or courses that support indigenous perspectives? Does program plan to include Indigenous Designation?*		
#15 Labour-Market Responsive Programs	*Does LMI support labour market need in Ontario? In our area?*		
#16 Enhancing Pathways	*Does program include educational pathway opportunities:* • *Externally – coming into and out of college?* • *Internally – opportunities to pathway into or out of other Fleming programs?* *Does program include articulated pathways with other institutions? Does it intend to?* *Does program include international pathway opportunities?*		
#17 Preparing Students for Jobs through Advanced Skills Training	*Is program an advanced apprenticeship program pilot?*		
#18 Fostering Lifelong Learning	*Is program designed to meet needs of Fleming graduates or those wishing to upskill?*		
#19 Expanding Digital Learning	*Does the program include digital learning? Is the program delivered online or blended?*		
#20 Achieving the Optimum Enrolment Mix	*What is the target student market:* • *Domestic students?* • *Indigenous students?* • *International students?*		

	• *Students from across Canada/Ontario?* • *At-risk student groups?*		
#21 Attracting Domestic, International & Indigenous Learners	*What is the target student market:* • *Domestic students* • *Indigenous students?* • *International students?* • *Students from across Canada/Ontario?*		
#22 Diversifying Program Types	*Does program include opportunities for micro-credentials, badges, PT options, delivery types/times (e.g., fast track, hybrid, weekends/evenings)?*		
#23 Ensure We Are a Welcoming Place for All	*Does the program have design elements that specifically support inclusion and diversity?*		
#24 Strategic Enrolment Management	*Does program meet enrolment management targets? How reliable are the projected targets? How likely will program be oversubscribed?*		
#26 Advancing Learning Technologies	*Does the program include digital learning technologies? Is the program delivered online, or blended?*		
#27 Micro-credentials and laddering	*Does program include opportunities for laddering, micro-credentials, badges?*		
#30 Optimizing and Expanding Teaching Complement	*Does School plan to hire an additional FT faculty member in new program?*		
#31 Building on a Culture of Engagement with Students	*Identify any exceptional considerations for this program as it relates to the student experience.*		
		Total Score	

Program Costing

Program Name	Advanced Water Systems and Operations Management - Applied	**Date/Version**	4/2/2020	
Credential	Ontario Grad Certificate	**School Dean**	Tania Clerac	
Gross Domestic Tuition (per semester)	$ 2,914.08	**Net Domestic Tuition (less financial aid 8%)**	$ 2,680.95	
Gross International Tuition (per semester)	$ 9,300.00	**Net International Tuition**	$ 7,500.00	current Int'l tuition = 8,670
WFU (WtxFu)	1.08	**Base Operating Grant (BOG) Allocation per WFU (@ corridor mid point)**	$ 4,150.00	
WFU per semester	0.54	**Small Northern Rural (SNR) Grant Enhancement**	$ 272.00	

Domestic Enrolment Projections

Description	FY01	FY02	FY03	FY04	FY05		Assumptions/Requirements
Sem1	**10**	**10**	**10**	**10**	**10**		FY - aligns with budget year.
Sem 2	**5**	**10**	**10**	**10**	**10**		Multiple intakes per year (Sept, May, no winter intake)
Sem 3	**0**	**5**	**10**	**10**	**10**		
Sem 4		**5**	**0**	**0**	**0**		
Sem 5		**5**	**0**	**0**	**0**		
Sem 6		**0**	**0**	**0**	**0**		
Total enrolment	**15**	**35**	**30**	**30**	**30**		
Co-op if applicable	**0**	**0**	**0**	**0**	**0**		Input anticipate co-op enrolments in applicable fiscal

International Enrolment Projections

Description	FY01	FY02	FY03	FY04	FY05		Assumptions/Requirements
Sem1	**50**	**50**	**50**	**50**	**50**		
Sem 2	**25**	**50**	**50**	**50**	**50**		
Sem 3	**25**	**50**	**50**	**50**	**50**		
Sem 4		**0**	**0**	**0**	**0**		
Sem 5		**0**	**0**	**0**	**0**		
Sem 6		**0**	**0**	**0**	**0**		
Total enrolment	**100**	**150**	**150**	**150**	**150**		
Co-op if applicable	**0**	**0**	**0**	**0**	**0**		Input anticipate co-op enrolments in applicable fiscal

Incremental Costing

Revenues/Source of Funding

Description	FY01	FY02	FY03	FY04	FY05	Total	Assumptions
Domestic Tuition	40,214.30	93,833.38	80,428.61	80,428.61	80,428.61	**$ 375,333.50**	
International Tuition	750,000.00	1,125,000.00	1,125,000.00	1,125,000.00	1,125,000.00	**$ 5,250,000.00**	
MTCU International clawback	- 37,500.00	- 56,250.00	- 56,250.00	- 56,250.00	- 56,250.00	**-$ 262,500.00**	$375 per semester international enrolments
Other *(list)*							
Co-op funding	-	-	-	-	-	**$ -**	$557 per co-op semester
	$ 752,714.30	**$ 1,162,583.38**	**$ 1,149,178.61**	**$ 1,149,178.61**	**$ 1,149,178.61**	**$ 5,362,833.50**	

Program Costing

Program Name	Advanced Water Systems and Operations Management - Applied	**Date/Version**	4/2/2020
Credential	Ontario Grad Certificate	**School Dean**	Tania Clerac

Program Delivery Costing

Description	FY01	FY02	FY03	FY04	FY05	Total	Assumptions
Salaries & Benefits						$ -	
FT Faculty	15,831.85	15,831.85	15,831.85	15,831.85	15,831.85	$ **79,159.26**	
PT Faculty	76,251.36	110,176.76	113,407.75	113,407.75	92,406.31	$ **505,649.94**	
Program Co-ordinator	4,113.20	4,113.20	4,113.20	4,113.20	4,113.20	$ **20,566.00**	
FT Technician	-	-	-	-	-		
PT Technician	13,048.64	13,048.64	13,048.64	13,048.64	13,048.64	$ **65,243.18**	
other direct staffing							
						$ -	
Course Supplies/Instructional Cost	700.00	700.00	700.00	700.00	700.00	$ **3,500.00**	Costs estimates net of student supply fees charged
Computer Software & Maintenance	-	-	-	-	-	$ -	
Faculty Travel	4,900.00	4,900.00	4,900.00	4,900.00	4,900.00	$ **24,500.00**	With programs offering field trips and overnight camps etc..
Equipment Rental and/or Maintenance	700.00	700.00	700.00	700.00	700.00	$ **3,500.00**	For programs with significant equipment usage
Other-*Office Supplies, Hospitality,Duplicating,*	280.00	280.00	280.00	280.00	280.00	$ **1,400.00**	List all costs that you would consider for program operating budget not already caputured above
add rows above this line as needed							
Program Delivery Costing	$ **115,825.05**	$ **149,750.45**	$ **152,981.44**	$ **152,981.44**	$ **131,980.00**	$ **703,518.37**	

Incremental Academic Overhead - program supports not directly related to delivery

Description	FY01	FY02	FY03	FY04	FY05	Total	Assumptions
Faculty support costs						$ -	
Travel and Professional Development	2,450.00	2,450.00	2,450.00	2,450.00	2,450.00	$ **12,250.00**	Consider added costs for new faculty - orientation, annual professional development budget
Circulum Quality supports - Review/Renewal						$ -	Consider ongoing costs to ensure program quality (i.e. faculty release time)
Other (list and add rows as needed)						$ -	Consider any other non-direct program supports
						$ -	
	$ **2,450.00**	$ **2,450.00**	$ **2,450.00**	$ **2,450.00**	$ **2,450.00**	$ **12,250.00**	

Program Development/Investment

Description	FY00	FY01	FY02	FY03	FY04	FY05	Total
Development	-	-	-	-	-	-	$ -
Equipment	-	-	-	-	-	-	
Consulting costs	-	-	-	-	-	-	$ -
Capital expenditures	-	-	-	-	-	-	$ -
Other *(list)*							
add rows above this line as needed							
Total program development	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Program Costing			
Program Name	Advanced Water Systems and Operations Management - Applied	**Date/Version**	4/2/2020
Credential	Ontario Grad Certificate	**School Dean**	Tania Clerac

Incremental Costing Summary							
	FY00	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**
Incremental Revenues		$ 752,714.30	$ 1,162,583.38	$ 1,149,178.61	$ 1,149,178.61	$ 1,149,178.61	$ 5,362,833.50
Incremental Costs		$ 118,275.05	$ 152,200.45	$ 155,431.44	$ 155,431.44	$ 134,430.00	$ 715,768.37
Net Investment	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NET INCOME/CASH	$ -	$ 634,439.25	$ 1,010,382.93	$ 993,747.17	$ 993,747.17	$ 1,014,748.61	$ 4,647,065.14

Contribution to Overhead							
Non-Incremental Program Distributions							Assumptions
Description	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Total**	
MTCU Grant	33,615.00	78,435.00	67,230.00	67,230.00	67,230.00	**$ 313,740.00**	enrolment*per semester WFU * (BOG+SNR) - Assumes College maintains WFU within Corridor ~ @ mid-point.
Dean & Other academic staffing supports	18,065.14	27,902.00	27,580.29	27,580.29	27,580.29	**$ 128,708.00**	% academic overhead to be determined by prior year program costing
program revenue	786,329.30	1,241,018.38	1,216,408.61	1,216,408.61	1,216,408.61	5,362,833.50	
program expense	118,275.05	152,200.45	155,431.44	155,431.44	134,430.00	715,768.37	
Net Contribution to Overhead	**$ 668,054.25**	**$ 1,088,817.93**	**$ 1,060,977.17**	**$ 1,060,977.17**	**$ 1,081,978.61**	**$ 4,647,065.14**	
% CTO	**85%**	**88%**	**87%**	**87%**	**89%**		
College Overhead Target	**259,488.67**	**409,536.06**	**401,414.84**	**401,414.84**	**401,414.84**	**1,769,735.06**	

Curriculum Summary
Program Name Advanced Water Systems Operations & Management - Applied Research

# of semesters 3 exclude any term that is 100% Co-op

Sem	Course Code (if exists)	Course Name (if exists)	Delivery Hrs/Wk LEC	LAB	Sem	Alternate	Alternate 2	Tot Hrs		Total @ 14 weeks (excludes break week)
1	ENVR89	Human Populations, Water and the Environment	1		1			2		28
1	ENVR91	Infracture Management: Water Distribution and Wastewater Collection	2		1			3	Ken	42
1	MATH147	Introduction to Water/Wastewater Mathematics	1		1			2		28
1	ENVR94	Large Wastewater Treatement Systems	2		1			3		42
1	ENVR90	Small Water and Wastewater Treatement Systems	2		1			3		42
1	ENVR137	Wastewater Treatement Lab		3				3		42
1	ENVR98	Water and Wastewater Industrial Relations and Career Development	1		2			3	Ken	42
1								0		0
	For costing if courses are not finalized input total weekly hours anticipated any row above		9	3	7			19		266
2	ENVR139	Advanced Math and Critical Thinking for Water/Wastewater	1		1			2	Ken	28
2	ENVR97	Advanced Operations and Process Control	2		1			3		42
2	ENVR96	Industrial Water/Wastewater Treatment	2		1			3	Ken	42
2	ENVR92	Large Water Treatment Systems	2		1			3	Ken	42
2	ENVR95	Project Management	2		1			3		42
2	ENVR99	Utility Management	1		1			2		28
2	ENVR140	Water Treatment Lab		3				3		42
2								0		0
2								0		0
	For costing if courses are not finalized input total weekly hours anticipated any row above		10	3	6			19		266
3		Applied Project				180		180		2520
3		Skills for Research Course	1		1			30		420
3								0		0
3								0		0
3								0		0
3								0		0
3								0		0
3								0		0

	For costing if courses are not finalized input total weekly hours anticipated any row above		1	0	1			210	2940
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
4								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0			0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
5								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0			0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
6								0	0
	For costing if courses are not finalized input total weekly hours anticipated any row above		0	0	0			0	0
									3472

input fields

Academic Delivery Costs
Program Name: Advanced Water Systems Operations & Management - Applied Research

Planned Launch: 2021 enter fiscal year for planned launch

Retention 97% Enter retention rate as a % i.e. 90%

Enrolment Assumptions and Curriculum Delivery model

Enrolment Assumptions							Delivery Hrs/Wk - per Cirrculum summary					Sections size limit - # sections					Total TCH					
Budget Year		Term	Semester	Domestic Enrolment	International Enrolment	# Wks	Lec Hrs	Lab Hrs	Sem Hrs	Alt 1	Alt 2	# Lec	# Lab	Sem	Alt 1	Alt 2	Lec	Lab	Sem	Alt 1	Alt 2	Total
												48	30	30								
FY01	2021	fall	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY01	2022	winter	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY02	2022	fall	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY02	2023	winter	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY03	2023	fall	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY03	2024	winter	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY04	2024	fall	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY04	2025	winter	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY05	2025	fall	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
FY05	2026	winter	**1**	5	25	14	9	3	7			1	1	1			126.0	42.0	98.0			266.0
			1			14	9	3	7													
			1			14	9	3	7													
			1			14	9	3	7													
			1			14	9	3	7													
			1			14	9	3	7													
FY01	2022	winter	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY02	2022	spring	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY02	2023	winter	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY03	2023	spring	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY03	2024	winter	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY04	2024	spring	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY04	2025	winter	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY05	2025	spring	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY05	2026	winter	**2**	5	25	14	10	3	6			1	1	1					84.0			84.0
FY06		spring	**2**	5	25	14	10	3	6			1	1	1			140.0	42.0	84.0			266.0
FY04		winter	**2**			14	10	3	6													
FY05		summer	**2**			14	10	3	6													
FY05		fall	**2**			14	10	3	6													
FY05		winter	**2**			14	10	3	6													
FY02	2022	summer	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY03	2023	summer	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY03	2023	winter	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY04	2024	summer	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY04	2024	winter	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY05	2025	summer	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY05	2025	winter	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY06	2026	summer	**3**	5	25	14	1		1			1		1			14.0		14.0			28.0
FY04		fall	**3**			14	1		1													
FY04		winter	**3**			14	1		1													
FY05		summer	**3**			14	1		1													
FY05		fall	**3**			14	1		1													
FY05		winter	**3**			14	1		1													

Retention	97%	Enter retention rate as a % i.e. 90%																				
FY02	2023	summer	**4**	**5**		14																
FY02	2023	fall	**4**			14																
FY02	2024	winter	**4**			14																
FY03	2024	summer	**4**			14																
FY03	2025	fall	**4**			14																
FY03	2025	winter	**4**			14																
FY04	2026	summer	**4**			14																
FY04		fall	**4**			14																
FY04		winter	**4**			14																
FY05		summer	**4**			14																
FY05		fall	**4**			14																
FY05		winter	**4**			14																
FY02	2023	fall	**5**	**5**		14																
FY02	2024	winter	**5**			14																
FY03	2024	summer	**5**			14																
FY03	2024	fall	**5**			14																
FY03	2025	winter	**5**			14																
FY04	2025	summer	**5**			14																
FY04	2025	fall	**5**			14																
FY04	2026	winter	**5**			14																
FY05	2026	summer	**5**			14																
FY05	2026	fall	**5**			14																
FY05	2027	winter	**5**			14																
FY05	2026	fall	**5**			14																
FY05	2027	winter	**5**			14																
FY02	2024	winter	**6**			14																
FY03	2024	summer	**6**			14																
FY03	2024	fall	**6**			14																
FY03	2025	winter	**6**			14																
FY04	2025	summer	**6**			14																
FY04	2025	fall	**6**			14																
FY04	2026	winter	**6**			14																
FY05	2026	summer	**6**			14																
FY05	2026	fall	**6**			14																
FY05	2027	winter	**6**			14																

click + to expande to 6 semester (- to collapse rows)
click + to expand to 4 semesters (- to collapse rows)

