GREENEST CITY SCHOLARS PROGRAM
UBC Sustainability Scholars Program, Summer 2018

Research project title
Local Industrial and Commercial Applications for On-Site Alternative Water Systems

Research supports the following policies -

☐ Greenest City Action Plan – clean water, green economy
☐ Other:
Green Operations - internal water conservation goal
Citywide Integrated Rainwater Management Plan

Scope of work includes:

- Summarize the City of Vancouver regulations that govern the use of alternative water in industrial, commercial, or other non-residential applications to understand the regulatory context for alternative water system projects and limits of application
- Collect input from businesses interested in offsetting potable water use with alternative sources to determine intended needs and applications, as well as perceived benefits and obstacles to alternative water use
- Research and review locally, provincially, and nationally available alternative water systems for industrial and commercial sites, including commercially available technologies and designs
- Categorise findings for ease of interpretation by businesses, combining regulatory review, business needs assessment, and available commercial options
- Seek out and gather information on commercial or industrial properties in Vancouver with existing alternative water systems in place
    - Collect qualitative and quantitative data from those properties on outcomes of their systems
    - Build case studies on those properties for public education (number of case studies will be determined by student and supervisors based on findings)
- Build a pdf toolkit with all outcomes to be available for download from Thriving Vancouver website
- Present the project, toolkit, and case studies to an audience of relevant businesses and City staff
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Why this work is of value:

The Industrial, Commercial and Institutional (ICI) sector represented 26% of the City of Vancouver's drinking water consumption in 2016. Alternative water sources such as rainwater, storm water, foundation drainage water, steam condensate and grey water can, with appropriate treatment, potentially supply a large portion of the water needed for industrial purposes where potable water is unnecessary. . Statistics Canada reports that in 2013, the Canadian manufacturing sector consumed 411 million cubic meters of water (by withdrawing 3954 million cubic meters and returning 3543 million cubic meters to surface water)[1]. In comparison, Canadian households consumed 324 million cubic meters of water in the same year. The opportunity to reduce the amount of water consumed in manufacturing and other industrial applications is therefore crucial to achieving the City of Vancouver Greenest City Goal of reducing the per-capita water consumption to 33% below 2006 consumption.

[1] Statistics Canada (2016) Water Withdrawal and Consumption by Sector. PDF. Retrieved on December 15, 2017.

Submit applications here: http://bit.ly/2DC2jpP

Through the VEC's subsidy program for business occupants of industrial properties to complete Climate Smart training and certification (supported by the Vancouver Foundation and BC Hydro), the VEC has learned that several businesses are interested in saving water but do not have the in-house resources to research options, parse by-laws, and determine the best and most economical course of action for their business.

This study is an opportunity to draw together many resources, data sources, and market analysis that will significantly advantage industrial businesses in Vancouver with the power of knowledge and resources. The student will be co-supervised at the Vancouver Economic Commission and the Water Design Branch (Engineering Services) of the City of Vancouver. The study is designed to meet research needs at both offices.

Deliverables

- A final report containing at minimum:
  - Summary of findings from regulator interviews
  - Summary of business engagement insights gathered
  - Summary of commercially available options (with focus on local / Canadian)
  - Case studies of existing systems currently in use on local industrial properties
- Toolkit for businesses containing synthesis of all findings
- Presentation of findings to interested businesses and City staff at a public workshop

Time Commitment

- This project will take 250 hours to complete.
- This project must be completed between April 27 and August 10
- The scholar is to complete hours between 9am to 5pm, Monday to Friday, approximately 15-20 hours per week.

Work locations: The Vancouver Economic Commission 60%, Water Design Branch of Engineering 20% (Marine Gateway) and on-site interviews throughout the Vancouver region (20%).

Skill set/background required/preferred

☒ General understanding of building mechanical and plumbing systems, and willingness to learn and synthesize details.
☒ Willingness to travel to industrial and commercial sites within the Metro Vancouver region and potentially the Fraser Valley for interviews.
☒ Strong safety ethic, including compliance with all site safety rules
☒ Disposition to represent the Vancouver Economic Commission and the City of Vancouver in a highly professional manner.
☒ Excellent research, analytical, technical writing, presentation and public speaking skills.
☒ Demonstrated interest in water conservation and/or industrial processes
☒ Experience conducting stakeholder engagement events, including facilitation skills, is an asset.
☒ Ability to work independently
☒ Demonstrated time management skills
☒ Project management and organizational skills
☒ Familiarity with qualitative and quantitative research methodologies and implementation

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☒ Comfortable interacting with strangers to conduct public/in person research
☒ Broad skill set and enthusiasm for complex problems
☒ Self-starter able to pursue lines of inquiry with confidence
☒ Education in related degree program is an asset (e.g., Engineering, Physical Geography, Resource Management, Industrial Design)

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