Summer 2022 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 to confirm your eligibility before applying.

Applications close at midnight on Sunday January 30, 2022.

Research Project Title: Green infrastructure analysis & concept design for the Cambie Street Heritage Boulevard

Project Background & Overview:
In 2019, the City of Vancouver City Council approved the award winning and industry leading Rain City Strategy (RCS). This policy outlines an ambitious 30-year plan to change how the City manages rainwater by using green infrastructure.

The Green Infrastructure (GI) Branch at the City of Vancouver is in a race against time to quickly deliver GI assets that remediate the negative impact of our existing, deficient, and aging infrastructure. As the climate is changing, it is putting increased pressure on our already capacity-constrained municipal sewer system. It is critical for the City to review and retrofit all areas in the City that can manage rainwater in a more ecological, adaptive, and cost-effective way. Green Infrastructure is a valuable tool, demonstrated to: increase water quality in our surrounding water bodies, provides cost effective rainwater management, reduces urban heat island effect in neighbourhoods, introduces nature into cities, while contributing to creating resilient, climate adaptive, healthy ecosystems and communities.

The City of Vancouver reviews all new projects for their GI rainwater management potential. However, comprehensive assessments are also required to review existing City property and infrastructure to assess how they can be enhanced to meet our ambitious and imperative sustainability goals outlined in the RCS. The Greenest City Scholar would be a valuable resource, helping to carry out a thorough site investigation and feasibility report, identifying and inventorying all future GI opportunities within the Heritage Boulevard.

Heritage Boulevard is a 12m wide, 4.5km long median centered down Cambie St, between King Edward Avenue and Marie Drive (25^{th} -68^{th} Ave). The median is an untapped, vast, and ideal area for GI implementation.
A “unicorn” for GI, due to the large area of underutilised open space, great infiltration rates, and minimal conflicting utilities. Heritage Boulevard is also located within an increasingly densifying area in the City with increasingly capacity-constrained infrastructure, meaning it has significant potential to free up sewer system capacity.

Project description

Rainfall from our roadways is contaminated with oils, lead brake dust, and tire particulates. These pollutants have disastrous ecological impacts to the environment and our local waterways. Studies have shown that roadway runoff diverted through GI practices effectively removes these pollutants, and reduces the volume of rainwater directed in the sewer system, causing downstream flooding, and backing up of the sewers, releasing raw sewage into our local water bodies during major rainfall events.

The general question that the scholar will be answering is: where are retrofit GI features possible in the Cambie Street Heritage Boulevard? This project will map out the feasibility for the low end of each segment of the median to be retrofitted with a raingarden.

Project scope

City Staff will provide the scholar with a CAD file with aerial photos, roadway geometry, and utilities for the entire length of Heritage Boulevard. The scholar will be briefed on constraints for GI, like utility setbacks. The student will be provided with a list of utility offset distances. Using those constraints, through a process of deduction, the scholar can identify infiltration areas for rainwater collection from the roadway gutters on Cambie Street, and can map out conceptual raingarden layouts.

The project hopes to address the entire length of Heritage Boulevard, which may include approximately 20 raingardens. However, the project will start small with a few sites, and will build up the number of sites as the remaining time affords.

For each block, the scholar will be responsible for:

- Reviewing the roadway slopes and existing catch basin locations.
- Mapping out suitable areas for infiltration in the median.
- Calculating the contributing roadway runoff catchment areas.
- Calculating the GI surface area required to manage the targeted volume of runoff. (GI team will coach the scholar how to do this with our Excel spreadsheet template).
- In plan view, prepare conceptual layouts for raingardens, complete with flow diagrams showing curb cut inlets and outlets.
- If time allows, conduct a site review (to confirm validity of all the proposed conceptual GI designs).

From this information, the student will prepare an appendix of maps for each block, illustrating the GI potential all along the corridor.

Deliverables

- A final report (or executive summary) summarizing the work for the online Scholars Project Library.
- Complete an appendix of raingarden concept designs:
    - Each map should be a standalone concept design on its own sheet, that could be handed to a developer or design consultant to be further developed into construction drawings.
    - Each map should be at scale in CAD (or Vectorworks, CAD preferred)
        - Final version of the maps can be graphically refined in Adobe Illustrator or InDesign.
- Prepare a table and summary of the collective stormwater management potential for Heritage Boulevard (for all of the conceptual raingarden designs that are completed).

Time Commitment

- This project will take 250 hours to complete.
- This project must be completed between May 2, 2022 and August 12, 2022
- 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

Applicants will be evaluated based on their:

☒ Ability to synthesize complex information into simple, legible diagrams
☒ Demonstrated site analysis, mapping, and concept diagraming skills.
☒ Understanding of grading and drainage
☒ Graphical and written report preparation skills
☒ Drafting experience (Demonstrated CAD or Vectorworks drafting experience)
☒ Ability to work independently,
☒ Deadline oriented nature

Please provide a hyperlink to any relevant precedent work in your resume or cover letter.

Applications close **midnight Sunday January 30, 2022**
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 19. 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