Staffing Assumptions:

Faculty Teaching

		Hours Teaching					
	Teaching model	**FY01**	**FY02**	**FY03**	**FY04**	**FY05**	**Assumptions/Comments**
70% TCH to PT	**FT - 100% to program**						key TCH as covered by dedicated FT faculty
30% TCH to FT	**FT - not 100% in program**	137.2	137.2	137.2	137.2	137.2	key TCH for faculty that also teach other programs
	PT contracts	660.8	954.8	982.8	982.8	800.8	**calculated field - remaining hours to fill**

Ken MacDonnell - existing

Retention 97% Enter retention rate as a % i.e. 90%

Teaching model	# months FY01	Teaching $'s FY01	FY02	FY03	FY04	FY05	Assumptions/Comments			Salary & Benefits	
FT to start in Sept. 2022											
FT - 100% to program		-	-	-	-	-				########	Annual
FT - not 100% in program		15,831.85	15,831.85	15,831.85	15,831.85	15,831.85				115.3925	Average per TCH
PT contracts		76,251.36	110,176.76	113,407.75	113,407.75	92,406.31				115.3925	Average per TCH

Program Co-ordinator

Teaching model	# months FY01	FY01	FY02	FY03	FY04	FY05	Assumptions/Comments
Co-ordinator to start in 1201, will be PT/PL until FT hired likely.							
FT - 100% to program		-	-	-	-	-	input formula driver for co-ordinator pay including stipend and split time over programs see sample ---- >
FT - not 100% in program		4,113.20	4,113.20	4,113.20	4,113.20	4,113.20	
PT contracts				-	-	-	
		4,113.20	4,113.20	4,113.20	4,113.20	4,113.20	

sample for co-ordinator pay:

	Co-ordinator rate:	Hours/week	Stipend rate:	# weeks for stipend:	FY 01	FY 02	FY 03	FY 04	FY 05
					shared over x# programs (with option to adjust annually)				
Full year salary @7 hours/44 hours + stipend 52 weeks @ $113 FY01 - 7 months Starting fall term	= 44	= 7	= 113	=52	not shared				
In this example data would be keyed in this row			79.1	52.0	n/a	n/a	n/a	n/a	n/a
	115.4								

Program Technician

Teaching model	# months FY01	FY01	FY02	FY03	FY04	FY05	Assumptions/Comments
FT - 100% to program		-	-	-	-	-	input formula driver for technican pay including split time over programs -->
FT - not 100% in program							
PT contracts		13,048.64	13,048.64	13,048.64	13,048.64	13,048.64	

sample for Technician pay:

	Technician rate of pay	Hours/week	# weeks	FY 01	FY 02	FY 03	FY 04	FY 05
				shared over x# programs (with option to adjust annually)				
PT tech over 3 programs at $27 per hours includes benefits 12 hours per week, over 30 weeks, FY 03 changes to 2 programs	= 27	=12	=30	=3	=3	=2	=2	=2
				n/a	n/a	n/a	n/a	n/a
In this example data would be keyed in this row	28.2	15.0	44.0	13,048.64	13,048.64	13,048.64	13,048.64	13,048.64

input fields

Moveable Assets & Capital Requirements with Refresh schedule
Program Name: Advanced Water Systems Operations & Management - Applied Resear

Item	Quantity	Unit Cost	Total (includes tax net rebate @ 3.41%)	Year of purchase and renewal planned FY00	FY01	FY02	FY03	FY04	FY05	
Small items list including software licenses:										
										nothing
Computer Licensing										
item 2										
item 3										
…										
insert new rows above this line										
Captial Asset list										nothing
item 1										
item 2										
item 3										
…										
insert new rows above this line										

input fields

same program as current AWS but without the co-op - replaced with applied research project (post graduate certificate)
this program will not increase enrolment as the only change will be to offer applied research in place of co-op (it will share sem 1 & 2)
first intake - Sept 2020
will have an intake in fall and winter (same as existing AWS program)

current tuition from website:
Dom 2,914.08
Int'l 8,670.00

	Dom	In'l
Fall target	15	30
Winter targ	15	30
	30%	70%
	AWS-Coo	AWS - AR

Retention (based on Day 10 #'s):

	1199	1201	
Dom	10	10	100%
Int'l	28	27	96%

anticipated that domestic will stay in AWS co-op and Interntional will bo into this program

FT Fac Ken MacDonnell - existing
RPT SS Stephanie Young - existing

PD and travel:

OWWA conf	600
WEAO	800
Walkerton (Ken and Steph)	2000
	3400

Fleming College

Board of Governors | Briefing Note

Topic:	Investment Performance Report for 2019-2020
Report To:	Public Board Meeting *Endorsed by Finance and Audit Committee on June 15, 2020 for final submission to the Board of Governors*
Meeting Date:	June 24, 2020
Prepared By:	Cathy Bailey, Vice-President, Corporate Services

Recommendation

That the Board of Governors of Sir Sandford Fleming College approve the Investment Performance Report for 2019-2020.

Overview

The Banking, Investment and Borrowing Binding Policy (Ministry Policy) Directive requires the Board of Governors to review and approve, at least annually, an investment performance report. This report is to include a statement signed by the Senior Finance Officer stating that the College is in compliance with relevant legislative requirements and this policy.

The attached report summarizes the investment performance for the 2019-20 fiscal year.

Alignment with Strategic Direction

Maintaining College Financial Health with appropriate resource allocation to fund strategic priorities.

Risks and Considerations

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☒ Strategic ☐ N/A

Supporting Documentation

- 2019-2020 Investment Performance Report

To: Sir Sandford Fleming College of Applied Arts and Technology
Board of Governors

Re: 2019/20 Investment Performance Report

The Minister's Banking, Investments and Borrowing Binding Policy Directive (Minister's Policy) require the Board of Governors to annually, review and approve an investment performance report, signed by the senior finance official.

The Minister's Policy Directive requirements differ for College Funds and Externally Restricted and Endowment Funds. College Funds are subject to the attached restrictive Investment Guidelines, while all other funds are subject to the requirements for organizations handling funds or property in trust under the Trustee Act.

The College has three Investment Policy Statements (IPS).

The Comprehensive IPS provides guidelines to govern the investment of endowment funds. A change in the Minister's Policy in May 2018 allowed all funds within this IPS to be deemed Externally Restricted and Endowment Funds; prior to this more than 50% were considered College funds. The college IPS was modified to reflect this change effective April 2020 and these funds will be invested consistent with the Trustee Act.

The Operating IPS and the Ministry Endowed IPS are comprised entirely of College Funds and they provide a framework for the investment of operating cash not immediately required for operations and other Ministry endowment funds, respectively.

The Comprehensive IPS ($ 8.2 million) target asset allocation was 3% Cash and Equivalents, 67% Fixed Income and 30% Canadian Equity until the end of the fiscal year, with a market return of (3.25%). The equity portion of the portfolio returned (15.67%) and performed 4.47% better than the benchmark. The pandemic resulted in a steep decline in the market value of the portfolio at the end of the fiscal year, which caused the negative returns.

The Ministry Endowed IPS ($ 0.3 million) target asset allocation is 3% Cash and Equivalents and 97% Fixed Income. The annual market return for the year ended March 31, 2020 was 2.42%.

The cash not immediately required for operations, which falls under the Operating IPS, was invested in guaranteed investment certificates with RBC Dominion ($ 41.5 million) and the balance was held in the College bank account. These funds earned, on average, 2.42% and 2.23%, respectively.

Cathy Bailey
VP Corporate Services

June 7, 2020
Date

Investment Guidelines for College Funds

A college may only invest its College Funds, as defined in the MAESD Banking, Investments and Borrowing Binding Policy Directive, which are not immediately required to operate the college in the following securities, expressed or made payable in Canadian dollars, subject to the ratings identified in section VI:

I. Bonds, debentures and promissory notes or other evidence of indebtedness, issued or guaranteed by:

a. Canada or a province or territory of Canada, or

b. an agency of Canada or a province or territory of Canada.

II. Bonds, debentures, promissory notes or other evidence of indebtedness, issued or guaranteed by:

a. a municipality in Canada;

b. a university in Ontario that receives ongoing operating and capital funding from Ontario;

c. the board of governors of a college established under the *Ontario Colleges of Applied Arts and Technology Act, 2002*;

d. a board of a public hospital within the meaning of the *Public Hospitals Act*;

e. a school board in Canada;

f. Ontario Infrastructure Projects Corporation; or

g. the Municipal Finance Authority of British Columbia.

III. Bonds, debentures, promissory notes, deposit receipts, deposit notes, certificates of deposit or investment, acceptances, commercial paper or similar instruments, issued, guaranteed or endorsed by:

a. a bank listed in Schedule I or II or a branch in Canada of an authorized foreign bank under the Bank Act (Canada);

b. a loan corporation or trust corporation registered under the Loan and Trust Corporation Act; or

c. a credit union to which the Credit Unions and Caisses Populaires Act, 1994 applies.

IV. Bonds, debentures, promissory notes or other evidence of indebtedness, issued by a corporation that is incorporated under the laws of Canada or a province of Canada; or

V. Promissory notes or commercial paper, other than asset-backed securities, issued by a corporation that is incorporated under the laws of Canada or a province of Canada.

VI. A college is not to invest in a security under subsection IV or V above unless the security has a minimum rating, at the time the investment is made by the college by at least one rating agency of:

- “R-1 (high)” or “AAA” by Dominion Bond Rating Service Limited;
- “Prime-1” or “Aaa” by Moody’s Investors Services Inc.;
- “A-1+” or “AAA” by Standard and Poor’s; or
- “F1+” or “AAA” by Fitch Ratings.

VII. If an investment falls below the standard required in section VI, the college is to sell the investment within 90 days after the day the investment falls below the standard.

Board of Governors | Finance & Audit Committee Meetings at a Glance 2020 – 2021

Prepared For: Board of Governors Meeting, June 24, 2020
Expected Outcome: *That the Board of Governors of Sir Sandford Fleming College approve the Finance & Audit Committee Meeting Planner for 2020-2021*

- The following should be considered a "dynamic document"; adjustments may be required in accordance with provincial legislation, Ministry requirements, the College's strategic direction and the College's operational priorities
- Finance & Audit Committee meeting packages will be distributed 3 business days in advance of the meeting

October 2020	November 2020	January 2021 – if required (placeholder)
– Receive Financial Position at September 30, 2020 – Receive Report on Contracts Awarded – Approve F&A June 2020 meeting Minutes – Insurance Update – Guests from AON – Approve Whistleblower Policy Changes – Enterprise Risk Management Framework (College Risk Register) – Agent Commission Presentation – International students - placeholder	– Receive Financial Position at October 31, 2020 – Receive Investment Portfolio Review Report – Receive Reports on Contracts Awarded since last meeting – Approve Interim Budget Update and Year End Budget Projections – Receive Small Audits Performed in 2019-2020 – Receive Audit Plan presented by Auditors – Auditors to meet with Finance & Audit Committee in camera – Approve Appointment of External Auditors – Enterprise Risk Management Framework (College Risk Register) – Approve October 2020 minutes	– Receive Financial Position at December 31, 2020 – Receive Report on Contracts Awarded
March 2021	**May 2021**	**June 2021**
– Receive Financial Position at February 28, 2021 and forecast to year-end – Receive Report on Contracts Awarded – Receive FSA & SAC financial statements – Receive Status Update of 2021-2022 Preliminary Budget – Approve November 2020 Minutes	– Receive Report on Contracts Awarded – Approve Internally restricted net assets – Approve the 2020-21 Audited Financial Statements & report of VP Corporate Services – Receive 2020-21 Statement of Rev & Expenditure & report of VP Corporate Services – Receive Audit results presented by Auditor – Auditors meet with F&A Committee, in camera – Approve Preliminary Budget 2021 – 2022 – Enterprise Risk Management (College risk register)	– Receive Report on Contracts Awarded – Receive Investment Portfolio Review Report – Approve Investment Performance Report – Approve Finance & Audit Work Planner 2021-2022 – Approve Bus Contract Award

Fleming College

Board of Governors | Briefing Note

Topic:	Draft 2020-2021 Financial Plan (Preliminary Budget)
Report To:	Public Board Meeting *Endorsed by Finance and Audit Committee on June 15, 2020 for final submission to the Board of Governors*
Meeting Date:	June 24, 2020
Prepared By:	Cathy Bailey, Vice-President, Corporate Services

Recommendation

That the Board of Governors of Sir Sandford Fleming College approve the Fleming College 2020-2021 Preliminary Budget which provides for:

Revenue of $137,567,507
Expenditures of $146,731,610
Capital Expenditure of $7,425,223
Net Assets at March 31, 2021 of $33,044,000; AND

THAT given the recent submission deadline extension to September 30, 2020, the Preliminary Budget be utilized by staff as an internal working budget to be updated as more information is known and presented to the Finance & Audit Committee and Board of Governors in September 2020 prior to submission to the Ministry of Colleges and Universities (MCU).

Overview

Fleming College Administration has developed the Draft Financial Plan for 2020-2021 (Preliminary Budget) requiring $9.2 million be utilized from College unrestricted reserves and is recommending the Plan for approval. The budget projects revenues at $137.5 million with expenditures of $146.7 million.

On June 4, 2020, the Deputy Minister notified the College Presidents that the deadlines to submit budgets, business plans and annual reports will be moved to September 30, 2020. During these unprecedented times, we can utilize this budget internally and update it with more concrete information prior to submitting to MCU. This revised budget will be brought to this committee and the Board for approval prior to submission.

Relevant analysis and background details supporting the budget are as follows:

REVENUE:
Significant components that make up the College Revenue include grants, student fees and other income:

Grants are relatively stable year over year, with changes based on enrolment projections or negotiated amounts. Lower projected enrolment than plan for international students provides for an increase to grant revenue as the Ministry head tax on international students will be reduced. Changes to all operating grants have been itemized on page 6 of the attached Financial Plan.

Student enrolments, and thus student tuition, is speculative in today's environment, however College Administration have developed a likely enrolment scenario resulting in a significant decrease in the student tuition forecast from prior year. Tuition is anticipated to be reduced by 28% from the March 31, 2020 actual results. Processes to report and monitor enrolment projections are critical to the success in achieving the

College plan. The Office of the Registrar and Budget Office are working closely to monitor and update forecasts as enrolment indicators become available.

Details of other income include a variety of revenue sources tied to student activity. Most sources of income are projected to decrease as they are correlated to enrolment.

While College operating revenues impacted by student enrolment are projected to drop by $18 million (15%), the overall College revenues are only showing a decrease by 1%. This is a result of the College being awarded a Provincial contract to administer $16 million as the Muskoka & Kawartha region Service System Manager. The vast majority of this revenue is flow-through funding the various service provider agencies. The estimated funds that the College will retain is $1.6M to cover the costs of the contract.

Details of all activity classified as College non-operating are itemized on page 7 of the attached Financial Plan.

OPERATING EXPENDITURES:
This years' budget process required significant thought and consideration to determine core business needs for the College given the COVID-19 pandemic. Current plans have been limited and scaled back under scrutiny of the College Senior Management Team. Details of operating expenditures and cost saving activities are highlighted within the Financial Plan pages 8-9. The College will continue to monitor expenditures closely and capture all saving opportunities. We will detail resulting changes to forecast regularly to this Committee.

ONE-TIME INVESTMENTS, CAPITAL ASSETS AND NET ASSETS:
The College has proposed a $1M contingency/placeholder to offset unknown costs that may be required to bring students back into the classroom, labs and field placements while adhering to safety protocols. We already suspect that the costs to retrofit our campuses and procure PPE supplies for these developing protocols will most likely be two to three times this original estimate.

