Summer 2022 Internship Projects

Below is a list of the Sustainability Scholars projects available for the summer 2022 program. This list is current as at January 25, 2022.

Please check online for detailed descriptions of each project.
Applications accepted until midnight on January 30.
Please review the website for details about the Scholars Program. If you still have questions, contact sustainability.scholars@ubc.ca

Collective Impact Projects

Collective Impact (CI) projects involve multiple Scholars working in collaboration on one larger project. Some CI projects require Scholars with similar skills while some require Scholars with different skills. If you are a strong communicator and like the idea of achieving high impact through collaboration, the following projects might be for you.

Planning for Future Food Systems The purpose of this project is to 1) develop an evaluation framework, 2) create a set of performance indicators, 3) embed an equity tool into the evaluation framework, and; 4) understand the divide between rural and urban growing. The framework will be developed with three municipalities in BC. An equity tool will be employed to inform the development of the evaluation framework to ensure the framework guides communities toward fair and equal access to community agriculture opportunities for every resident. To ensure usefulness, a trial with one municipality will be used to test the adaptability of the framework. (Public Health Association of BC) (3 different positions available, 270 hours/position)

- 2022-001A Planning for Future Food Systems (Equity framework implementation)
- 2022-001B Planning for Future Food Systems (Policy, practice and the rural/urban divide)
- 2022-001C Planning for Future Food Systems (Evaluation framework case studies)

2022-002 Virtual Community Engagement on Climate Impacts and Preparedness in Northeast BC There is an urgent need to prepare for climate hazards and disaster risks in Northeast BC. The Northeast Climate Resilience Network (NECRN)—a network of six local and regional authorities that are working together to assess and manage climate risks: Fort St. John, Dawson Creek, Tumbler Ridge, Chetwynd, Northern Rockies Regional Municipality and Northern Health—is interested in advancing their community engagement around climate change projections and impacts in general, and homeowner flood prevention in particular. This project would develop climate resilience knowledge, tools and skills for community members and government staff in order to help Northeast BC learn about climate

change and prepare for flooding. (Fraser Basin Council) (3 positions available—each is the same, 270 hours/position)

Updating Lake Assessment Protocol to Interweave Traditional Knowledge Living Lakes Canada (LLC) wishes to improve partnerships with First Nations and the integration of Traditional Knowledge and Values into their Foreshore Integrated Management Planning (FIMP) assessment process and Foreshore Development Guidelines (FDG) Report. LLC is working with DFO to update the FIMP protocol to accommodate new technology; however, the inclusion of Traditional Knowledge and Values is lacking emphasis and success. Sensitively interweaving Traditional Knowledge and Values could provide First Nations with a holistic Foreshore Development Guideline Report. This can be used for tracking environmental degradation, making land use decisions to support lake health, identifying foreshore climate change effects, and prioritizing restoration while highlighting Indigenous Knowledge, and culturally important foreshore areas. (Living Lakes Canada) (3 positions available, 270 hours/position)

- 2022-003A Updating Lake Assessment Protocol to Interweave Traditional Knowledge (Framework Development and Engagement Support), (2 positions available)
- 2022-003B Updating Lake Assessment Protocol to Interweave Traditional Knowledge (Technical Data Specialist) (1 position available)

2022-004 Research to develop toolkits and resources to enable the creation of circular innovation districts in other jurisdictions Over the last 3 years, Recycling Alternative has been developing a circular economy model—Green Industrial Innovation District (GrIID™)—in the False Creek Flats that engages a network of local circular innovator businesses and stakeholders to achieve operational synergies and circular symbiosis. This project seeks to explore and develop a portfolio of materials including templates, checklists, tool-kits, business cases, policy frameworks and process maps to support circular innovators in other municipalities and regions to establish similar GrIID™ models as a critical component of climate action in our urban communities. (Recycling Alternative) (3 positions available—each is the same, 270 hours/position)

