

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: Developing an Inventory of Large Buildings in the Metro Vancouver Region to Reduce Emissions

Project Background & Overview:

Buildings are major emitters in the Metro Vancouver region. They can emit health-harming air contaminants and greenhouse gases, which Metro Vancouver seeks to reduce through actions in the [Clean Air Plan \(2021\)](#) and [Climate 2050 Buildings Roadmap](#). Figure 1 demonstrates the significant potential reductions in greenhouse gases from implementing buildings-related actions, especially those focusing on existing buildings (Strategy 1). In order to implement these actions, it is important to inventory existing buildings in the region. This inventory will support the development of potential regulations and programs by allowing Metro Vancouver to reach buildings with targeted, relevant actions.

GETTING TO CARBON NEUTRAL BUILDINGS: Impact of key strategies

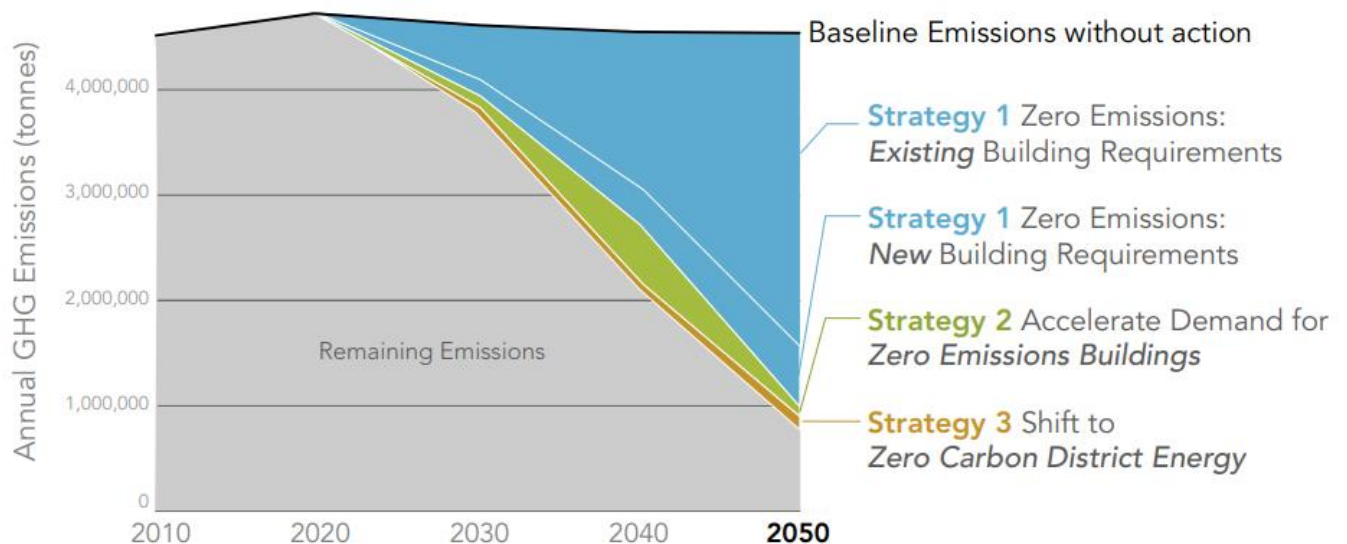


Figure 1: Potential Reductions in Regional Greenhouse Gases from Strategies in the Climate 2050 Buildings Roadmap

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Metro Vancouver is already developing a form of buildings inventory for single-family homes, but does not yet have one for “large” buildings, or buildings 25,000 square feet or more. Large buildings are disproportionately large emitters relative to their number across the region. Accordingly, reducing emissions from large buildings is efficient from an emissions-per-building perspective. Metro Vancouver is particularly interested in developing an inventory of these large buildings, so that this subgroup can be reached effectively and efficiently for potential programs and regulations. The more we know about each of these buildings, the better we can reach them.

The City of Vancouver has developed a methodology and preliminary inventory of large buildings to support its [“Carbon pollution limits and reporting for existing large commercial and multi-family buildings”](#) regulation. Metro Vancouver is working with the City of Vancouver on many aspects of reducing emissions from buildings, and it is important to have a shared understanding of the building inventory to do so. To this end, the regional inventory will utilize and expand upon the City’s methodology and inventory. There may be opportunities for the Scholar to collaborate with the City of Vancouver buildings team.

Project description

The inventory will be foundational in helping Metro Vancouver manage emissions from buildings. It will inform potential regulations and programs that are critical for Metro Vancouver’s climate and air quality goals. As both a foundational dataset and methodology, the inventory can be used for years to come, across a variety of projects – including some that may have yet to be proposed! Projects may range from setting greenhouse gas limits for buildings, supporting building owners/managers to conduct retrofits, improving outreach, identifying opportunities for increased resiliency through buildings, and more.

Developing the inventory is a quantitative and exploratory exercise. It will build upon the City of Vancouver’s methodology, which involves using tax data to obtain basic information about a building (and characterizing it as a building per Energy Star Portfolio Manager methodology), verifying distinct buildings as much as possible through satellite imagery or pictometry, and assigning unique building IDs to each building. The unique building ID methodology requires use of Microsoft C#, .NET, JavaScript, Python, or Ruby. The inventory will ultimately be a list of large buildings, each identified by a unique building ID, with as many building characteristics as possible listed (such as gross floor area, vintage, etc.). The inventory should be delivered as a .csv file, and optimally also as an Excel-based tool, time permitting. As this project is exploratory in nature, Metro Vancouver staff will work flexibly and iteratively with the Scholar to determine what is possible within the Scholar’s time. Metro Vancouver staff will actively assist the Scholar in developing the inventory.

Project scope

This project will develop:

- An inventory of large buildings, which will involve:
 - Reviewing and adapting/expanding as needed the City of Vancouver large building inventory methodology
 - Characterizing structures as buildings per Energy Star Portfolio Manager methodology
 - Assigning distinct street addresses and Unique Building IDs to buildings
 - Using tax data to characterize buildings in terms of gross floor area, vintage, etc.
 - Verifying building characteristics through satellite imagery or pictometry
- A replicable methodology for developing the inventory, including how to update the inventory over time

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Deliverables

- An inventory of large buildings (25,000 sqf+) in the Metro Vancouver region
- A final report containing a summary of the work completed, focusing on the methodology used
- An executive summary for the online public-facing [Scholars Project Library](#).

Time Commitment

- This project will take **300** 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 25 hours per week.

Required/preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Familiarity with research methodologies and survey techniques
- Statistical analysis
- Excellent public speaking and presentation skills
- Strong analytical skills
- Ability to work independently
- Project management and organizational skills
- Programming skills
- Demonstrated experience in at least one of the following: Microsoft C#, .NET, JavaScript, Python, or Ruby – Python preferred
- Creative problem-solving through data
- GIS training or experience an asset
- Demonstrated experience in Microsoft Excel required, R an asset
- Experience/interest in building sustainability and/or building science an asset

Additional project requirements.

Must have access to/be able to download Microsoft C#, .NET, JavaScript, Python, or Ruby

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.](#)

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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>