All other discretionary projects were minimized utilizing grants wherever possible.

Acquisition of Capital Assets is planned at $7.4 M, including $5.6 M funded by grants.
Further details are included in the 2020-2021 Capital Investment Plan >$50,000 Report attached.

The Ministry's Financial Health and Sustainability Metrics also attached show the College failing in a few metrics which was anticipated because of submitting a deficit budget. All Colleges are expected to have the same metrics results and the Ministry is aware.

Alignment with Strategic Direction

Maintaining College Financial Health with appropriate resource allocation to fund strategic priorities.

Risks and Considerations

☐ External Environment ☐ Internal Environment ☒ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☒ Operational ☐ Strategic ☐ N/A

Supporting Documentation

- Draft Fleming College 2020-2021 Financial Plan
- 2020-2021 Capital Investment Plan > $50,000 Report
- Financial Health and Sustainability Metrics

Fleming College

Fleming College
Financial Plan
2020-2021

DRAFT June 2020

Table of Contents

I. Summary

The College Financial Plan for 2020-2021 anticipates a deficit of $9.2 million which will reduce College reserves/unrestricted net assets. The College is permitted to utilize prior year surpluses to cover a deficit. Only if the deficit is expected to deplete all unrestricted reserves would approval from the Ministry and a deficit recovery plan be required.

Total revenues in this Financial Plan are forecasted at $137.6 million, a decrease of $1.7 million (1.0%) from the 2019-2020 year-end actual results. This is somewhat misleading as operating revenues are down $18 million because of reduced enrolment forecasts however revenues increased this year by $16 million for the Ontario System Service Manager contract. Most of this contract is transfer payment funding to employment service providers including Fleming Employment Services.

Expenditures are planned at $146.7 million, $9.6 million (7.0%) greater than the 2019-2020 year-end actual results. Without the almost $16 million of new System Service Manager contract expenditures, operating expenses would have declined by $7.3 million over the 2019-2020 actual results.

Capital Investment is budgeted at $7.4 million with $5.6 million projected to be funded by capital grants for a final Net Assets projection of $33.0 million of which $2.3 million is unrestricted.

Fleming College Financial Plan
Preliminary Budget 2020/2021

($ 000's)

	Preliminary Budget 2020/2021	Year End Actual 2019/2020	$ Increase (Decrease)	% Increase (Decrease)
Revenue				
Grants & Reimbursements	$ 46,772	$ 45,528	$ 1,244	2.7%
Student Tuition Fees	39,828	55,417	(15,589)	(28.1%)
Contract Training	664	1,207	(544)	(45.0%)
Other Income	13,287	16,642	(3,354)	(20.2%)
Amortization	4,318	4,499	(181)	(4.0%)
Skills, Bursaries, Ancillary & Projects	32,698	16,009	16,690	104.3%
Revenue	137,568	139,301	(1,734)	(1.2%)
Operating Expenses	104,211	113,134	(8,923)	(7.9%)
Amortization Expense	7,450	6,937	513	7.4%
Skills, Bursaries, Ancillary & Projects	35,071	17,046	18,024	105.7%
Expenses	$ 146,732	$ 137,117	9,614	7.0%
Excess of Revenue over Expenditures	$ (9,164)	$ 2,184	(11,348)	(519.6%)

	Projected Balance Mar 31/21	Year End Balance Mar 31/20	$ Increase (Decrease)	% Increase (Decrease)
NET ASSETS				
Invested in Capital Assets				
As of April 1, 1997	$ 2,417	$ 2,417	$ -	
Since April 1, 1997	20,647	21,264	$ (617)	
Total Invested in Capital Assets	23,064	23,681	(617)	(2.6%)
Unrestricted				
Operating (Board Reserves)	11,399	19,946	(8,547)	
Accrued vacation pay, Future Benefits and Derivative & Sick Leave & PSA *	(9,112)	(9,112)	-	
Total Unrestricted	2,287	10,834	(8,547)	(78.9%)
Internally Restricted	1,070	1,070	-	
Subtotal Net Assets	26,420	35,585	(9,164)	(25.8%)
Externally restricted	6,712	6,712	-	
Accumulated remeasurement gain	(89)	(89)		
TOTAL NET ASSETS	$ 33,044	$ 42,208	$ (9,164)	(21.7%)

II. Revenue

College revenues are forecasted at $137.6 million, a decrease of $1.7 million (1%) from the 2019-2020 year-end actual results. As noted earlier, this is the first year for the Provincial System Service Manager (SSM) revenue of $16 million which skews the comparative results. Without this SSM revenue, budgeted operating revenues would have dropped by $18.3 million year over year.

SIR SANDFORD FLEMING COLLEGE
Statement of Revenue and Expenditures
Preliminary Budget - 2020/2021

	Preliminary Budget 2020-2021	Prior Year Actual March 31, 2020	Change from Prior Year Actual $	Change from Prior Year Actual %
Revenue				
Grants and Reimbursements	**$ (46,772,290)**	**$ (45,527,902)**	**$ 1,244,388**	**(3%)**
Full-time Tuition	$ (36,976,002)	$ (51,811,375)	$ (14,835,372)	29%
Part-time Tuition	$ (2,851,611)	$ (3,605,465)	$ (753,854)	21%
Student Tuition Fees	**$ (39,827,613)**	**$ (55,416,840)**	**$ (15,589,227)**	**28%**
Contract Training	**$ (663,822)**	**$ (1,207,398)**	**$ (543,576)**	**45%**
Other Income	$ (9,413,975)	$ (11,671,217)	$ (2,257,242)	19%
Ancillary Fees	$ (3,873,225)	$ (4,970,378)	$ (1,097,152)	22%
Total Other Income	**$ (13,287,200)**	**$ (16,641,595)**	**$ (3,354,395)**	**20%**
Amortization of Deferred Capital Contributions	**$ (4,318,137)**	**$ (4,498,764)**	**$ (180,627)**	**4%**
Total Operating Revenues	**$ (104,869,062)**	**$ (123,292,499)**	**$ (18,423,437)**	**15%**
Service System Manager	$ (16,627,504)	$ (156,183)	$ (16,471,321)	n/a
Skills Programs	$ (3,217,284)	$ (3,354,028)	$ 136,744	(4%)
Tuition Holdback Bursaries	$ (1,903,909)	$ (2,359,768)	$ (455,859)	19%
Ministry Bursaries	$ (600,000)	$ (466,966)	$ 133,034	(28%)
Special Projects	$ (4,988,161)	$ (3,933,741)	$ 1,054,420	(27%)
Facilities/Equipment Renewal and Renovation	$ (1,224,975)	$ (98,303)	$ 1,126,672	(1146%)
Ancillary Operations	$ (4,136,611)	$ (5,639,651)	$ (1,503,040)	27%
Total Revenue	**$ (137,567,507)**	**$ (139,301,140)**	**$ (1,733,633)**	**1%**

Highlights of significant budget assumptions and budget changes in revenue are summarized as follows:

1. Grants and Reimbursements

Grants are budgeted to increase by $1.244 million from 2019-2020 as follows: ($ 000's):

	2020-2021	2019-2020	Change from prior year
Basic Operating Grant	$24,050	$32,067	
Performance Funding Grant	10,728	1,795	
College Funding Formula	**$34,778**	**$33,862**	**$ 916**
BScN Grant	4,236	4,014	222
Small Northern & Rural Grant	3,969	3,969	-
Second Career Grant	400	388	12
Apprentice Grants	1875	1486	389
Special Needs Grants	671	721	(50)
Municipal Tax Credit	237	362	(125)
Rental Grants	230	218	12
Medical & Clinical Grant	376	380	(4)
Misc. Recoveries	-	130	(130)
Grants and Reimbursements	**$46,772**	**$45,528**	**$1,244**

Many of the grant forecasts are influenced by enrolment projections and thus are subject to increases or decreases as enrolment changes. Significant changes to note include an overall grant increase under the College Funding Formula due to a reduction in amounts that are paid back to the province as a 'head tax' for international student enrolments. The College was also approved for an increase in the available apprentice seats.

2. Student Tuition Fees

Tuition fee revenue is expected to be $39.8 million, down $15.6 million (28%) from the 2019-2020 year-end actual results.

Full time tuition is based on a College enrolment plan that is detailed at the program level using approved tuition rates that vary by program. Overall, the enrolment plan is projecting a decline as a result of the COVID-19 pandemic impacts.

3. Contract Training

Contract training revenue is subject to annual fluctuation dependant on client groups and specific contracts acquired. Currently the college is projecting very limited training for international clients.

4. Other Income

Other income is projected to decrease by $3.4 M (20%) from the 2019-2020 year-end actual results. Other income derives from a variety of sources, including provincially funded projects/programs, administrative fees, bookstore and food services commissions, as well as recovery from students for student supply fees, academic fees for field placements, and international student health fees.

Most sources of these revenues are projected to decrease for 2020-2021 in relation to lower anticipated enrolments.

5. Non-Operating Revenues

Non-operating revenues vary significantly year over year as many are based on contractual agreements negotiated annually.

A new provincial contract for the College as the Muskoka & Kawartha region System Service Manager has added $16 M in new grant funding for the purpose of transforming employment services throughout the region. This will serve over 9,600 clients a year through a network of local service providers, with specialized support for persons with disabilities and individuals with complex needs. Most of these funds are transfer payments to the employment service providers including Fleming Employment Services.

Skills Programs include the College contracts for Literacy Basic Skill and Employment Services (CREW).

Tuition Holdback and Ministry Bursaries represent the standard annual bursaries that are disbursed. As tuition will be reduced this year the holdback for disbursement will also be reduced, however the College is planning added supports to students through Ministry grant and donated funds.

Special Projects include newly negotiated funding agreements, primarily for projects managed through the Office of Applied Research.

Facility Renewal and Renovation Projects revenue represents funding received from the federal and provincial governments for facility and other projects as well as funding received and allocated for items under $5,000 of value, such as academic equipment and personal computers. Items over $5,000 are deemed capital assets. While grants are relatively stable, the mix between capital asset and expense will change from year to year depending on the nature and value of these items. For this year, additional grant has also been allocated to the college which will be used to fund IT items in support of College online delivery requirements.

Ancillary Operations revenues are associated with the College residence and parking operations. Reductions are again expected to occur with significant reduction in student enrolment and on-campus activity during the year.

III. Expenditures

College expenditures are budgeted at $143.7 million, an increase of $9.6 million (7%) from the 2019-2020 year-end actual results. As noted earlier, $16.6 million of this years' expenditures are new and relate to the Provincial System Service Manager contract.

	Preliminary Budget 2020-2021	Prior Year Actual March 31, 2020	Change from Prior Year Actual $	Change from Prior Year Actual %
Expenditures				
Salaries and Benefits				
Salaries, Full Time	$ 49,305,908	$ 47,947,632	$ 1,358,276	3%
Salaries, Part Time	$ 13,257,112	$ 18,495,528	$ (5,238,416)	(28%)
Total Salaries	**$ 62,563,020**	**$ 66,443,160**	**$ (3,880,140)**	**(6%)**
Benefits	**$ 14,248,871**	**$ 13,851,769**	**$ 397,102**	**3%**
Total Salaries and Benefits	**$ 76,811,891**	**$ 80,294,929**	**$ (3,483,038)**	**(4%)**
Non-Salary Expenses				
Instructional Support Costs	$ 5,676,665	$ 6,022,149	$ (345,483)	(6%)
Staffing Development	$ 568,382	$ 372,396	$ 195,986	53%
Business Travel, Accommodation & Hospitality	$ 607,466	$ 1,460,125	$ (852,659)	(58%)
Advertising	$ 1,002,915	$ 1,392,913	$ (389,998)	(28%)
Telephone, Audit, Legal & Insurance	$ 1,261,273	$ 1,213,133	$ 48,140	4%
Equipment Maintenance	$ 586,180	$ 657,312	$ (71,132)	(11%)
Maintenance and Renovations	$ 444,000	$ 1,116,941	$ (672,941)	(60%)
Plant and Security Contracts	$ 2,188,337	$ 2,354,326	$ (165,989)	(7%)
Rentals and Taxes	$ 807,790	$ 993,400	$ (185,610)	(19%)
Utilities	$ 2,881,202	$ 2,888,110	$ (6,908)	(0%)
Contract Services Trent	$ 2,373,658	$ 2,640,092	$ (266,434)	(10%)
International Payments	$ 5,151,205	$ 6,557,800	$ (1,406,595)	(21%)
Finance and Banking	$ 621,000	$ 586,160	$ 34,840	6%
Other Service Fees	$ 3,066,397	$ 4,462,317	$ (1,395,920)	(31%)
Long Term Debt Interest	$ 162,500	$ 121,794	$ 40,706	33%
Amortization of Capital Assets	$ 7,450,052	$ 6,937,159	$ 512,893	7%
Total Non-Salary Expenses	**$ 34,849,022**	**$ 39,776,127**	**$ (4,927,104)**	**(12%)**
Total Operating Expenditures	**$ 111,660,913**	**$ 120,071,056**	**$ (8,410,143)**	**(7%)**
Investments	$ 1,076,932	$ 1,334,767	$ (257,835)	(19%)
Service System Management	$ 16,627,504	$ 156,183	$ 16,471,321	n/a
Skills Programs	$ 3,217,284	$ 3,354,028	$ (136,744)	(4%)
Tuition Holdback Bursaries	$ 1,903,909	$ 2,359,768	$ (455,858)	(19%)
Ministry Bursaries	$ 600,000	$ 466,966	$ 133,034	28%
Special Projects	$ 4,988,161	$ 3,924,829	$ 1,063,332	27%
Facilities/Equipment Renewal and Renovation	$ 1,224,975	$ 98,303	$ 1,126,672	1146%
Ancillary Operations	$ 5,431,931	$ 5,447,578	$ (15,647)	(0%)
Net Asset Adjustment		$ (96,182)	$ 96,182	(100%)
Total Expenditures	**$ 146,731,610**	**$ 137,120,190**	**$ 9,611,420**	**7%**
Net	**$ 9,164,103**	**$ (2,180,950)**	**$ 11,345,053**	

Highlights of significant budget assumptions and budget changes on expenditures are summarized as follows:

1. Full Time Salaries

The increase in full time (FT) salaries was budgeted based on Faculty and Support Staff Collective Agreements. FT salaries also include approved staff sabbaticals and a provision for sick leaves. Overall FT salary expenditures are projected to increase by $1.4 million (3%) over the 2019-2020 year-end actuals, including a full annual salary for new staff hired late in the 2019-2020 fiscal year. Except for operationally critical recruitment, hiring plans this fiscal year have been deferred.

2. Part Time Salaries

Part time (PT) salaries are expected to decrease by $5.2 million (28%) from the 2019-2020 year-end actuals as a result of cost saving initiatives.

3. Instructional Support Costs

Instructional support costs including a variety of costs for classroom supplies, field camps, computer software and software maintenance licenses are decreasing by $345,483 (6%) considering reduced activity and a reduction in planned student enrolments.

4. Staffing Development

While budget is shown to increase over prior year actuals by $195,986 (53%), it has decreased over prior years budget as professional development for staff will be deferred due to the pandemic causing some of this activity to take place early in the next fiscal year.

5. Business Travel, Accommodation & Hospitality

Overall the travel budgets are planned to decrease by $852,659 (58%) as a result of a reduction in face to face meetings due to the pandemic and out of country and international recruitment fairs reduced.

6. Advertising

Advertising in the form of promotional events requiring travel and social gathering have been restricted. Additionally, funding for enhancements planned for marketing redesign and web advertising has been scaled back as a cost saving initiative resulting in a decrease in spending of $389,998 (28%).