Regional plan for climate change adaptation and biodiversity conservation Over the past decade the Comox Valley Conservation Partnership (CVCP) has achieved some notable successes with respect to supporting and advancing cutting-edge local government environmental policy, however, emerging challenges are on the horizon, and our community needs to refocus its efforts. In 2008 the CVCP created the first regional conservation plan for the Comox Valley called Nature Without Borders. This was one of the first plans of its kind in BC and has been looked to as a blueprint for how to achieve community sustainability objectives. A lot has changed in the past ten years. Acceptance of an urgent need to mitigate and adapt to climate change has started to penetrate local government policy, but more detailed work is needed. In addition, ageing infrastructure relating to rainwater management, sewers and drinking water has awoken a sleeping dragon of cost that communities will need to address in order to achieve sustainable municipal service delivery in both economic and environmental terms.

Through this project, the Scholars will update Nature Without Borders to directly incorporate climate adaptation and mitigation, and to accentuate the significance of ecological services to achieve sustainable municipal service delivery. (Comox Valley Land Trust (CVLT)) (5 different positions available, 270 hours/position)

- 2022-005A Regional plan for climate change adaptation and biodiversity conservation (Research and policy recommendations)
- 2022-005B Regional plan for climate change adaptation and biodiversity conservation (Carbon Modelling and Climate Mitigation Solutions)
- 2022-005C Regional plan for climate change adaptation and biodiversity conservation (Forest Fire Risk and Community Adaptation)
- 2022-005D Regional plan for climate change adaptation and biodiversity conservation (Ecological Services and Sustainability)
- 2022-005E Regional plan for climate change adaptation and biodiversity conservation (Sustainability and Climate Geospatial Analysis)

Foundational literature reviews to support land, water and resource management in Tŝilhqot'in Territory This project will support the work of the Tŝilhqot'in National Government by conducting directed literature reviews to support habitat management, wildlife management and forest management. The reports will be reviewed by the Nation to inform research and land management decisions and will be used to develop educational material. After the reports are submitted to the Tŝilhqot'in National Government, they will continue to be built on and traditional knowledge from the Tŝilhqot'in Nation will be added into the reports. By bringing together western science and Indigenous knowledge, the Tŝilhqot'in National Government is bringing together two different ways knowing to support decision-making. (Tsilhqot'in National Government) (3 different positions available, 270 hours/position)

- 2022-006A Foundational literature reviews to support land, water and resource management in Tŝilhqot'in Territory (Habitat Management)
- 2022-006B Foundational literature reviews to support land, water and resource management in Tŝilhqot'in Territory (Wildlife Management - bears & ungulates)
- 2022-006C Foundational literature reviews to support land, water and resource management in Tŝilhqot'in Territory (Soil Amendment)

Fraser Estuary Research Collaborative Projects

The Fraser Estuary Research Collaborative (FERC) is focussed on advancing efforts to protect the Fraser River estuary in collaboration with key NGO and Indigenous partners. If you are interested in producing new knowledge and supporting Fraser estuary protection through scientific, technical, governance and policy innovations, the following project might be for you.

2022-040 Fine scale bird monitoring to inform the impact of wetland restoration on the Fraser delta The Fraser River Estuary is globally significant habitat for migratory birds; however, because of the jurisdictional complexities at play in estuaries there is little monitoring of how the various restoration and climate adaptation projects occurring on the delta impact migratory birds. The purpose of this project is to design and implement a monitoring approach to quantify the response of bird populations to estuarine restoration actions. Results will improve our understanding of the effects of estuary restoration and advance restoration science in support of conservation objectives of estuary restoration. (Birds Canada) 270 hours

2022-041 Graphic Rendering of a Restored and Resilient Fraser Estuary This project will develop a series of graphic renderings, which when stitched together, will depict a restored and resilient Fraser Estuary. This project will be used to elevate and support restoration efforts in the Fraser estuary by encouraging public support and capital investments. (Rivershed Society of BC) 270 hours

