

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: Impact assessment and comparative analysis of noise emissions for the City of Vancouver's fleet

Project Background & Overview:

The City of Vancouver has a large fleet of vehicles and equipment that supports core services, such as street sweeping, tree maintenance, and garbage collection. Our fleet consists of many different types of vehicles, ranging from heavy duty trucks down to lawn mowers and other landscaping equipment. In recent years, there has been a deliberate shift towards zero-emissions vehicles in the fleet, largely focused on electrification. This is aligned with corporate strategies such as the [Green Operations plan for Green Fleets](#) as well as [Big Move 3 under the Climate Emergency Action Plan](#), and has been a key pillar to meeting carbon emissions reduction goals.

While reducing greenhouse gas emissions is critical to mitigating the impacts of climate change, another positive effect of electrification that is not as often discussed is noise reduction. Understanding the scope and impacts of noise emissions in the fleet provides an opportunity to further strengthen the need for electrification, as well as understand which types of equipment would produce the largest impact on human health if electrified.

Project description

The City of Vancouver would like to learn from the existing body of research on noise emissions, to understand the impacts of noise from the City's fleet of vehicles and equipment on occupational health and safety, the environment, and the public. The outcome of this project will help with strategic decision making around fleet asset replacements, and has the potential to further solidify the case for electrification of vehicles and auxiliary equipment.

This project will help the Fleet and Manufacturing Services department with our work within the Green Operations and Climate Emergency Action Plans to reduce vehicle emissions that contribute to climate change and will help with quantifying noise emissions which are currently not accounted for but may have a significant effect on resident well-being in the City of Vancouver.

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Project scope

- Literature review of noise emissions – focusing on impacts on human health.
 - Look at ways that noise impacts human health, and how COV's fleet equipment may impact worker and public health.
 - Investigate what features of noise are the most harmful (i.e., decibels/amplitude, frequency, exposure duration, and other factors).
 - Research what regulations and guidelines exist around noise emissions.
- Optional and time permitting: Internal review – working with City staff to understand present conditions/challenges around noise. This will involve conducting a limited number of interviews with City staff to understand present challenges around noise.
- Comparative analysis of the effects of drivetrain type (diesel, electric, natural gas) of vehicles and auxiliary equipment on noise emissions.
 - Based on the findings of the literature review, choose around 8 types of equipment that are likely to produce the most harmful noise emissions, and have alternative drivetrain options (e.g., CNG vs diesel garbage trucks, electric greens mower vs. ICE).
 - Quantify and compare the level of noise emissions expected for the chosen equipment.
- Field checks/data collection of noise emissions of fleet assets to support comparative analysis.
 - With assistance as required, measure equipment noise under normal operating conditions to verify/support the results of the comparative analysis. This will require the ability to conduct in person site visits within the boundaries of the City of Vancouver.
- Brief technology scan to identify available technological solutions for noise reduction, focusing on engineering controls (i.e., muffler technology).
- Recommendations for areas of improvement with respect to noise reduction in the City's fleet of vehicles and small equipment.

Deliverables

- A final report containing a summary of the work completed, with recommendations.
- A final report for the online public-facing [Scholars Project Library](#).
- Presentation on final results to internal City of Vancouver staff.

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.
- The presentation on final results will take place on a Tuesday at the end of the project.

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Required/preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Excellent public speaking and presentation skills
- Strong analytical skills
- Ability to work independently
- Deadline oriented
- Project management and organizational skills
- Strong Numerical Reasoning Skills
- Ability to conduct site visits within the City of Vancouver
- Previous knowledge of mechanical equipment is an asset.
- A background in public health with strong numerical reasoning skills, an asset
- Background in mechanical engineering, an asset

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>