7. Maintenance and Renovations

Budget has set aside funding for scheduled maintenance and ability to address health and safety concerns; however, all discretionary project work has been put on hold for a budget savings over prior year of $672,941 (60%)

8. Rentals and Taxes

With reduced enrolment the College municipal per diem head tax is expected to decline. Using current enrolment projections there is a projected savings of $185,910 (19%)

9. International Payments

Funding required for international student health insurance and payment to recruiting agents are planned with a significant decrease based on projected decrease in international enrolments for a budget reduction of $1,406,595 (21%).

10. Other Services and Fees

Prior year expenditure in services and fees included a significant number of projects engaging consultants and other professionals. Discretionary spending in this area, except required prior year completion were deferred reducing expenditures from prior year by $1,395,920 (31%)

11. Non-Operating Expenditures

As previously described with Non-Operating Revenues, the college enters into many contractual agreements negotiated annually that can vary significantly year to year. Outside of these agreements the college also provides funding for investment into assets and/or projects that are not capital asset by nature.

The 2020-2021 planned investments of $ 1.077 million represents a placeholder of $1.0 million for college infrastructure and protective equipment that will be required to bring students back into the classroom, into labs and/or on field placements and staff back to campus while adhering to safety protocols. The balance of $77,000 in discretionary projects is required to replace obsolete equipment in the classroom.

IV. Capital

Capital spending in 2020-2021 is budgeted at $7.4 million of which $5.6 million is funded from various grant sources. The balance of $1.8 million is capital funded from the College for assets deemed critical for ongoing operations.

Capital budgeted for 2020-2021 is summarized below:

	College Funded	Grant Funded	Total Capital
Building Construction/Renovation	$330,000	$375,000	$705,000
Network/IT Systems	$279,797	n/a	$279,797
Academic Equipment	$651,959	$371,797	$1,023,756
Applied Research	$573,500	$4,843,170	$5,416,670
Total	$1,835,256	$5,589,967	$7,425,223

2020-2021 Capital Investment Plan > $50,000 Report

PROJECT NAME	BUSINESS NEED	College Base Capital	Enhanced College Capital Grants
Building Construction/Renovations			
C-Wing redesign	C-wing Architect engaged to develop plans to modernize the college C-Wing as one of the remaining spaces not upgraded.	250,000	
LAN room chiller install	Completion (install) of prior year project to replace cooling system for Sutherland data centre.	60,000	
Roof Replacements	Annual cycle roof replace repair.		375,000
	Subtotal Projects > $50, 000	310,000	375,000
	Subtotal Projects < $50, 000	20,000	
Total Building Construction/Renovations		**$ 330,000**	**$ 375,000**
Network/IT Systems			
Wireless infrastructure upgrades	Enhancements to wireless availability and reliability on campus. More laptop use will also put a higher demand on wireless access	124,092	
AV Digital Upgrade	Classrooms - upgrade lecture theatres and classrooms to digital standard. Needed to support ongoing digital course delivery when back on campus	104,000	
Frost GIS local file server	Need performance improvements to server at Frost related to the GIS program (HW, HDD, BU license (on ITS list))	51,705	
Total Network/IT Systems		**$ 279,797**	

Academic Equipment			
TT02-Multiprocess Welder	The multi process welding machines serves many college program including the Carpenter Apprentice (AGB), Carpentry and Renovation Technician (CPT), Carpentry and Renovation Techniques (CNS), Heating, Refrigeration and Air Conditioning (HVT), Mechanical Techniques (PLM), Trades Fundamentals (TTF), Welding and Fabrication Technician (WFT), Welding Techniques (WTQ), Heavy Equipment Operator (HEO) as well as Continuing Education and Dual Credit programs is nearing the end of its life.	139,397	
TT05-Microwave Kits	New equipment to provide students within the college computer networking programs exposure to radio theory at the cellular phone 4G and 5G technology. The proposed upgrades to our system will enable programs to remain relevant in current technologies.	97,742	
SENRS01-Conservation Equipment	New equipment required prior to launch of new Conservation Biology program as previously reviewed and approved through new program proposal	50,257	
TT01-AI&VR	New equipment required prior to launch of new AI/VR program as previously reviewed and approved through new program proposal		126,343
HW10-Silicone Anatomy Model	Procurement of this equipment will enhance the experiential learning of students through the use of simulation and provides a cadaver-like experience for the students without the facilities, expertise and costs required for cadaver dissection.		69,386
	Subtotal Projects > $50, 000	287,396	195,729
	Subtotal Projects < $50, 000	364,563	176,068
Total Academic Equipment		**$ 651,959**	**$ 371,797**

Applied Research			
CFI - Aquaculture	CFI funding will allow Fleming College to build and equip a dedicated research hatchery. The space and equipment will allow faculty and techs to work with industry partners to evaluate potential improvements in fish husbandry, productive, and technologies in the growing aquaculture industry both provincially and nationally.	$ 428,804	$ 1,863,215
CFI - IIoT	CFI funding will allow Fleming College to create and equip an Industrial Internet of Things (IIoT) deployment lab by retrofitting existing space to create a clean room and a lab dedicated to sensors and IIoT applied research. The renovated space will allow Fleming College to work with industry partners to develop innovative communication and sensor technologies with multiple industrial applications.	$ 144,696	$ 1,850,978
CFI - Water Reclamation	Continuation of prior year project through CFI funding and the Ontario Research Fund for equipment that will allow Fleming's Centre for Advancement of Water and Wastewater Technologies and its private sector partners to discover and develop techniques and methods for water reclamation and nutrient removal.		$ 817,218
NSERC - ARTI	The CAWT successfully obtained funding from NSERC for the acquisition of a centrifuge with a SCADA control system and an inline TSS probe that will provide us an opportunity to expand our capacity to assist our partners with their onsite wastewater treatment technologies research needs.		299,759
Total Applied Research		**$ 573,500**	**$ 4,843,170**
Total 2020-2021 Capital Investment Plan		**$ 1,835,256**	**$ 5,589,967**

Fleming College Financial Plan
Preliminary Budget 2020-2021
Financial Sustainability Metrics (Indicators)

		Projected Balance March 31/21	Projected Balance March 31/20	Change
Ratios	Benchmarks			
Annual Surplus/(Deficit) (in millions of $)	> $ 0	$ (9)	$ 2	$ (11)
Accumulated Surplus/(Deficit) (in millions of $)	> $ 0	$ 26	$ 35	-$ 9
		Pass	**Pass**	
Quick Ratio	> 1:1	1.6	1.9	(0.3)
		Pass	**Pass**	
Debt to Assets Ratio	< 35.0 %	25.6%	26.5%	(0.9%)
		Pass	**Pass**	
Debt Servicing Ratio	< 3.0%	1.3%	1.1%	0.2%
		Pass	**Pass**	
Net Assets to Expense Ratio	> 60.0%	77.1%	88.3%	(11.2%)
		Pass	**Pass**	
Net Income to Revenue Ratio	> 1.5%	(6.7%)	1.6%	(8.3%)
		Fail	**Pass**	

Fleming College

Board of Governors | Briefing Note

Topic:	Internally Restricted Net Assets
Report To:	Public Board Meeting *Endorsed by Finance and Audit Committee on June 15, 2020 for final submission to the Board of Governors*
Meeting Date:	June 24, 2020
Prepared By:	Cathy Bailey, Vice-President, Corporate Services

Recommendation

That the Board of Governors of Sir Sandford Fleming College approve a decrease in Internally Restricted Net Assets of $108,000 for the purposes of residence and other direct student services, offset by an increase for future Sports Field Complex capital repairs and improvements of $10,000, effective March 31, 2020.

Overview

The Statement of Financial Position as well as the Statement of Operations is comprised of the College's general operations as well as its ancillary operations. A portion of the ancillary operations is included in internally restricted net assets, which requires Board of Governors approval to increase or decrease. The Sports Field Complex agreement between the City of Peterborough and the College requires annual contributions to a reserve fund for future capital repairs and improvements and is also included in internally restricted net assets.

As at March 31, 2020, the internally restricted net assets included $ 1,118,000, representing cumulative residence surplus from prior years adjusted for College funds invested in residence capital assets, as well as $50,000 representing the Sports Field Complex reserve.

During the 2019-2020 fiscal year, the residence operations required the utilization of $108,000 of the internally restricted net asset. This amount represents $367,000 generated by operations, offset by $445,000 when adjusted to account for the cash impact of the principal repayments and capital purchases during the year. The Internally Restricted Net Assets for the residence will total $1,010,000 as of March 31, 2020, should the current year internal restriction reduction be approved.

The Sports Field Complex became operational during the 2014-2015 fiscal year and, as part of the agreement with the City of Peterborough, a minimum of $10,000 per year is to be restricted by both parties for future capital repairs and improvements. The balance of internally restricted net assets will be $60,000 at March 31, 2020 with the additional $10,000 to be restricted in 2019-2020. The City of Peterborough's cumulative contribution of $60,000 is in the liabilities at March 31, 2020 and will be transferred to revenue when future expenses are incurred.

Risks and Considerations

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☒ Operational ☐ Strategic ☐ N/A

The agreement sets out $10,000 as the minimum annual contribution and allows the joint committee to increase the annual contributions in the future if necessary. The reserve is monitored in relation to the condition of the Sports Field Complex on an ongoing basis.

Fleming College

Board of Governors | Briefing Note

Topic:	2019-2020 Audited Financial Statements
Report To:	Public Board Meeting *Endorsed by Finance and Audit Committee on June 15, 2020 for final submission to the Board of Governors*
Meeting Date:	June 24, 2020
Prepared By:	Cathy Bailey, Vice-President, Corporate Services

Recommendation

That the Board of Governors of Sir Sandford Fleming College approve the 2019-2020 Audited Financial Statements indicating Net Assets as at March 31, 2020 of $ 42,207,664.

NOTE: KPMG will remove "Draft" and issue final Audited Financial Statements once approval has been received. These statements will then be provided to the Ministry of Colleges and Universities (MCU); the statements also form part of the College's Annual Report and will be posted to the College website.

Overview

A report to recommend approval of the Audited Financial Statements for 2019-2020, as presented in the Finance and Audit Committee Meeting of June 15, 2020, wherein the Committee received and reviewed the Audited Financial Statements for 2019-2020 and recommend for Board approval.

The 2019-2020 fiscal year resulted in an increase in total net assets of $2,262,088 due to an excess of revenue over expenditures of $2,180,950 and additional endowment contributions of $ 84,138 offset by an increase of $3,000 in the market value of the derivative liability during the year.

For the fiscal year ended March 31, 2020, the financial health indicator results are all within the acceptable College benchmark targets. The specific ratio results are as follows:

Ratio	Benchmark	Actual March 31/20	Pass/Fail
Annual Surplus	> $0	$ 2,180,950	Pass
Accumulated Surplus	> $0	$ 35,584,535	Pass
Quick Ratio	>= 1.0	1.85%	Pass
Total Debt to Asset Ratio	<= 35%	26.47%	Pass
Debt Servicing Ratio	<= 3%	1.12%	Pass
Net Assets to Expense Ratio	>= 60%	88.27%	Pass
Surplus (Deficit) to Revenue Ratio	>= 1.5%	1.57%	Pass

Internal Statement of Revenue and Expenditures

The internal/unaudited Statement of Revenue and Expenditures for the year ended March 31, 2020 is also attached to demonstrate that the bottom line surplus agrees to the Audited Financial Statements and to provide the Board with budget variance information that they are familiar with seeing regularly in the month end financial reports.

Risks and Considerations

☐ External Environment ☐ Internal Environment ☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal ☐ Operational ☐ Strategic ☒ N/A

Supporting Documentation

- 2019-2020 Audited Financial Statements
- Internal Statement of Revenue and Expenditures

DRAFT #10
June 9, 2020

Financial Statements of

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

And Independent Auditors' Report thereon

Year ended March 31, 2020

INDEPENDENT AUDITORS' REPORT

To the Board of Governors of Sir Sandford Fleming College
of Applied Arts and Technology

Opinion

We have audited the financial statements of Sir Sandford Fleming College of Applied Arts and Technology (the Entity), which comprise:

- the statement of financial position as at March 31, 2020
- the statement of operations for the year then ended
- the statement of changes in net assets for the year then ended
- the statement of remeasurement gains and losses for the year then ended
- the statement of cash flows for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies

(Hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of Sir Sandford Fleming College of Applied Arts and Technology as at March 31, 2020, and its results of operations, its changes in net assets, its cash flows and its remeasurement gains and losses for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the ***"Auditors' Responsibilities for the Audit of the Financial Statements"*** section of our auditors' report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

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

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, 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.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit 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.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group Entity to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

DRAFT

Chartered Professional Accountants, Licensed Public Accountants

Vaughan, Canada

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Financial Position

March 31, 2020, with comparative information for 2019

	2020	2019
Assets		
Current assets:		
Cash	$ 21,294,367	$ 17,876,844
Short-term investments (note 10)	33,556,477	40,577,094
Ministry of Colleges and Universities receivables	4,776,648	5,489,537
Accounts receivable	5,004,210	5,759,591
Inventory and prepaid expenses	2,546,725	1,762,657
	67,178,427	71,465,723
Restricted investments for endowments, bursaries and other (note 10)	9,592,988	10,055,958
Long-term investments (note 10)	6,999,870	240,483
Capital assets (note 2)	121,000,179	122,779,523
	$ 204,771,464	$ 204,541,687

	2020	2019
Liabilities, Deferred Contributions and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities	$ 23,754,375	$ 25,499,637
Accrued payroll and employee benefits	11,100,335	12,829,415
Ministry of Colleges and Universities grants received in excess of entitlements	1,371,546	2,082,805
Deferred revenue	20,319,805	19,267,070
Current portion of long-term debt (note 4)	1,285,385	1,054,731
	57,831,446	60,733,658
Long-term debt (note 4)	12,609,308	8,990,388
Deferred derivative liability (note 10)	89,000	86,000
Post-employment benefits and compensated absences (note 5)	3,703,000	3,987,000
	16,401,308	13,063,388
Deferred contributions:		
Bursaries and other	2,880,859	3,427,967
Deferred capital contributions (note 3)	85,450,187	87,371,098
	88,331,046	90,799,065
Net assets:		
Unrestricted:		
Operating	19,945,526	14,803,942
Post-employment benefits and compensated absences	(3,703,000)	(3,987,000)
Vacation pay accrual	(5,409,000)	(5,221,000)
	10,833,526	5,595,942
Invested in capital assets (note 6)	23,681,009	26,639,643
Internally restricted (note 7)	1,070,000	1,168,000
Restricted for endowment (note 8)	6,712,129	6,627,991
	42,296,664	40,031,576
Accumulated remeasurement losses	(89,000)	(86,000)
	42,207,664	39,945,576
Commitments (note 13)		
Subsequent event (note 14)		
	$ 204,771,464	$ 204,541,687

See accompanying notes to financial statements.