2022-042 Develop shoreline conservation and restoration strategies to retain Indigenous traditional foodlands This project will identify and map Indigenous traditional terrestrial foodlands in the Fraser River Estuary; develop shoreline conservation and restoration strategies to steward and retain traditional foodlands in response to climate change-related impacts in the region; and consider a policy framework to support Indigenous food sovereignty and foodlands retention. (Centre for Sustainable Food Systems) 270 hours

2022-043 Flood Management for Climate, Salmon, and Community Resilience in the lower Fraser Work for this project involves researching integrated and collaborative flood management governance regimes that proactively take into account climate change ecosystems, food security, Indigenous rights, as well as flood risk; and, diking alternatives such as setback dikes, dike breaches, and floodways. The research will be used to prepare several case studies and communication tools to inform more climate resilient, fish and farm-friendly flood management strategies for the Lower Mainland. (Resilient Waters) 370 hours

2022-044 Ecological Impacts and Demography of Resident Canada Geese in the Fraser River Estuary Canada Geese (Branta canadensis) introduced to the Lower Mainland of British Columbia (BC) over half a century ago have successfully established themselves in natural and modified ecosystems as year-round residents and breeders in the Fraser River Estuary (FRE). Their abundance in the region is increasing but their population size, trends and impacts to estuarine marshes are unknown, and there is no management strategy currently in place. The objective of this project is to determine the population size and trends of resident Canada Geese in the Lower Mainland and study the ecological impacts of their herbivory on sedge marshes in the Fraser Estuary. (Ducks Unlimited Canada) 500 hours *NOTE: This project has been filled. We have included it in the list so you can see the range of work taking place in the Fraser Estuary Research Collaborative.*

2022-045 Identifying barriers and opportunities for eelgrass restoration in the Fraser River Estuary Eelgrass meadows provide valuable wildlife habitat, are important carbon sinks, protect the coastline from erosion and improve water quality. The Fraser River Estuary is home to many vital eelgrass meadows, yet many historical meadows have been lost and their current distribution is threatened by

industrial, residential and recreational activities. The restoration of these ecosystems is a nature-based solution which can help address the dual crises of climate change and biodiversity loss. However, eelgrass meadow restoration faces a variety of challenges and barriers, limiting its implementation and effectiveness. This project aims to identify and gain a better understanding of the barriers and challenges to eelgrass restoration in the Fraser River Estuary. (WWF-Canada) 270 hours

2022-046 Exploring opportunities to accord the Fraser River Estuary legal personhood status This project will address the ongoing threats to the ecological resilience of the Fraser Estuary by identifying the legislative pathways towards according the Fraser River Estuary 'personhood' status in the eyes of Canadian law. Personhood status has been provided to waterbodies across the world, including in New Zealand, India, Ecuador, Colombia, and the United States. Rivers that have been granted personhood status have been represented in court by the public on behalf of their interests, which include protection from development, pollution and damming. Canada set a precedent in 2021 by giving the Magpie River in Quebec legal personhood which will protect the river from ongoing hydroelectric dam development.

2022-047 Monitoring guidelines to assess the long-term success of invasive species removal by Naturalist Clubs in natural and restored riparian habitat in the lower mainland Removal of invasive species is one of the most common conservation activities carried out by the 13 BC Nature clubs in the lower mainland. There are currently no standardized guidelines for BC Nature clubs to use in order to generate baseline site data and to document the progress of their invasive species removal programs. This can limit the effectiveness of conservation efforts as it does not allow for the identification of plan failures or the adaptation of approaches based on the results of previous work. The purpose of this project is to develop, test and implement standardized monitoring guidelines that will inform conservation actions and potentially produce local evidence about the vulnerability of restored sites to invasive species. (BC Nature) 270 hours

