Summer 2023 Sustainability Scholars Program Internship Opportunity

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region.

- Visit the Sustainability Scholars Program website to learn how the program works and to apply.
- Be sure to review the application guide on the Apply page to confirm your eligibility before applying.

Applications close at midnight on Sunday January 29, 2023.

Project title: Scoping an online green roof asset tracking and inventory management system for the City of Vancouver

Project Background & Overview:
The City of Vancouver is facing a number of challenges with respect to rainwater management. Population growth and climate change are straining the city's aging sewer system, leading to chronic water quality impacts on receiving waters such as False Creek and the Fraser River. Urban rainwater runoff discharges directly to our sewer and drainage system and contributes pollutants that are known to be highly toxic to fish and other aquatic species. Vancouver's prevalence of combined sewers and associated combined sewer overflows only exacerbate this issue, as does climate change which is causing more frequent, intense rain storms.

In response, the Citywide Integrated Rainwater Management Plan (2016) and the City of Vancouver's Rain City Strategy (November 2019) call for a shift in our urban water management strategies to include a more holistic and integrated approach to achieving the goals of improved water quality, increased resilience, and enhanced livability. This ambitious approach treats rainwater as a valuable resource and mimics the natural hydrologic cycle by capturing and treating rainwater where it lands using green rainwater infrastructure (GRI). This is an approach used by leading cities around the world and has proven itself as a way to deliver multiple benefits while leading to cost-effective storm water servicing.

Implementation of the Rain City Strategy is divided into three areas, including Buildings & Sites (B&S). The associated B&S Action Plan includes research and potential development of green roof tools. The City of Vancouver is therefore exploring development of a GIS-based **Green Roof Asset Inventory and Mapping Tool** (a.k.a. Green Roof Asset Tracker) that will use a comprehensive set of indicators to store and track data on green roof projects and associated performance trends, displaying both public- and internal-facing information, thereby serving as both an educational and adaptive management policy tool. For context, and at a future date, the Green Roof Asset Tracker is anticipated to be linked to a dedicated Green Roof website, which will host other supporting materials such as best practices guidelines that address

education and quality assurance issues pertaining to design, installation, and ongoing maintenance.

Tracker Indicators and other City Policy Objectives

The City supports and advances many policies and programs to address a range of ecological, social, cultural, and economic issues. The City also understands that green roofs can vary in many ways, including green roof type, size, spatial location, installation date, and design details (purpose, characteristics, and function). Differing design functions can deliver or even emphasize some or all of a range of potential co-benefits such as rainwater management, urban heat island mitigation, biodiversity enhancement, access to nature, amenity space provision, urban agriculture accommodation, childcare space enhancement, and public education. Green roofs, depending on their design intent, can help *contribute to advancing a range of other city policy initiatives in addition to rainwater management* (see, as example: Biodiversity Strategy, Urban Forest Strategy, Climate Change Adaptation Strategy, Healthy City Strategy, etc.). The Green Roof Asset Tracker's indicator list should be able to anticipate, accommodate, and report on a range of submitted roof designs, co-benefits, and related green roof-supported city objectives.

Tracker Indicators and Green Roof Quality Assurance

Ongoing green roof function is dependent on an effective quality assurance program that considers all life cycle stages, including green roof design review, construction, and operation. The Green Roof Asset Tracker's indicator list should also include relevant information from the development review, installation, and maintenance process.

Project description

The purpose of this project is to identify and provide recommendations on the indicators and operational features of a Green Roof Asset Tracker program suitable for the City of Vancouver.

The Tracker will use a range of quality assurance and other technical, socio-economic, and cultural indicators that acknowledge and account for the wide range of city objectives, policies, and programs advanced by co-benefits generated from green roof projects.

This information will provide a means for the city to undertake adaptive management activities that track, store, and evaluate green roof program quality assurance aspects and related broader policy performance, and provide a quantitative rationale for ongoing policy adjustments. In turn, this Asset Tracker will better support successful implementation of the Rain City Strategy, and optimize its associated environmental, social, cultural, and economic benefits.

Project scope

The scope of the project is to undertake best practices research, subject matter expert interviews, and case studies from other jurisdictions with similar Asset Inventory and Mapping Tool Programs, and provide recommendations for the City of Vancouver to develop their own Asset Tracker Program. Specific focus shall be given to:

i) Understanding the range of City strategies and programs supported by the range of potential green roof co-benefits;
ii) Researching third-party Asset Tracker Program objectives, indicators, lessons learned; and other program implementation details;
iii) Developing a comprehensive indicators list, with rationale; and,
iv) Developing implementable and operational recommendations for a CoV Asset Tracker Program.

Project work will include:

- Background research to understand the City of Vancouver context and the development review process, as well as a review of green and blue-green roof systems with reference to elements such as:
    - Roof types, roof system components, and functions that contribute to performance;
    - Roof ecosystem services/co-benefits (e.g., rainwater management, habitat enhancement, carbon sequestration, providing access to nature, etc.);
    - Common installation and maintenance challenges that lead to failures;
    - Indicators used to measure and assess green and blue-green roof performance.
- Best practices review of green roof indicators and Asset Tracker Programs, including a literature review and production of interview-centric case studies on 2 or more Program examples (e.g., New York and San Francisco);
- Time permitting, interviews with other knowledge holders;
- Recommendations on i) appropriate indicators and features to include in an Asset Tracker, and on ii) operational requirements (such as the data collection process (and where it sits within the development review stages), software platforms, data storage and ownership, legal considerations with respect to private property, reporting features, set up and maintenance costs, etc.); and,
- Recommendations for further studies (research, interviews, other) to support development of a COV Green Roof Asset Tracker Program.

Deliverables

- Interim drafts of major report sections (as completed)
- A final report containing a summary of the work completed
- A final report for the online public-facing Scholars Project Library.

Time Commitment

- This project will take 250 hours to complete
- This project must be completed between May 1 to August 15, 2023
- The Scholar is to complete hours between 9 am and 5 pm, Monday to Friday, approximately 17 to 20 hours per week.

Required/preferred Skills and Background

Required:

☒ Excellent research and writing skills
☒ Demonstrated interest in sustainability and green rainwater infrastructure (GRI) initiatives
☒ Project management and organizational skills
☒ Experience developing project work plans and timelines
☒ Familiarity with developing research methodologies to guide research
☒ Strong analytical skills
☒ Familiarity with survey techniques
☒ Comfortable interacting with strangers to conduct public/in-person interviews and surveys
☒ Ability to work independently
☒ Deadline oriented

Desired but not required:

☒ Design and layout skills
☒ GIS training or experience
☒ Excellent public speaking and presentation skills
☒ Programming skills
☒ Familiarity with WordPress, Drupal, or other website content tools

Additional information.

A truncated schedule that ends Tue Aug 1, 2023 would be preferred but is not essential. If not possible, receipt of the final draft Report prior to Sat July 22 to enable the return of edits to scholar prior to Aug 1 would be beneficial but is also not essential.

Applications close **midnight Sunday January 29, 2023**
Apply here: Click here to apply
Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions

Useful Resources

We are holding a special **resume preparation workshop for prospective Scholars** on January 23, 2023. Click here for details and to register.

Below are some links to useful resources to help you with your resume and cover letter (there are many more online). Some of these resources also provide information on preparing for your interview.

https://students.ubc.ca/career/career-resources/resumes-cover-letters-curricula-vitae

https://www.grad.ubc.ca/current-students/graduate-pathways-success

https://www.grad.ubc.ca/cover-letter-cv-resume-templates-ubc-career-services