On behalf of the Board of Governors:

_____ Chair of the Board of Governors

_____ President

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Operations

Year ended March 31, 2020, with comparative information for 2019

	2020	2019
Revenue:		
Student tuition	$ 57,766,447	$ 64,392,370
Ministry of Colleges and Universities grants and reimbursements	50,332,355	56,210,433
Other (note 9)	21,064,293	21,287,185
Ancillary operations	5,639,281	6,147,443
Amortization of deferred capital contributions (note 3)	4,498,764	4,397,263
	139,301,140	152,434,694
Expenditures:		
Salaries	72,088,276	72,968,448
Benefits	14,981,698	14,835,690
Contract services and other	14,047,493	14,140,726
Instructional support	7,388,292	8,841,070
Amortization of capital assets	7,573,732	7,069,656
Plant and security	5,355,104	5,484,217
Professional fees and insurance	3,264,076	3,346,755
Utilities	3,176,437	3,219,128
Bursaries	2,555,046	2,696,708
Travel and professional development	2,148,080	2,016,771
Advertising	1,449,665	1,438,183
Rental and taxes	1,446,362	1,329,295
Equipment maintenance	751,424	827,755
Other	486,201	384,077
Interest on long-term debt	408,304	357,836
	137,120,190	138,956,315
Excess of revenue over expenditures	$ 2,180,950	$ 13,478,379

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Changes in Net Assets

Year ended March 31, 2020, with comparative information for 2019

	Unrestricted	Invested in capital assets (note 6(a))	Internally restricted (note 7)	Restricted for endowment	2020 Total	2019 Total
Net assets, beginning of year	$ 5,595,942	$ 26,639,643	$ 1,168,000	$ 6,627,991	$ 40,031,576	$ 26,427,401
Excess (deficiency) of revenue over expenditures	5,220,313	(3,039,363)	–	–	2,180,950	13,478,379
Endowment contributions	–	–	–	84,138	84,138	125,796
Net change in investment in capital assets (note 6(b))	(80,729)	80,729	–	–	–	–
Interfund transfers (note 7)	98,000	–	(98,000)	–	–	–
Net assets, end of year	$ 10,833,526	$ 23,681,009	$ 1,070,000	$ 6,712,129	$ 42,296,664	$ 40,031,576

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Remeasurement Gains and Losses

Year ended March 31, 2020, with comparative information for 2019

	2020	2019
Accumulated remeasurement losses, beginning of year	$ (86,000)	$ (92,000)
Unrealized gain (loss) on swap derivatives	(3,000)	6,000
Accumulated remeasurement losses, end of year	$ (89,000)	$ (86,000)

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Cash Flows

Year ended March 31, 2020, with comparative information for 2019

	2020	2019
Cash provided by (used in):		
Operating activities:		
Excess of revenue over expenditures	$ 2,180,950	$ 13,478,379
Items not involving cash:		
Amortization of capital assets	7,573,732	7,069,656
Amortization of deferred capital contributions	(4,498,764)	(4,397,263)
Gain on disposal of capital assets	(35,605)	(36,896)
	5,220,313	16,113,876
Change in accruals for post-employment benefits and compensated absences	(284,000)	77,000
Change in non-cash operating working capital:		
Ministry of Colleges and Universities receivables	712,889	(56,763)
Accounts receivable	755,381	(566,637)
Inventory and prepaid expenses	(784,068)	(94,097)
Accounts payable and accrued liabilities	(1,745,262)	1,194,923
Accrued payroll and employee benefits	(1,729,080)	1,946,892
Ministry of Colleges and Universities grants received in excess of entitlements	(711,259)	228,854
Deferred revenue	1,052,735	2,187,731
	2,487,649	21,031,779
Capital activities:		
Deferred capital contributions	2,577,853	11,933,055
Purchase of capital assets	(5,802,502)	(16,977,291)
Proceeds on disposal of capital assets	43,719	99,809
	(3,180,930)	(4,944,427)
Financing activities:		
Deferred contributions, bursaries and other	(547,108)	508,054
Endowment contributions	84,138	125,796
Issuance of long-term debt	5,000,000	–
Principal payments on long-term debt	(1,150,426)	(1,020,263)
	3,386,604	(386,413)

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Statement of Cash Flows (continued)

Year ended March 31, 2020, with comparative information for 2019

	2020	2019
Investing activities:		
Net change in investments	261,230	(22,633,665)
Net change in restricted investments for endowments, bursaries and other	462,970	(633,850)
	724,200	(23,267,515)
Increase (decrease) in cash	3,417,523	(7,566,576)
Cash, beginning of year	17,876,844	25,443,420
Cash, end of year	$ 21,294,367	$ 17,876,844
Supplemental cash flow information:		
Interest paid	$ 408,304	$ 357,836
Interest received	995,520	1,187,757

See accompanying notes to financial statements.

SIR SANDFORD FLEMING COLLEGE OF APPLIED ARTS AND TECHNOLOGY

DRAFT Notes to Financial Statements

Year ended March 31, 2020

Sir Sandford Fleming College of Applied Arts and Technology (the "College") was established as a corporation without share capital, as set out in the Ontario Colleges of Applied Arts and Technology Act. The Corporations Act governs the corporate affairs of the College and became effective April 1, 2003. The College is principally involved in providing post-secondary educational services. Under the Income Tax Act (Canada), the College is considered a registered charity and, accordingly, is exempt from income taxes, provided certain requirements of the Income Tax Act (Canada) are met.

1. Significant accounting policies:

(a) Basis of accounting:

These financial statements are the representation of management and have been prepared in accordance with Canadian public sector accounting standards for government not-for-profit organizations ("Government NPOs"), including the 4200 Series of Standards, as issued by the Public Sector Accounting Board ("PSAB").

(b) Revenue recognition:

The College follows the deferral method of accounting for contributions and other revenues. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. 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. Endowment contributions are recognized as direct increases to net assets.

Restricted investment income is recognized as revenue in the year in which the related expenses are incurred. Unrestricted investment income is recognized as revenue when earned.

Other revenues are recognized when received or receivable and the amount can be reasonably estimated and collection is assured.

The College defers the portion of the revenue related to the delivery of programs and courses that takes place after March 31.

1. Significant accounting policies (continued):

(c) Capital assets:

Purchased capital assets are recorded at cost. Contributed capital assets are recorded at fair value at the date of contribution. Repairs and maintenance costs are charged to expenditures. Betterments which extend the estimated life of an asset are capitalized. Capital assets are amortized on a straight-line basis using the following annual rates:

Buildings	2-1/2%
Site improvements	10%
Furniture and equipment	20%
Computer equipment	33-1/3%
Residence furniture	6-2/3%
Fibre optic system	5%
Enterprise Resource Planning System	14%
Leasehold improvements	Over term of lease
Sport and Wellness Centre	Over term of the land lease
Sports fields	5%

Construction in progress is not amortized until the related asset is available for use.

(d) Vacation accrual:

The College recognizes vacation as an expense on the accrual basis.

1. Significant accounting policies (continued):

(e) Retirement and post-employment benefits and compensated absences:

The College provides defined retirement and post-employment benefits and compensated absences to certain employee groups. These benefits include pension, health and dental, vesting sick leave, non-vesting sick leave and compensated absences. The College has adopted the following policies with respect to accounting for these employee benefits:

(i) The costs of post-employment future benefits are actuarially determined using management's best estimate of health care costs, disability recovery rates and discount rates. Adjustments to these costs arising from changes in estimates and experience gains and losses are amortized to income over the estimated average remaining service life of the employee groups on a straight-line basis.

(ii) The costs of the multi-employer defined benefit pension are the employer's contributions due to the plan in the period.

(iii) The cost of vesting and non-vesting sick leave benefits are actuarially determined using management's best estimate of salary escalation, employees' use of entitlement and discount rates. Adjustments to these costs arising from changes in actuarial assumption and/or experience are recognized over the estimated average remaining service lives of the employees.

(iv) The discount rate used in the determination of the above-mentioned liabilities is based on the effective yield of Ontario bonds that approximates the weighted average duration of cash flows for the employee future benefits. This rate is also equal to the College's internal rate of borrowing.

(v) The cost of compensated absences is determined using management's best estimate of the length of the compensated absences.

1. Significant accounting policies (continued):

(f) Financial instruments:

The College classifies its financial instruments as either fair value or amortized cost. The College's accounting policy for each category is as follows:

(i) Fair value:

This category includes derivatives and equity instruments quoted in an active market. The College has elected to carry unrestricted and restricted investments that would otherwise be classified into the amortized cost category at fair value as the College reports performance of these on a fair value basis.

For unrestricted investments, unrealized changes in fair value are recognized in the statement of remeasurement gains and losses until they are realized, when they are transferred to the statement of operations.

Unrealized changes in fair value of a financial asset in a fair value category that is externally restricted are recorded in deferred contributions - bursaries and other.

Transaction costs related to financial instruments in the fair value category are expensed as incurred.

Where a decline in fair value is determined to be other than temporary, the amount of the loss is removed from accumulated remeasurement gains and losses and recognized in the statement of operations. On sale, the amount held in accumulated remeasurement gains and losses associated with that instrument is removed from net assets and recognized in the statement of operations for unrestricted investments.

1. Significant accounting policies (continued):

(ii) Amortized cost:

This category includes accounts receivable, Ministry of Colleges and Universities ("MCU"), receivables, accounts payable and accrued liabilities, accrued payroll and employee benefits, MCU grants received in excess of entitlements and long-term debt. They are initially recognized at cost and subsequently carried at amortized cost using the effective interest rate method, less any impairment losses on financial assets.

Transaction costs related to financial instruments in the amortized cost category are added to the carrying value of the instrument.

Write-downs on financial assets in the amortized cost category are recognized when the amount of a loss is known with sufficient precision, and there is no realistic prospect of recovery. Financial assets are then written down to net recoverable value with the write-down being recognized in the statement of operations.

(g) Derivative financial instrument:

A derivative financial instrument is utilized by the College in the economic management of its interest rate exposure. The College does not enter into derivative financial instruments for trading or speculative purposes. The College uses an interest rate swap agreement to economically manage the floating interest rate of a portion of the debt portfolio and the related overall cost of borrowing.

(h) Inventory:

Inventory is valued at the lower of cost, on a first-in, first-out basis, and replacement cost.

1. Significant accounting policies (continued):

(i) Contaminated sites:

Contaminated sites are defined as the result of contamination being introduced that exceeds an environmental standard.

A liability for remediation of contaminated sites is recognized, net of any expected recoveries, when all of the following criteria are met:

(i) an environmental standard exists;

(ii) contamination exceeds the environmental standard;

(iii) the organization is directly responsible or accepts responsibility for the liability;

(iv) future economic benefits will be given up; and

(v) a reasonable estimate of the liability can be made.

(j) Capital donations:

The College records in-kind capital donations if a charitable tax receipt for income taxes is issued. Other in-kind donations are not recorded in the financial statements.

(k) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenditures during the year. These estimates and assumptions are based on management's historical experience, best knowledge of current events and actions that the Board of Governors ("Board") may undertake in the future. Significant accounting estimates include allowance for doubtful accounts, actuarial estimates of post-employment benefits and compensated absences and estimated useful lives of capital assets. Actual results could differ from those estimates.

2. Capital assets:

	Cost	Accumulated amortization	2020 Net book value	2019 Net book value
Land	$ 2,083,687	$ –	$ 2,083,687	$ 2,083,687
Buildings	167,221,341	60,993,488	106,227,853	107,856,329
Site improvements	5,350,443	4,479,741	870,702	1,072,850
Furniture and equipment	32,582,156	26,438,935	6,143,221	5,699,257
Computer equipment	9,853,276	8,243,655	1,609,621	1,794,202
Residence furniture	1,086,301	1,086,301	–	–
Fibre optic system	1,560,459	1,204,832	355,627	433,650
Enterprise Resource Planning System	4,014,447	3,965,300	49,147	67,131
Leasehold improvements	686,939	598,124	88,815	15,905
Sport and Wellness Centre	2,470,079	731,150	1,738,929	1,788,379
Sports fields	2,711,111	878,534	1,832,577	1,968,133
	$ 229,620,239	$ 108,620,060	$ 121,000,179	$ 122,779,523

Included in buildings and site improvements is construction in progress in the amount of $1,515,443 (2019 - $722,747) and nil (2019 - $106,160), respectively.

During 2020, construction in progress of $522,314 (2019 - nil) was completed, transferred to capital assets and amortization commenced.

3. Deferred capital contributions:

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

	2020	2019
Balance, beginning of year	$ 87,371,098	$ 79,835,306
Less amounts amortized to revenue	4,498,764	4,397,263
	82,872,334	75,438,043
Contributions received for capital purposes	2,577,853	11,933,055
Balance, end of year	$ 85,450,187	$ 87,371,098

As at March 31, 2020, there was $2,025,710 (2019 - $1,276,337) of deferred capital contributions received that were not spent.

4. Long-term debt:

	2020	2019
Health Sciences Cluster Project loan, payable $116,420 semi-annually including interest at 2.64%, due August 2039	$ 3,531,100	$ –
Less principal repayments due within one year	140,542	–
	3,390,558	–
GeoCentre and Environmental Sciences project loan, payable $45,275 semi-annually including interest at 2.64%, due August 2039	1,373,205	–
Less principal repayments due within one year	54,655	–
	1,318,550	–
Brealey Student residence loan, payable $630,940 semi-annually, including interest at 3.218%, due July 2027, secured by specific property	8,349,388	9,319,119
Less principal repayments due within one year	1,001,188	969,731
	7,348,200	8,349,388
The Peterborough Sport and Wellness Centre loan payable, secured by specific property (a)	641,000	726,000
Less principal repayments due within one year	89,000	85,000
	552,000	641,000
	$ 12,609,308	$ 8,990,388

4. Long-term debt (continued):

(a) The College negotiated a term bank loan, by way of a bankers' acceptance loan, to finance the Peterborough Sport and Wellness Centre on June 13, 2006 with an initial notional amount of $1,500,000. The loan is repayable by blended quarterly payments maturing June 13, 2026.

The College has since entered into an interest rate swap agreement to modify the floating rate of interest (note 10(c)) on this loan to a fixed rate of 5.04% plus stamping fee of 0.45% for a total fixed rate of 5.49%.

The principal repayments due on long-term debt in the next five years and thereafter are as follows:

2021	$ 1,285,385
2022	1,328,049
2023	1,371,905
2024	1,416,990
2025	1,464,344
Thereafter	7,028,020
	$ 13,894,693

The College also has a revolving credit facility for an operating line of credit to a maximum of $5,000,000. The operating line of credit is unsecured and bears interest at the College's bank prime lending rate minus 0.50%. As at March 31, 2020, no amounts have been drawn on this facility (2019 - nil).

5. Post-employment benefits and compensated absences:

The following tables outline the components of the College's post-employment benefits and compensated absences liabilities and the related expenses:

				2020	2019
	Post-employment benefits	Non-vesting sick leave	Compensated absences	Total liability	Total liability
Accrued employee future benefits	$ 748,000	$2,976,000	$ 340,000	$ 4,064,000	$ 3,788,000
Value of plan assets	(167,000)	–	–	(167,000)	(138,000)
Unamortized actuarial gains (losses)	51,000	(245,000)	–	(194,000)	337,000
Total liability	$ 632,000	$2,731,000	$ 340,000	$ 3,703,000	$ 3,987,000

5. Post-employment benefits and compensated absences (continued):

	Post-employment benefits	Non-vesting sick leave	Vesting sick leave	Compensated absences	2020 Total expense	2019 Total expense
Current year benefit costs	$ (24,000)	$ 146,000	$ 3,000	$ 340,000	$ 465,000	$ 503,000
Interest on accrued benefit obligation	2,000	54,000	1,000	–	57,000	71,000
Amortized actuarial gains	(6,000)	(2,000)	(255,000)	–	(263,000)	(17,000)
Total expenses	$ (28,000)	$ 198,000	$ (251,000)	$ 340,000	$ 259,000	$ 557,000

5. Post-employment benefits and compensated absences (continued):

Above amounts exclude pension contributions to the Colleges of Applied Arts and Technology Pension Plan (the "Plan"), a multi-employer plan, described below:

(a) Retirement benefits:

All full-time employees of the College, and any part-time employees who opt to participate, are members of the Colleges of Applied Arts and Technology Pension Plan (the "Plan"), a multi-employer jointly-sponsored defined benefit plan for public colleges in Ontario and other employers across Canada. The College makes contributions to the Plan equal to those of employees. Contribution rates are set by the Plan's governors to ensure the long-term viability of the Plan. Since the Plan is a multi-employer plan, the College's contributions are accounted for as if the Plan were a defined contribution plan with the College's contributions being expensed in the period they come due.