2022-048 Innovative approaches to research, knowledge sharing and engagement that centres Indigenous and diverse lenses The purpose of this project is to (a) Identify and create innovative approaches to research, knowledge sharing, storytelling and engagement by centring Indigenous and diverse lenses; and (b) Re-story and model how to implement walking A Pathway Together collaboratively. The Scholar will research Indigenous-centred approaches to research, knowledge sharing and storytelling, produce a resource highlighting analysis of best practices/approaches of those surveyed, and develop methodologies for dissemination and knowledge sharing across communities. (Sierra Club of British Columbia Foundation) 270 hours

2022-049 Identifying and assessing climate change indicators in the Fraser estuary Climate change is one of the most pressing risks to Pacific salmon, impacting various life stages in both marine and freshwater habitats. The Fraser River estuary is important salmon habitat where climate impacts are being acutely felt, as evidenced by extreme heatwaves this past summer and the recent widespread flooding. The purpose of this project is to identify and assess climate change indicators for estuarine and near-shore marine habitats that are relevant to Pacific salmon, and assess these indicators in the Fraser estuary. (Pacific Salmon Foundation) 270 hours

2022-050 Developing an Indigenous-centric cumulative effects framework to protect the Fraser River estuary This project will explore the opportunities an Indigenous-centric cumulative effects framework would provide in guiding sustainable decision-making processes. We ask the central question: how do we "de-colonize" cumulative effects assessments? This is of particular importance in the face of unprecedented climate change causing further declines in species numbers and functionality of the Fraser River estuary. The results of this project will be used to advance a new approach to cumulative effects monitoring and management for the protection and sustainability of the Fraser River Estuary. (Salish Sea Indigenous Guardians Association (SSIGA)) 270 hours

2022-051 Assessing the potential for flood risk mitigation and salmon habitat restoration in the Lower Fraser Flood management in the Lower Fraser River has primarily consisted of diking the majority of the floodplain for non-natural land use. A 2015 report from the Province of BC indicated that 96% of these dikes are not up to provincial standards in height, seismic stability, or maintenance. Moreover, this infrastructure has large impacts on ecosystem connectivity, ecosystem health, and salmon populations overall. With the onset of climate change, and storms and sea level rise expected to continue increasing, these issues will only get worse. Improved floodplain planning can involve reconnecting habitat and floodplain with the river, and allowing for some areas to be flooded, which reduces the overall water level, and therefore flood risk, in the floodplain overall. As several streams and waterways have been disconnected from the mainstem through infrastructure, restoring and reconnecting them may contribute to both viable salmon habitat as well as provide water storage opportunities. This project seeks to better understand the potential for these opportunities throughout the Lower Mainland. (Lower Fraser Fisheries Alliance) 270 hours

2022-052 Evaluation of Regulations Governing Human Activities in the Lower Fraser relevant to Environmental Protection and Restoration 150-plus years of colonial development have seriously harmed the Fraser estuary through destruction and pollution of ecosystems. Successful and sustainable Indigenous governance mechanisms and Indigenous peoples themselves have been displaced by colonial laws and settlers. Efforts to rehabilitate the estuary have focussed on restoration projects, understandably, but it is also necessary to look at how to set limits on human activities that cause harm, and manage these limits in a coordinated way that produces accountability and results for the Fraser estuary. The scholar will be doing an inventory and analysis of existing Crown laws and regulations in relation to human activities in the Fraser estuary, and will develop an effectiveness framework for assessing the impact of those laws and regulations. (West Coast Environmental Law) 270 hours

2022-053 Research on agricultural land use regulations in the context of Indigenous food security This project will look at agricultural land use in the Fraser estuary made possible by diking and draining. It's obvious in 2021 that there are problems with this practice and the scale at which it has been adopted in the region, both from an ecosystem and a community flood management perspective. However, food security is often offered as a reason to maintain current land use patterns. This project will look at food security issues from a broader perspective, and include Indigenous food security in relation to salmon and shellfish. What are options to operationalize a 're-conversion' of agricultural lands to floodplain habitat, and enforce stronger/more effective regulation of agricultural pollution (including through buffer areas), in the existing Crown legal framework through this lens of double food security? This

project will help inform ongoing dialogues among decision and policy makers in the Fraser estuary, in relation to land use and community planning, Indigenous and non-Indigenous food security, and flood management strategy discussions (including the Lower Mainland Flood Management Strategy). (West Coast Environmental Law) 270 hours

