



GUELPH-WELLINGTON – Canada's
first food smart community

A Smart Cities Challenge initiative

Background Material: New Food Economy Skills and Training – University of Guelph and Conestoga College

(Draft for Discussion)

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Preamble – Training and the Circular Food Economy

The City of Guelph's Smart Cities Initiative leverages the region's two premier post-secondary institutions – Conestoga College and the University of Guelph - that each have demonstrated long-term and nationally/internationally leading commitments to food, environment and economic development. Together, these organizations are committed to delivering the training and mentoring side of the Circular Food Economies program.

University of Guelph

The University of Guelph is Canada's oldest centre of agriculture, veterinary and food-related training. Having trained generations of scientists and thought leaders over 150 years, the University ranks as the top agriculture, veterinary and food University in Canada and regularly is featured in the top 15 globally. The university's veterinary college is ranked 4th in the world. Today, there are four jobs for every agri-food graduate and the University of Guelph's programs are in high demand, spanning the spectrum of skills needed to support the circular food economy. For instance, University of Guelph graduates work on farm inputs, seed and crop statics, food animal health and productivity, food safety, management practices, food processing and food science, product development, packaging, food retail, hospitality and tourism, and applied nutrition and dietetics.

In addition to a widening labor gap, there is also the widening skills gap in the agri-food sector. In particular, industry is increasingly demanding students who are not only excellent scientists but also possess well-developed "foundational skills" such as active listening, conflict resolution and project management. This requires that students not only be trained as cutting-edge scientists but also be given an opportunity to work in teams and explore these more foundational skills.

To address this gap, the University of Guelph offers, at the undergraduate level, holistic and interdisciplinary training as well as rigorous subject-specific scientific skills training. In addition to dozens of majors, there is a vibrant co-op program, the Wood Centre for Business and Student Entrepreneurship that helps students become entrepreneurs, and the *ICON* program, an experiential course designed to bring groups of students together in an interdisciplinary format where they work on problems related to the food system. The *ICON* course was listed by Maclean's magazine as one of Guelph's "cool" courses to take. The Flexible Internship in Agri-Food course provides an opportunity for all undergraduate students, regardless of their major, a work integrated learning placement with an Agri-Food industry partner from private industry, government, commodity group or financial business.

At the graduate level, the University has recently developed an innovative and interdisciplinary training program in conjunction with the Arrell Food Institute and the *Food from Thought* initiative, a \$76.6 million program funded by the federal government to advance research and application in the broad area of digital agriculture. More specifically, students who are funded either by the Arrell Food Institute or through *Food from Thought* work for 10 hours each week on a group project. These group projects respond to the needs of community partners such as an industry member, government agency or not-for-profit. Each year, approximately 20 students work in interdisciplinary teams on projects related to food and sustainability. In the past two years community partners have included, for example, Maple Leaf foods, The Seed community food centre, provision coalition, and Ecological Farmers of Ontario.

Over the next five years, this program will evolve into a formal course that will be available to all graduate students with an interest in the circular economy on campus. The course will be delivered in

four parts. Part 1 is a two-day workshop that will provide an introduction to the program and expected learning outcomes, and establish expectations. Part 2 is an 8-month group challenge project where students will be guided to form small teams and work with an external partner on a project related to food security and/or agriculture. Teams will be comprised of 4-5 graduate students of mixed disciplines. Part 3 focuses on mentorship and skills development. In this phase, students will meet with the course coordinators to update them on progress with industry partners, and to enable skills development around media training, project management, design thinking, and conflict resolution. In some instances, these skills will be cultivated through direct engagement with industry partners on-site. Finally, in Part 4 of the course, students will present their final work and reflect on the year.

Conestoga College

Conestoga College Institute of Technology and Advanced Learning is one of Canada's leaders in polytechnic education. Through close partnerships with industry, government, community and academic partners, Conestoga delivers education, specialized training and applied research programs that contribute to individual, community and regional prosperity. Conestoga's Strategic Plan and Applied Research Strategy both affirm our commitment to building capacity to support innovation in food processing, one of Canada's largest manufacturing sectors.

In 2011, Conestoga launched the Craig Richardson Institute of Food Processing Technology (IFPT) to deliver education, training and research in food processing technologies, food safety, automation and robotics, packaging and plant supervision. Investments in complete production lines for bakery, vegetables and beverage processing total close to \$5 million. Conestoga was also awarded a CFI grant in the amount of \$540,000, an ORF grant of \$540,000 and committed an additional \$270,000 for the purchase of equipment to support research relating to technology for food. These additional investments allow us to further act as a catalyst for innovation in food processing machinery and equipment.

IFPT actively collaborates with researchers in Conestoga's Centre for Smart Manufacturing (CSM), which helps SMEs transform ideas into innovative products and processes that increase productivity and competitiveness. It is equipped with seven dedicated labs that support advanced manufacturing research. More than \$3 million has been committed to CSM research programs by Conestoga, NSERC, CFI/ORF, and industry partners.

IFPT has been growing rapidly in Applied Research activities and projects, offering food and beverage processors the opportunity to address technical challenges that they cannot solve on their own. The applied research program at IFPT has capabilities in several areas such as new product development, optimization of processes and formulations, development of new/effective packaging systems, food safety and shelf life, and process automation. Their labs are well-equipped for food and packaging testing, as is the test kitchen and pilot plant scale retort. At this one-of-a-kind facility, Conestoga offers expertise and innovation in the areas of food safety, food science, packaging technology, and food process engineering. Between 2017 and 2018, IFPT was awarded eleven grants for funded research and worked in collaboration with sixteen industry partners.

The City of Guelph's Smart Cities Challenge initiative provides new opportunities for IFPT to expand its scope of activities and collaboration with industry and aligns with Conestoga's commitment to serving the needs of industry and our local community.

Conestoga is well-positioned to work with industry partners for the development and delivery of educational programming in areas such as sustainable food production, waste reduction in food processing, sustainable options for food packaging, and other topics as required to support talent development for a circular food economy. The college's long history of assisting businesses (especially SMEs) through applied research solutions to current and

emerging industry challenges can also be leveraged to provide support in the area of sustainability, supporting more businesses in their efforts to follow a circular food economy model.

Conclusions and Ways Forward

The University of Guelph and Conestoga College are committed to delivering innovative solutions to ensure that the next generation of agriculture and food thought leaders are trained in the ethos of the circular economy. While the courses and educational opportunities being proposed here are an extension of existing initiatives, if the City of Guelph's Smart Cities proposal is funded, the University of Guelph and Conestoga will investigate launching shared programs on the topic of the circular economy of food as one of the key legacy initiatives from this proposal.