Any pension surplus or deficit is a joint responsibility of the members and employers and may affect future contribution rates related to full-time members. The College does not recognize any share of the Plan's pension surplus or deficit as insufficient information is available to identify the College's share of the underlying pension assets and liabilities. The most recent actuarial valuation filed with pension regulators as at January 1, 2020 indicated an actuarial surplus on a going-concern basis of $2.9 billion. The College made contributions to the Plan of $6,808,078 (2019 - $6,655,658), which has been included in the statement of operations.

The College makes contributions to a Retirement Compensation Arrangement ("RCA") to triple the qualifying employee contributions. In 2020, the College's contributions to RCA amounted to $40,556 (2019 - $82,956), and has been included in the statement of operations.

5. Post-employment benefits and compensated absences (continued):

(b) Post-employment benefits:

The College extends post-employment life insurance, health and dental benefits to certain employee groups subsequent to their retirement. The College recognizes these benefits as they are earned during the employees' tenure of service. The related benefit liability was determined by an actuarial valuation study commissioned by the College Employer Council.

The major actuarial assumptions employed for the valuations are as follows:

(i) Discount rate:

The present value, as at March 31, 2020, of the future benefits was determined using a discount rate of 1.60%.

(ii) Drug costs:

Drug costs were assumed to increase at a rate of 8.0% in 2018 and decrease proportionately thereafter to an ultimate rate of 4.0% in 2040.

(iii) Hospital and other medical:

Hospital and other medical costs were assumed to increase at 4.0% per annum.

Medical premium increases were assumed to increase at 6.55% per annum and decrease proportionately thereafter to an ultimate rate of 4.0% in 2040.

(iv) Dental costs:

Dental costs were assumed to increase at 4.0% per annum.

5. Post-employment benefits and compensated absences (continued):

(c) Compensated absences:

(i) Vesting sick leave:

The College has provided for vesting sick leave benefits during the year. Eligible employees, after 10 years of service, are entitled to receive 50% of their accumulated sick leave credit on termination or retirement to a maximum of 6 months' salary. The program to accumulate sick leave credits ceased for employees hired after March 31, 1991. The related benefit liability was determined by an actuarial valuation study commissioned by the College Employer Council. The College has a liability of nil (2019 - $267,000). Future expenses related to this benefit are not expected.

(ii) Non-vesting sick leave:

The College allocates to certain employee groups a specified number of days each year for use as paid absences in the event of illness or injury. These days do not vest and are available immediately. Employees are permitted to accumulate their unused allocation each year, up to the allowable maximum provided in their employment agreements. Accumulated days may be used in future years to the extent that the employees' illness or injury exceeds the current year's allocation of days. Sick days are paid out at the salary in effect at the time of usage. The related benefit liability was determined by an actuarial valuation study commissioned by the College Employer Council.

The assumptions used in the valuation of vesting and non-vesting sick leave are the College's best estimates of expected rates of:

	2020	2019
Wage and salary escalation	1.00% - 2.00%	1.50% - 2.00%
Discount rate	1.60%	2.20%

The probability that the employee will use more sick days than the annual accrual and the excess number of sick days used are within ranges of 0.0% to 26.2% and nil to 51 days, respectively, for age groups ranging from 20 and under to 65 and over in bands of five years.

6. Net assets invested in capital assets:

(a) Invested in capital assets represent the following:

	2020	2019
Capital assets, at cost (note 2)	$ 229,620,239	$ 223,975,919
Accumulated amortization (note 2)	(108,620,060)	(101,196,396)
Long-term debt:		
Long-term portion (note 4)	(12,609,308)	(8,990,388)
Current portion (note 4)	(1,285,385)	(1,054,731)
Deferred contributions related to capital assets excluding unspent portion (note 3)	(83,424,477)	(86,094,761)
Balance, end of year	$ 23,681,009	$ 26,639,643

(b) The change in net assets invested in capital assets is calculated as follows:

	2020	2019
Excess (deficiency) of revenue over expenditures:		
Amortization of deferred capital contributions	$ 4,498,764	$ 4,397,263
Amortization of capital assets	(7,573,732)	(7,069,656)
Gain on disposal of capital assets	35,605	36,896
	$ (3,039,363)	$ (2,635,497)
Net change in investment in capital assets:		
Purchased capital assets	$ 5,802,502	$ 16,977,291
Amounts funded by deferred capital contributions	(1,828,480)	(11,499,352)
Issuance of long-term debt	(5,000,000)	–
Principal payments on long-term debt	1,150,426	1,020,263
Proceeds on disposal of capital assets	(43,719)	(99,809)
	$ 80,729	$ 6,398,393

7. Internally restricted net assets:

	2020	2019
Residence and other direct student services	$ 1,010,000	$ 1,118,000
Sports Field Capital Reserve Fund	60,000	50,000
	$ 1,070,000	$ 1,168,000

Internally restricted net assets represent funds restricted by Board motion for the purpose of residence and other direct student services, as well as capital repairs and improvements to the sports field complex. Board approval is required for expenditures.

Effective March 31, 2020, the Board approved a transfer of $108,000 to unrestricted from internally restricted net assets for the purpose of residence and other direct student services. A further transfer of $10,000 from unrestricted to internally restricted net assets was approved for the purpose of capital repairs and improvements to the sports field complex. The net transfer of $98,000 was made from internally restricted net assets to unrestricted net assets for the above two items. The balance now represents funds available for future reinvestment.

8. Restricted for endowments:

Externally restricted net assets include endowment funds which have been donated for specific purposes. The principal sum must be held for investment, while the income earned is expendable for the specific purposes outlined when the funds are donated. The College ensures, as part of its fiduciary responsibilities, that all funds received with a restricted purpose are expended for the purpose for which they are provided.

8. Restricted for endowments (continued):

Endowed funds include the following:

(a) Ontario Student Opportunity Trust Funds:

These funds were provided by the Government of Ontario from the Ontario Student Opportunity Trust Fund Phase 1 and Phase 2 ("OSOTF") matching program to award student aid as a result of raising an equal amount of endowed donations.

The College has recorded the following amounts under the OSOTF programs:

(i) OSOTF - Phase 1:

Schedule of changes in endowment fund balance:

	2020	2019
Fund balance, beginning of year	$ 1,418,455	$ 1,418,420
Preservation of capital	36	35
Fund balance, end of year	$ 1,418,491	$ 1,418,455

8. Restricted for endowments (continued):

Schedule of changes in expendable funds available for awards:

	2020		2019	
	Market	Cost	Market	Cost
Balance, beginning of year	$ 278,862	$ 209,339	$ 258,039	$ 200,462
Realized investment income, net of direct investment-related expenses and preservation of capital contributions	(60,655)	30,744	64,218	52,272
Bursaries awarded (2020 - 25; 2019 - 51)	(14,530)	(14,530)	(43,395)	(43,395)
Balance, end of year	$ 203,677	$ 225,553	$ 278,862	$ 209,339

(ii) OSOTF - Phase 2:

Schedule of changes in endowment fund balance:

	2020	2019
Fund balance, beginning of year	$ 473,814	$ 473,741
Preservation of capital	74	73
Fund balance, end of year	$ 473,888	$ 473,814

8. Restricted for endowments (continued):

Schedule of changes in expendable funds available for awards:

	2020		2019	
	Market	Cost	Market	Cost
Balance, beginning of year	$ 82,225	$ 59,552	$ 77,660	$ 59,046
Realized investment income, net of direct investment-related expenses and preservation of capital contributions	(17,995)	10,168	20,560	16,501
Bursaries awarded (2020 - 3; 2019 - 12)	(2,610)	(2,610)	(15,995)	(15,995)
Balance, end of year	$ 61,620	$ 67,110	$ 82,225	$ 59,552

(b) Ontario Trust for Student Support:

These monies were provided by the Government of Ontario from the Ontario Trust for Student Support matching program to award student aid.

Schedule of changes in endowment fund balances during the year:

	2020	2019
Fund balance, beginning of year	$ 3,813,079	$ 3,813,064
Preservation of capital	15	15
Fund balance, end of year	$ 3,813,094	$ 3,813,079

8. Restricted for endowments (continued):

Schedule of changes in expendable funds available for awards:

	2020		2019	
	Market	Cost	Market	Cost
Balance, beginning of year	$ 493,212	$ 319,240	$ 411,744	$ 266,286
Realized investment income, net of direct investment-related expenses and preservation of capital contributions	(140,990)	78,380	156,603	128,089
Bursaries awarded (2020 - 57; 2019 - 103)	(42,543)	(42,543)	(75,135)	(75,135)
Balance, end of year	$ 309,679	$ 355,077	$ 493,212	$ 319,240

9. Investment income:

Investment income is earned from the following sources:

	2020	2019
Income from unrestricted investments	$ 1,256,894	$ 870,141
Income (loss) from endowment and restricted investments	(261,374)	317,616
	$ 995,520	$ 1,187,757

9. Investment income (continued):

The College has certain agreements for bursaries that do not have stipulations on the investment income earned from these restricted funds. The income earned from these investments is unrestricted and reported as part of other revenue as noted above.

10. Financial instrument classification:

The following tables provide cost and fair value information of financial instruments by category. The maximum exposure to credit risk would be the carrying value, as shown below:

2020	Fair value	Amortized cost
Cash	$ 21,294,367	$ –
Short-term investments (a)	33,556,477	–
MCU receivables	–	4,776,648
Accounts receivable	–	5,004,210
Restricted investments endowments, bursaries and other (b)	9,592,988	–
Long-term investments (a)	6,999,870	–
Accounts payable and accrued liabilities	–	(23,754,375)
Accrued payroll and employee benefits	–	(11,100,335)
MCU grants received in excess of entitlements	–	(1,371,546)
Long-term debt	–	(13,894,693)
Deferred derivative liability (c)	(89,000)	–
	$ 71,354,702	$ (40,340,091)

10. Financial instrument classification (continued):

2019	Fair value	Amortized cost
Cash	$ 17,876,844	$ –
Short-term investments (a)	40,577,094	–
MCU receivables	–	5,489,537
Accounts receivable	–	5,759,591
Restricted investments for endowments, bursaries and other (b)	10,055,958	–
Long-term investments (a)	240,483	–
Accounts payable and accrued liabilities	–	(25,499,637)
Accrued payroll and employee benefits	–	(12,829,415)
MCU grants received in excess of entitlements	–	(2,082,805)
Long-term debt	–	(10,045,119)
Deferred derivative liability (c)	(86,000)	–
	$ 68,664,379	$ (39,207,848)

All investments follow the Government of Ontario Binding Policy Directive on Banking, Investments and Borrowing.

(a) Excess of operating funds are invested in liquid securities that are accessible when required. Short-term investments consist of guaranteed investment certificates with maturities of less than one year. Long-term investments consist of guaranteed investment certificates with maturities that are greater than one year.

Excess of operating funds held in short-term investments have yields varying from 2.20% to 2.55% (2019 - 1.60% to 2.72%) with maturity dates ranging from August 3, 2019 to December 17, 2020 (2019 - March 24, 2019 to May 24, 2019).

Excess of operating funds held in long-term investments have yields varying from 1.75% to 3.16% (2019 - 2.20% to 3.16%) with maturity dates ranging from January 14, 2022 to June 2, 2023 (2019 - May 1, 2020 to January 14, 2022).

10. Financial instrument classification (continued):

(b) Restricted investments for endowments, bursaries and other consist of cash, pooled fund investments in money market, guaranteed investment certificates, fixed term bonds and Canadian equities. The maturity profile of the bonds included in restricted investments is as follows:

2020	Within 1 year	2 - 5 years	6 - 10 years	Over 10 years	Total
Carrying value	$ 273,074	$ 891,631	$ 21,260	$ –	$ 1,185,965
Percentage of total	23	75	2	–	100

2019	Within 1 year	2 - 5 years	6 - 10 years	Over 10 years	Total
Carrying value	$ 303,091	$ 1,167,818	$ 21,258	$ –	$ 1,492,167
Percentage of total	20	78	2	–	100

(c) The College entered into an interest rate swap agreement in a prior year to economically manage the floating interest rate of the bankers' acceptance loan (note 4(a)).

Under the terms of the interest rate swap agreement, the College has contracted with the counter-party to pay a fixed rate of interest including stamping fee of 0.45% of 5.49% (2019 - 5.49%), while receiving interest at a variable rate to be set quarterly based on the bankers' acceptance rates of 5.49%. The maturity date of the interest rate swap agreement is June 13, 2026.

10. Financial instrument classification (continued):

The notional value of the interest rate swap agreement at March 31, 2020 is $641,000 (2019 - $726,000) and is amortized quarterly during the term of the interest rate swap agreement.

The fair value of the interest rate swap agreement at March 31, 2020 is $89,000 (2019 - $86,000) and is recorded as a deferred derivative liability on the statement of financial position.

The following provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, grouped into Level 1 to Level 3 based on the degree to which the fair value is observable:

- Level 1 - fair value measurements are those derived from quoted prices (unadjusted) in active markets for identical assets or liabilities using the last bid price;

- Level 2 - fair value measurements are those derived from inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices); and

- Level 3 - fair value measurements are those derived from valuation techniques that include inputs for the asset or liability that are not based on observable market data (unobservable inputs).

All cash, short-term investments, long-term investments and restricted investments for endowments, bursaries and other are classified as Level 1 financial instruments. The deferred derivative liability is classified as a Level 3 financial instrument.

There were no transfers between levels for the years ended March 31, 2020 and 2019. For a sensitivity analysis of financial instruments recognized in Level 3, see note 11 - interest rate risk, as the prevailing interest rate is the most significant input into the fair value of the instrument.

11. Financial instrument risk management:

(a) Credit risk:

Credit risk is the risk of financial loss to the College if a debtor fails to make payments of interest and principal when due. The College is exposed to this risk relating to its cash, debt holdings in its investment portfolio and accounts receivable. The College holds its cash accounts with federally regulated chartered banks which are insured by the Canadian Deposit Insurance Corporation. In the event of default, each of the College's cash accounts are insured up to $100,000 (2019 - $100,000).

The College's investment policy operates within the constraints of the investment guidelines issued by MCU. The College policy puts limits on the bond portfolio, including portfolio composition, issuer type, bond quality, aggregate issuer, corporate sector and general guidelines for geographic exposure. All fixed income portfolios are measured for performance on a semi-annual basis and monitored by management on a monthly basis. Externally restricted and endowment funds, which are generally money and donations for scholarships and bursaries are invested in corporate bonds with a credit rating of A(R-1) or better. All other College funds are restricted to Corporate bonds with a rating of AAA.

The maximum exposure to investment credit risk is outlined in note 10.

The College measures its exposure to credit risk based on how long the amounts have been outstanding. An impairment allowance is set up based on the College's historical experience regarding collections. The maximum exposure to credit risk from receivables of the College at March 31, 2020 is the carrying value of these assets.

11. Financial instrument risk management (continued):

Accounts receivable includes student receivables and other receivables as noted in the table below. Student receivables are ultimately due from students. Credit risk is mitigated by financial approval processes before a student is enrolled and due to the highly diversified nature of the student population.

	2020	2019
MCU receivables	$ 4,776,648	$ 5,489,537
Accounts receivable:		
Student receivables	537,735	540,043
Other receivables	4,767,475	5,517,548
	5,305,210	6,057,591
Less allowance for doubtful accounts	301,000	298,000
	5,004,210	5,759,591
	$ 9,780,858	$ 11,249,128

Student receivables not impaired are collectible based on the College's assessment and past experience regarding collection rates.

There have been no significant changes from the previous year in the exposure to credit risk or policies, procedures and methods used to measure the risk.

(b) Market risk:

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate as a result of market factors. Market factors include three types of risk: currency risk, interest rate risk and equity risk.

The College's investment policy operates within the constraints of the investment guidelines issued by MCU. The policy's application is monitored by management, the investment managers and the Board. Diversification techniques are utilized to minimize risk.