Sustainability Scholars Projects

These innovative and interesting projects form the core of the Scholars Program and serve to advance sustainability and climate action across the lower mainland and beyond. If you are interested in supporting the sustainability and climate action goals of local governments, health authorities, transportation authorities, consultancies, start ups and other organizations striving to make a difference, these projects may be what you are looking for!

2022-007 Identify and assess options for end-of-life disposal/reuse of electric bus batteries TransLink is transitioning its bus fleet to battery electric vehicles under its Low Carbon Fleet Transition Plan and will start replacing most of its retiring fleet with battery electric buses after 2024. TransLink already manages end-of-life processes for buses, engines, and diesel hybrid bus batteries. However, the characteristics and volume of batteries will change dramatically as TransLink scales up its battery electric bus fleet. The purpose of this project is to identify and assess options for end-of-life disposal/reuse of electric bus batteries. The assessment will inform TransLink's decisions and actions for procuring and disposing battery electric buses and their components until 2027. (TransLink) 250 hours

2022-008 Understanding the Impacts of Urban and Invisible Freight Goods movement remains an essential part of life in Metro Vancouver that connects people to goods and services on the local, regional, and global scale. Over the course of the pandemic, urban freight deliveries in the Metro Vancouver region have grown rapidly. This sector includes both traditional logistics companies (such as DHL and Canada Post), which have benefitted from growing reliance on e-commerce, as well as the invisible urban freight sector, which can be gig-based and operate out of unmarked passenger vehicles or vans (e.g, Skipthedishes, Amazon Flex and UberConnect deliveries). Municipalities currently have little to no visibility on this sector. Municipalities lack information about where vehicles are going, including vehicles operating across municipal boundaries, how many vehicles are operating, level of demand on curb space, etc. This project aims to gain an initial understanding of the urban freight sector and its impacts from a local government transportation perspective. (TransLink) 2 positions available, 350 hours each.

2022-009 Embedding environmental sustainability and climate resilience into healthcare human resource communications strategies & initiatives The objective of this research project is to uncover opportunities to embed environmental sustainability and climate resilience within HR communications strategies and initiatives across the Lower Mainland health organizations. A key component of this project will involve working closely with HR stakeholders to explore opportunities to collaborate on, and prioritize the embedding of, sustainability communications in HR initiatives i.e. new staff orientation, job descriptions and recruitment and retention initiatives. (Provincial Health Services Authority) 250 hours

2022-010 Mitigating environmental and public health impacts of refrigerants and other out-of-scope greenhouse gas emissions in healthcare The Sustainability Scholar will play an important role in informing the actions that the Lower Mainland Health Organizations can take to reduce the negative impact (environmental, public health, equity) that they may be having as result of 'out of scope' emissions—those that are currently not formally monitored or actively reduced within public sector organizations—and refrigerants. The Scholar will establish a foundational understanding of the existing 'out of scope' emissions reduction efforts that are currently occurring across the organizations, allowing for increased regional collaboration, and overall capacity building. (Vancouver Coastal Health) 500 hours

2022-011 Aligning safer chemicals with patient care in BC health-care facilities The objective of the research project is to target a reduction of chemicals of concern in patient care supplies. The project will contribute to embedding environmental sustainability in procurement processes, quantifying chemicals of concern, and monitoring and eventual reduction of harmful chemical exposures to health-care staff and patients, thereby minimizing the associated risks of respiratory illness, cancers, and reproductive, developmental, hormonal and neurological defects. The purpose of the project is to update and expand existing chemical ingredient lists for Health Authority procured skin care products using a pre-existing chemical screening framework that categorizes chemicals by hazard and risk assessment. (Vancouver Coastal Health) 250 hours.