11. Financial instrument and risk management (continued):

The investment policy outlines an asset mix comprising:

Fixed income	55% - 75%
Equities	20% - 40%
Cash and short-term investments	0% - 10%

The policy sets limits and the maximum amount allowable per investment grade non-government fixed income issue at the greater of 15% of the total portfolio or 20% of the fixed income portfolio.

(i) Currency risk:

Currency risk relates to the College operating in different currencies and converting non-Canadian earnings at different points in time at different foreign exchange rates when adverse changes in foreign currency rates occur. The College does not have any material transactions or financial instruments denominated in foreign currencies.

There have been no significant changes from the previous year in the exposure to currency risk or policies, procedures and methods used to measure the risk.

(ii) Interest rate risk:

Interest rate risk is the potential for financial loss caused by fluctuations in fair value or future cash flows of financial instruments because of changes in market interest rates.

The College is exposed to this risk through its interest-bearing investments and long-term debt.

11. Financial instrument and risk management (continued):

The College mitigates interest rate risk on its long-term debt through a derivative financial instrument that exchanges the variable rate inherent in the long-term debt for a fixed rate (note 4). Therefore, fluctuations in market interest rates would not impact future cash flows and operations relating to the term debt.

The College's bond portfolio has interest rates ranging from 1.60% to 3.32% (2019 - 2.07% to 3.32%) with maturities ranging from April 8, 2020 to November 22, 2027 (2019 - June 2, 2019 to November 22, 2027).

At March 31, 2020, a 1% fluctuation in interest rates, with all other variables held constant, would have an estimated impact on the fair value of bonds and the interest rate swap of $330 and $22,000 (2019 - $4,000 and $27,600), respectively. The College's long-term debt, as described in note 4, would not be impacted as the inherent variable rate of the debt has been fixed with the use of the aforementioned derivative interest rate swap.

There have been no significant changes from the previous year in the exposure to interest rate risk or policies, procedures and methods used to measure the risk.

(iii) Equity risk:

Equity risk is the uncertainty associated with the valuation of assets arising from changes in equity markets. The College is exposed to this risk through its equity holdings within its investment portfolio. At March 31, 2020, a 10% movement in the stock markets with all other variables held constant would have an estimated effect on the fair values of the College's equities of $212,000 (2019 - $247,000).

There have been no significant changes from the previous year in the exposure to equity risk or policies, procedures and methods used to measure the risk.

11. Financial instrument and risk management (continued):

(c) Liquidity risk:

Liquidity risk is the risk that the College will not be able to meet all cash outflow obligations as they come due. The College mitigates this risk by monitoring cash activities and expected outflows through extensive budgeting and maintaining investments that may be converted to cash in the near term if unexpected cash outflows arise. The following table sets out the contractual maturities (representing undiscounted contractual cash flows of financial liabilities):

	Within 6 months	6 months to 1 year	1 - 5 years	Greater than 5 years
Accounts payable and accrued liabilities	$ 21,205,138	$ 2,549,237	$ –	$ –
Accrued payroll and employee benefits	10,773,808	203,264	123,263	–
Long-term debt	637,557	647,828	5,581,288	7,028,020

Derivative financial liabilities mature as described in note 4.

There have been no significant changes from the previous year in the exposure to liquidity risk or policies, procedures and methods used to measure the risk.

12. Fleming College Foundation:

Fleming College Foundation (the "Foundation") was established to raise funds for the use of the College. The Foundation was incorporated under the Corporations Act (Ontario) and is a registered charity under the Income Tax Act (Canada).

As defined by the Chartered Professional Accountants of Canada PSAB accounting recommendations for Government NPOs, the College controls the Foundation operations in that they have common board members controlling both entities. The majority of fundraising has been carried out by the College since April 1, 2011.

12. Fleming College Foundation (continued):

The Foundation's financial statements have not been consolidated in the College's financial statements. Separate financial statements of the Foundation are available upon request.

Financial summaries of the Foundation as at and for the year ended March 31 are as follows:

	2020	2019
Financial position		
Total assets	$ 5,951	$ 5,249
Total liabilities	5,951	5,249
Fund balances	$ –	$ –
Results of operations		
Total revenue	$ 19,432	$ 22,628
Total expenses	5,951	5,249
Transfers to Fleming College	13,481	17,379
Excess of expenditures over revenue	$ –	$ –

The net resources of the Foundation amount to nil (2019 - nil).

13. Commitments:

The College is committed to the following operating lease payments in each of the following years:

2021	$ 501,232
2022	250,104
2023	178,613
2024	54,625

14. Subsequent event:

On January 30, 2020, the World Health Organization ("WHO") announced a global health emergency because of a new strain of coronavirus, the "COVID-19 outbreak". In March 2020, the WHO classified the COVID-19 outbreak as a pandemic, based on the rapid increase in exposure globally. As a result of this, on March 23, 2020, the government of Ontario ordered the closure of all non-essential businesses effective March 24, 2020. In addition, the Canadian government has imposed travel restrictions to Canada until further notice.

On March 16, the College closed its campuses, learning sites and residences, and they remain closed to the date of the auditor's report. The College finished the winter term virtually and final exams were completed, with the exception of a small number of labs and applied learning sessions that will be made up in small groups during the fall semester.

The plan for academic programming throughout the summer and fall semesters offered by the College will be to deliver them through alternative methods including online and small groups, labs or field work when permitted by health authorities. This shift could have implications on the number of course offerings, enrollment and ancillary revenues.

14. Subsequent event (continued):

A significant portion of the College's tuition revenues is derived from international students. If the Canadian border remains closed, this will impact the College's ability to earn revenue from International students who choose to defer their studies until in class sessions resume and travel restrictions are lifted. The College is currently assessing the viability and acceptance of online courses for International students, although it is expected that enrolment will decline if in-class opportunities are not permitted by the start of the fall semester.

The College also received relief funding from the government immediately after year-end to cover costs associated with early and ongoing responses to the COVID-19 outbreak. These costs can include, but are not limited to: existing and emerging efforts in the areas of support for student and staff transitions or accommodations; infrastructure related to the provision of online-enabled learning and testing or telework; increased use of cleaning or medical supplies; increased reliance on physical or mental health services; and increased security costs.

As the impacts of COVID-19 continue, there could be further impact on the College, its students and funding sources. Management is actively monitoring the effect on its financial condition, liquidity, operations, suppliers, and workforce. Given the daily evolution of the COVID-19 outbreak and the global responses to curb its spread, the College is not able to fully estimate the effects of the COVID-19 outbreak on its results of operations, financial condition, or liquidity at this time.

15. Comparative information:

Certain comparative information has been reclassified to conform with the financial statement presentation adopted in the current year.

SIR SANDFORD FLEMING COLLEGE

Statement of Revenue and Expenditures

For the Period Ending March 31, 2020

	Actual To 31-Mar-2020	Budget Current Year	$ Variance	% Variance	Notes	Actual Prior Year
Revenue						
Grants and Reimbursements	$ (45,527,902)	$ (45,893,250)	$ 365,348	(0.8%)		$ (51,159,333)
Full-time Tuition	$ (51,811,375)	$ (52,028,417)	$ 217,042	(0.4%)		$ (58,523,390)
Part-time Tuition	(3,605,465)	(3,493,875)	(111,590)	3.2%		(3,533,489)
Student Tuition Fees	$ (55,416,840)	$ (55,522,292)	$ 105,452	(0.2%)		$ (62,056,879)
Contract Training	$ (1,207,398)	$ (1,368,843)	$ 161,445	(11.8%)	1	$ (914,414)
Other Income	(11,671,217)	(10,866,102)	(805,115)	7.4%		(10,720,918)
Ancillary Fees	(4,970,378)	(5,333,030)	362,652	(6.8%)		(5,912,377)
Total Other Income	$ (16,641,595)	$ (16,199,132)	$ (442,463)	2.7%		$ (16,633,295)
Amortization of Deferred Capital Contributions	$ (4,498,764)	$ (4,637,657)	$ 138,893	(3.0%)		$ (4,397,263)
Total Operating Revenues	$ (123,292,499)	$ (123,621,174)	$ 328,675	(0.3%)		$ (135,161,185)
Skills Programs	$ (3,510,211)	$ (3,301,606)	$ (208,605)	6.3%		$ (3,524,340)
Tuition Holdback Bursaries	(2,359,768)	(3,380,000)	1,020,232	(30.2%)	2	(2,361,139)
Ministry Bursaries	(466,966)	(680,800)	213,834	(31.4%)		(655,830)
Special Projects	(3,933,741)	(4,927,926)	994,185	(20.2%)	3	(4,043,770)
Facilities/Equipment Renewal and Renovation	(98,303)	(614,225)	515,922	(84.0%)	4	(536,561)
Ancillary Operations	(5,639,651)	(6,453,901)	814,250	(12.6%)	5	(6,151,870)
Total Revenue	$ (139,301,140)	$ (142,979,632)	$ 3,678,492	(2.6%)		$ (152,434,694)

SIR SANDFORD FLEMING COLLEGE

Statement of Revenue and Expenditures

For the Period Ending March 31, 2020

	Actual To 31-Mar-2020	Budget Current Year	$ Variance	% Variance	Notes	Actual Prior Year
Expenditures						
Salaries and Benefits						
Salaries, Full Time	$ 47,947,632	$ 48,629,148	$ 681,516	1.4%		$ 48,193,917
Salaries, Part Time	18,495,528	18,169,661	(325,867)	(1.8%)		18,943,811
Total Salaries	$ 66,443,160	$ 66,798,809	$ 355,649	0.5%		$ 67,137,728
Benefits	13,851,769	14,302,656	450,887	3.2%		13,637,455
Total Salaries and Benefits	$ 80,294,929	$ 81,101,465	$ 806,536	1.0%		$ 80,775,183
Non-Salary Expenses						
Instructional Support Costs	$ 6,022,149	$ 6,630,510	$ 608,361	9.2%		$ 6,004,150
Staffing Development	372,396	716,067	343,671	48.0%	6	435,800
Business Travel, Accommodation & Hospitality	1,460,125	1,558,785	98,660	6.3%		1,282,241
Advertising	1,392,913	1,411,368	18,455	1.3%		1,339,542
Telephone, Audit, Legal & Insurance	1,213,133	1,202,209	(10,924)	(0.9%)		1,246,758
Equipment Maintenance	657,312	722,210	64,898	9.0%		661,906
Maintenance and Renovations	1,116,941	667,200	(449,741)	(67.4%)	7	833,604
Plant and Security Contracts	2,354,326	2,184,390	(169,936)	(7.8%)		2,194,150
Rentals and Taxes	993,400	1,062,664	69,264	6.5%		866,527
Utilities	2,888,110	2,737,261	(150,849)	(5.5%)		2,890,337
Contract Services Trent	2,640,092	2,355,850	(284,242)	(12.1%)	8	2,452,156
International Payments	6,557,800	6,857,522	299,722	4.4%		6,447,492
Finance and Banking	586,160	740,900	154,740	20.9%	9	740,158
Other Service Fees	4,462,317	3,763,563	(698,754)	(18.6%)	10	3,472,382
Long Term Debt Interest	121,794	121,794	0	0.0%		42,449
Amortization of Capital Assets	6,937,159	7,155,855	218,696	3.1%		6,362,653
Total Non-Salary Expenses	$ 39,776,127	$ 39,888,148	$ 112,021	0.3%		$ 37,272,306
Total Operating Expenditures	$ 120,071,056	$ 120,989,613	$ 918,557	0.8%		$ 118,047,489
Investments	$ 1,334,767	$ 1,063,379	$ (271,388)	(25.5%)	11	$ 4,128,901
Skills Programs	3,513,105	3,301,606	(211,499)	(6.4%)		3,526,510
Tuition Holdback Bursaries	2,359,768	3,380,000	1,020,232	30.2%	2	2,361,139
Ministry Bursaries	466,966	680,800	213,834	31.4%		655,830
Special Projects	3,924,829	4,927,924	1,003,095	20.4%	3	4,031,814
Facilities/Equipment Renewal and Renovation	98,303	614,225	515,922	84.0%	4	590,155
Ancillary Operations	5,447,578	5,709,540	261,962	4.6%		5,643,420
Net Asset Adjustment	(96,182)	-	96,182		12	(28,944)
Total Expenditures	$ 137,120,190	$ 140,667,087	$ 3,546,897	2.5%		$ 138,956,315
Net	$ (2,180,950)	$ (2,312,545)	$ (131,595)	(5.7%)		$ (13,478,379)

Fleming College

Board of Governors | Briefing Note

Topic: Spring Enrolment Report
Report To: Public Board Meeting
Meeting Date: June 24, 2020
Prepared By: Roni Srdic, Registrar

Recommendation

That the Board of Governors of Sir Sandford Fleming College receive the Spring 2020 Enrolment Report for information.

Overview

Enrolment report showing the actual enrolment as compared to Enrolment target and year over year change (Spring 2020 vs Spring 2019)

Alignment with Strategic Direction

Risks and Considerations

☐ External Environment ☐ Internal Environment x☐ Financial ☐ Human Resources
☐ Information Technology ☐ Legal x☐ Operational ☐ Strategic ☐ N/A

Supporting Documentation

- Spring 2020 Enrolment
- Spring 2020 Enrolment_ all sem

Semester One Targets Spring 2020

School	2020			Year over Year	%	2019		
	Intl Target	Dom Tar	Total Tar			Intl Target	Dom Tar	Total Tar
School of Business	195	15	210	70	50	130	10	140
Environmental & NR Sciences	0	0	0	-74	-100	8	66	74
Haliburton School of the Arts	0	0	0	-10	-100	0	10	10
Health & Wellness	14	82	96	-6	-5.88	10	92	102
Justice and Community Development	19	36	55	0	0.00	17	38	55
Trades & Technology	92	15	107	0	0.00	92	15	107
Grand Total	**320**	**148**	468	-20	-4.10	**257**	**231**	**488**

Spring 2020 Semester One Enrolment

School	2020			Year over Year	%	2019		
	Intl Reg	Dom Reg	Total Reg			Intl Reg	Dom Reg	Total Reg
School of Business	42	1	43	-104	-70.75	143	4	147
Environmental & NR Sciences	0	0	0	-74	-100.00	12	62	74
Haliburton School of the Arts	0	0	0	-10	-100.00	0	10	10
Health & Wellness	1	45	46	-26	-36.11	11	61	72
Justice and Community Development	1	22	23	-29	-55.77	26	26	52
Trades & Technology	0	0	0	-108	-100.00	94	14	108
Grand Total	**44**	**68**	112	-351	-75.81	**286**	**177**	**463**

Semester One Enrollment to Target: -76.07 % ***(we enrolled 356 fewer students than we planned)***

All Full-time Targets - Spring 2020

School	2020			Year over Year	%	2019		
	Intl Target	Dom Tar	Total Tar			Intl Target	Dom Tar	Total Tar
School of Business	421	78	499	-10	-1.96	442	67	509
Environmental & NR Sciences	95	87	182	-74	-28.91	57	199	256
General Arts & Sciences	1	18	19	19		0	0	0
Haliburton School of the Arts	0	75	75	-10	-11.76	0	85	85
Health & Wellness	72	396	468	125	36.44	48	295	343
Justice and Community Development	120	303	423	25	6.28	28	370	398
Trades & Technology	312	150	462	-93	-16.76	312	243	555
Grand Total	**1021**	**1107**	2128	-18	-0.84	**887**	**1259**	**2146**

All Full-time Enrollment - Spring 2020

School	2020			Year over Year	%	2019		
	Intl Reg	Dom Reg	Total Reg			Intl Reg	Dom Reg	Total Reg
School of Business	268	61	329	-165	-33.40	439	55	494
Environmental & NR Sciences	90	82	172	-116	-40.28	73	215	288
General Arts & Sciences	3	9	12	12		0	0	0
Haliburton School of the Arts	0	40	40	-48	-54.55	0	88	88
Health & Wellness	13	181	194	-132	-40.49	60	266	326
Justice and Community Development	56	135	191	-181	-48.66	93	279	372
Trades & Technology	173	11	184	-304	-62.30	353	135	488
Grand Total	**603**	**519**	1122	-934	-45.43	**1018**	**1038**	**2056**

All Full-time Student Enrollment to Target: -47.27% *(we enrolled 1006 fewer students than we planned)*

BOARD CHAIR'S REPORT

Public Board Meeting – June 2020

The following is a summary of key updates of the Board Chair to the Board of Governors since the March 2020 Board meeting.

Board of Governors Present & Future

- This has been a particularly challenging year for the College and there will undoubtedly be more challenges ahead as we move into 2020/2021. Thank you Governors for your oversight, advice and patience throughout the COVID-19 pandemic and thank you to President Adamson, the President's Office and the Senior Leadership Team for your exceptional leadership.
- Thank you to our departing external Governors: Mike Leonard, Allison Galbraith and Rosemarie Jung, we wish you well in your future endeavors.
- Our Fall Board Orientation is tentatively planned for approximately late August 2020 and the training will be designed for all Governors. More information to come.
- Our first meeting for the 2020/2021 Board year is tentatively planned for September 30, 2020.

Executive Committee Update

- The Executive Committee met on May 5, 2020 (in accordance with By-Law 1 sec. 28.2) to address the following two items which required interim approval prior to the next scheduled Board meeting:
  - **1)** the Executive Committee approved a 2-year Custodial Contract with Dexterra Integrated Facility Management in the amount of $3,560,577 + net HST for implementation May 30, 2020.
  - **2)** the Executive Committee approved Ministry required additions to the College's Access to Information and Protection of Privacy Policy #1-111 pertaining to the Service Systems Manager (SSM) and Employment Ontario for immediate implementation.
- During this meeting the Executive Committee also received a preliminary update on the College's COVID-19 response to date from President Adamson.
- On June 1, 2020 the Executive Committee provided electronic approval for the award of the Security Services Contract RFP# PRD19-12 to Garda Canada Security Corporation of Mississauga, Ontario, for the total price of $5,059,584.80 plus HST for a five-year period (an initial term of three years, with an option in favour of the College to extend for an additional period of up to two years) for implementation July 1, 2020.

Fleming Connections

- The President's Office has been providing the Board with an "Update to the Board of Governors" e-newsletter on a bi-weekly basis. The newsletter highlights the College's noteworthy events and community engagement activities.

College & Board Committee Meetings

- April 14 – attended the CEC Board of Directors teleconference
- April 29 – Governance Committee meeting
- May 5 – Executive Committee meeting
- May 19 – Special In-Camera Board meeting
- May 27 – Special Public Board meeting
- June 8 – Governance Committee meeting
- June 15 – Finance and Audit Committee meeting

PRESIDENT'S REPORT

June 2020 - Public Board Meeting

The following report is a summary of key updates of the President to the Board of Governors since the March 2020 Board meeting.

College System Update

There has been an ongoing local and sytem-wide response to the Covid-19 Pandemic. As reported at previous in-camera, and other Board meetings, Fleming is predicting a $12-18 million net revenue loss for 2020/21,and the budget that was presented to the Finance and Audit committee on June 15, 2020 reflected this prediction.

Fleming has had its pandemic response team in place since early February 2020. Financial modelling has been in place for several months and enhanced on a regular basis, as more information becomes available. All non-labour related savings plans have been implemented including operating and capital spending. However, it has been necessary to consider and implement salary related savings. Some saving strategies that have been implemented include: elimination of administrative positions, elimination of all pay for performance opportunities and salary grid increases for 2020/21, and targeted workload reduction and pay rates to 80%.

After discussion with the local Support Staff Union Executive a workload reduction plan that was negotiated with central OPSEU was delcined. The local Support Staff Union Executive advised that they would prefer layoffs aligned with the existing Collective Agreement. Management is committed to complying to the Collective Agreement. Consistently, the Employment Stability Committee was struck on June 2, 2020 and all staff were advised.

Some other Colleges are implementing layoffs of support staff as it relates to their respective financial status. However, it appears that the support staff union leaders in some colleges are now reconsidering the workload reduction approach that was centrally bargained to avoid layoffs.

Protocols for returning to in-person classes have been shared across the college system in Ontario. Some will be ready for small classes for "stranded students" by July 2, 2020. Fleming has been planning for this as well but it is likely that Fleming will deliver these labs/boot camps by late July/early August.

Government Relations

There has been no indication of provincial funding to offset the projected deficits noted above locally, nor system-wide.

The Minister announced a pilot program to address stranded students beginning July 2, 2020; these are students who were unable to complete their winter semester.
However, again there has been no financial support provided to date. As part of Fleming's plan, additional costs for physical distancing in the school and classrooms are being reviewed. While there is an estimate in the budget of $1 million, it will most likely be greater. Renewed class layouts have already begun. Fleming will be submitting its "return to school" plan to the government once it is finalized. This will also be circulated to the Board.

SSM had continued to be a priority initiative for Fleming since being awarded a 5 year contract for $60 million. There is regular communication with the Ministry regarding our progress.

The Minister meets online with Presidents on a very regular basis and while there has been no funding offered, he is earnest in his efforts to help. To that end, all PPE that was donated by Fleming will be replaced by the Ontario government in the coming weeks.

Strategic Planning & Strategic Mandate 3 Update

The Ministry of Colleges and Universities (MCU) has delayed the signing of the 2020-2025 Strategic Mandate Agreement (SMA3) for all colleges. A new signing date has not been announced. Fleming is monitoring our SMA3 performance against the anticipated 20-21 metric targets to pre-determine potential performance-grant funding and allocation gaps.

The deadline for both the 20-21 Business Plan and the 19-20 Annual Report have been extended by MCU to September 30, 2020 due to the pandemic. The Board will receive both documents in September for approval.

Progress over the past year on the 2019-2024 Strategic Plan, 2019-2024 Academic Plan and Senior Team's Mandate Letters will be reported in the 19-20 Annual Report which is a public document posted on the Fleming Website.

The Vice President of Corporate Services will be developing a new risk management strategy that reflects the current reality. This will also be submitted to the Board for approval, in the future.

In Our Community

The Chief Recovery Officer, Tom Phillips is the designate for the President on local Boards such as the Innovation Cluster, PKED and the Mayor's recovery committee, to name a few. Fleming is playing a very proactive and community lead role in enabling economic recovery locally and throughout the region.

Events listed below are on social media (Twitter feed is @Fleming_Pres and is available on our Board of Governors Internal Website):

Due to provincial emergency measures and socially distancing protocols in place put in place because of the COVID-19 pandemic external events have been limited. Events listed below were attended virtually since the March 2020 Board meeting. Highlights from social media included:

- A very special thank you to @MarnieMcB who delivered an uplifting and motivating virtual keynote address to @flemingcollege staff this morning. You reminded us that we will make it through together by working as a team. #FlemingSafe #InThisTogether

- If you need to chat, we are here for you. @FlemingCollege has set up a new Personal Wellness Supports website with a live chat link. Please don't be afraid to ask for help. https://flemingcollege.ca/personal-wellness-supports #InThisTogether

- Wishing our new and returning students a warm welcome to the Spring term. @FlemingCollege has been working hard to ensure our digital learning spaces are engaging and rewarding. I hope you enjoy a successful semester. #FlemingSafe

- Pleased to have joined @TrentUniversity's Leo Groarke on @yourtvptbo Politically Speaking. Thank you @jay_amer for hosting us and discussing postsecondary institutions stepping up for our students and our communities:

https://youtube.com/watch?v=GToSVsVauaQ&feature=youtu.be #ptbo #InThisTogether @FlemingCollege

- Fleming's vision is creating prosperity and transforming communities through education and innovation, and at this time of uncertainty, we are proud to offer four free online courses to members of our community: https://flemingcollege.ca/news/fleming-college-offering-four-free-online-courses/ #FlemingSafe

- Grateful to those on the frontlines who are keeping our communities safe. I am particularly proud to recognize our @FlemingCollege Police Foundations graduates during #PoliceWeekON. #FlemingSafe

- There are hundreds of @FlemingCollege graduates working on the frontlines of this crisis. During #NursesWeek, we thank our Nurses for providing care and support to those in need in our communities. #Nurses2020 #InThisTogether

- Enjoying an outstanding curb side #MothersDay dinner from @rarelocalrestaurant. @FlemingCollege culinary grads are crushing it! Thank you Dane and Ethan! #ptbo #local

- On #GivingTuesdayNow, I would like to share an update on how @FlemingCollege continues to support the communities we serve. #InThisTogether

- We are proud to open our @FlemingCollege residence buildings in both #Ptbo and Lindsay to frontline healthcare professionals who are working hard to keep us and our loved ones safe. #InThisTogether #Community

- April 28 is National Day of Mourning and I encourage you to take a moment of silence at 11 a.m. to honour those who have died or been injured in the workplace. Learn more about National Day of Mourning here: https://ccohs.ca/events/mourning/

- After the Together at Home music video (showcasing local musicians and Greg Keelor from Blue Rodeo) was released on April 4, President Adamson was interviewed on Fresh Radio on April 6 and was interviewed on the Kevin Frankish Show live Facebook show on April 7.

- Feeling inspired by @FlemingCollege's #TogetherAtHome music video? https://youtube.com/watch?v=63a3h9p4fDE You have an opportunity to add your own voice to @CBCMusic's singalong (deadline today, April 27) here

- We are very grateful for @JustinTrudeau's support of Canadian postsecondary students. Today's announcement of $9 billion will help provide financial support and make a tremendous difference for young leaders as they begin their careers. #InThisTogether @flemingcollege

- We are very proud to support our frontline workers by creating headbands and reinforcement pieces for face shields. This is what being a community partner is all about. #InThisTogether @innovationptbo https://flemingcollege.ca/news/fleming-college-creates-face-shield-parts-for-frontline-workers-at-3d-makerspace-in-downtown-peterborough/

- We stand with the people of Nova Scotia and share our deepest sympathies with those who have lost loved ones. Thank you @RCMPNS and all of the first responders for their remarkable courage in the face of unspeakable acts. Together, we will persevere.

- Thank you to our community for all the support you have offered our @FlemingCollege students. Our COVID-19 Student Emergency Fund supports a variety of student needs. We will get through this together. #TogetherApart #RemainStrong #StayPositive

- @FlemingCollege continues to dig up everything we have for our front-line partners. Thank you Carol Rodd for receiving our delivery. #InThisTogether #COVID19 #FlemingHelps

- I am very excited to speak with @KevinFrankish this evening (April 7) at 7 p.m. on his Facebook Live to discuss #TogetherAtHome. I will be joined by the video's producer, @melissapaynem, and director and producer @michaelhurcomb. Tune in at 7 p.m. here: https://facebook.com/KevinFrankish/live/

- So proud of this project! Watch #TogetherAtHome with your volume turned up! http://youtu.be/63a3h9p4fDE @fordnation @CollegesOntario @RossRomanoSSM @ONtrainandstudy #ptbo

- Launching Monday, March 30 @FlemingCollege's Student Help Line will answer your questions and direct you to the right supports and services at the college. Please call 1-866-341-3485, the line is available Monday - Friday, 8 a.m. - 8 p.m. #inthistogether #StaySafeStayHome

- Students, please know we are doing all we can to support you. Virtual support services are available by phone, video chat or email. If you have a question or need support, please visit our Student Information page: https://flemingcollege.ca/covid19/students. We are here for you @flemingcollege

- Thank you @fordnation for your leadership and support of the college sector in these unprecedented times. @RossRomanoSSM @ONtrainandstudy @flemingcollege #COVID19ont

- Thank you to everyone in our community who has helped #flattenthecurve by staying home and engaging in physical distancing. Our community, and our world, will benefit from your commitment. We will come through this together, stronger than ever. #StaySafeStayHome #COVID19

- I am tremendously grateful for the tireless work done by Fleming's Response Team during the COVID-19 outbreak. All @FlemingCollege campuses are now closed to both students & employees, another step towards keeping our communities safe. Thank you for your ongoing commitment.

- For the time that you'll have at home, I encourage you to take this time for yourself. We will get through this together. @FlemingCollege #StaySafeStayHome #COVID19Ontario #selfcare

- Important COVID-19 Update: Over the weekend, the COVID-19 situation has evolved rapidly. @FlemingCollege is putting additional measures in place to maintain the health and safety of our community. Please read them here http://flemingcollege.ca/coronavirus

- The health & safety of our Fleming community are paramount & we want to do our part and take precautions to maintain a healthy community for all. While we recognize that these actions will create inconveniences, Fleming is focusing on student success & safety of all.

Fleming in the News – Sara O.

Student defies odds for college career
Nugget.ca | June 1, 2020

Peterborough-area businesses see popularity of gardening grow during COVID-19 pandemic
Global News | May 22, 2020

Fleming names new student council president
PTBOToday.ca | May 19, 2020

Fleming College provides $415,000 in aid to students impacted by coronavirus pandemic
Global News | May 14, 2020

Fleming College distributes $415,000 to students during COVID-19 pandemic
PTBOCanada.com | May 14, 2020

Fleming College offering four free online courses
Ilrtoday.ca | May 12, 2020

Fleming College will be starting fall term online and then plan is to transition to face-to-face classes
PTBOCanada.com | May 12, 2020

Fleming College to start fall semester with online classes
Peterborough Examiner | May 11, 2020

Fleming College plans to take all classes online in September
Mykawartha.com | May 11, 2020

No in-person classes for Fleming College in September, Trent University exploring options
Global News | May 7, 2020

Residence buildings opened to front-line health-care workers
Academica Top 10 | May 6, 2020

Fleming College opens residences to COVID-19 frontline workers
Mykawartha.com | May 4, 2020

Fleming College opens residence to frontline heathcare professionals amid COVID-19 pandemic
PTBOCanada.com | May 4, 2020

Fleming College residenes open up to health care workers
Peterborough Examiner | May 1, 2020

Innovation Cluster's 3D printers making parts for face shields for health-care workers
Peterborough Examiner | April 28, 2020

Downtown 3D printer makerspace being repurposed to produce face shields
Mykawartha.com | April 24, 2020

COVID-19 Roundup: Fleming College makes PPE, City of Peterborough cancels Environment Day
Global News | April 21, 2020

Peterborough Paramedics using college resident rooms for self-isolation
Peterborough Examiner | April 22, 2020

Fleming creates face shield parts for frontline workers at 3D Makerspace in Innovation Cluster
PTBOCanada.com | April 21, 2020

Summer arts take a hit
Haliburton Echo | April 14, 2020

Singing for the Students | Coping with COVID Isolation
Kevin Frankish Live | April 7, 2020

Fleming launches a student help line to provide virtual support
Academica Top 10 | April 1, 2020

Peterborough Sport and Wellness Centre to be used for emergency shelter servie during COVID-19
Kawartha Now | March 24, 2020

Fleming College closing student residences amid concerns over coronavirus pandemic
Global News | March 18, 2020

Trent University, Fleming College residence students hastily packing up
Peterborough Examiner | March 18, 2020

COVID-19: Fleming College to close student residences
PTBOToday.ca | March 17, 2020

College cancels in-person classes, takes instruction online
Haliburton Echo | March 17, 2020

No more in-person classes at Trent or Fleming (on-camera interview)
Global News | March 16, 2020

Fleming College suspends classes for the rest of the semester
Peterborough Examiner | March 16, 2020

On-site classes suspended for the rest of winter semester: Fleming College
Global News | March 16, 2020

Mobile employment unit may help with rural job hunting: Fleming president
Mykawartha.com | March 12, 2020