2022-012 Understanding energy usage and effectiveness of HVAC system technologies Ventilation is the biggest energy use category within most healthcare facilities. However, COVID-19 Prevention Measures related to HVAC operations may have led to an increase in energy usage and correspondingly, GHG emissions. Providing clean and safe air as wildfire smoke episodes increase while minimising building energy usage is also a priority. Results of the research will be used to inform retrofits of existing health care facility HVAC systems and protocols during a wildfire smoke event and possible hazardous contamination of indoor air from biological sources (e.g., COVID-19) such that indoor air quality meets safety requirements, while minimizing building energy usage. (Vancouver Coastal Health Authority) 250 hours

2022-013 Advancing sustainable health care innovations through a policy and engagement strategy Anesthetic gases are essential to providing comfortable and safe surgery, yet these agents are also recognized as greenhouse gases (GHGs) and contribute to the environmental impact of healthcare. There are many ways for clinicians and administrators to reduce anesthetic gas emissions, and this project seeks to support innovations in this sector through understanding provincial policies related to anesthetic gases and prioritizing the actions needed to engage with clinicians and administrators. The project will include developing a provincial implementation and policy strategy, guidelines for community engagement and outreach, and a developing choice architecture map. (UBC Faculty of Medicine; CASCADES: Creating a Sustainable Canadian Health System in a Climate Crisis) 250 hours

2022-014 A Pathway of Climate Action in Kidney Care: Sustainable Nephrology Action Planning The goal of this project is to improve sustainability in kidney care to improve patient experience, clinical outcomes, and emissions related to attending these appointments. For patients, who need to receive a kidney transplant it can require multiple trips to the transplant centre, which can result in long trips that

are not always economically feasible for some individuals. Additionally, due to the current process, these assessments take place over multiple days. The intention is to streamline this process to support a single-day transplant assessment allowing the patient to make one trip to the centre, which will be both cost-effective for the patient and lead to a reduction in emissions. The project will include developing an implementation strategy and guide that supports single-day transplant assessments to support sustainable nephrology action planning in kidney care. (UBC Faculty of Medicine; CASCADES: Creating a Sustainable Canadian Health System in a Climate Crisis) 250 hours

2022-015 Understanding the carbon sequestration value of the City of Victoria's urban forest Trees have a crucial role to play in responding to a changing climate and improving the resilience of communities to climate change. As municipalities tackle the climate crisis while accommodating growing populations and increased densification, it's crucial for them to understand the value of trees, particularly when faced with making difficult decisions about development, affordable housing, and maintaining biodiversity within a limited amount of space. Building on existing tree canopy data and a detailed urban forest inventory, the Scholar will quantify the benefits of the urban forest in order to better understand the value it provides to the community, both in terms of carbon sequestration and improving resiliency to climate impacts. (Corporation of the City of Victoria) 250 hours

2022-016 Building Energy Benchmarking: Integrating Climate-Risk Elements Currently, building energy benchmarking, the practice of comparing the energy/carbon performance of buildings in a region, is limited to collecting basic building information (such as the age, location, gross floor area) and utility data. However, as benchmarking programs evolve and as climate change continues to impact our building and infrastructure in unprecedented ways, stakeholders at all levels are seeking to enrich benchmarking datasets with climate-risk information at the building level. The Scholar will be working with the team at OPEN Technologies, a vibrant Vancouver-based software start-up with a strong climate mandate. Their work will involve conducting research to identify and evaluate datasets with relevant climate-risk information that can enrich building energy benchmarking datasets. The research outcomes will directly impact a software tool that OPEN is continually developing. (OPEN Regenerative Technologies) 250 hours

2022-017 Understanding capacity-building needs for heat pump retailers and installers in the Central Interior of BC Heat pumps will play a crucial role in providing low carbon heating sources in both existing and new residential, commercial, and institutional buildings in Kamloops. For existing buildings, fuel switching is one of the biggest impact actions that can be taken to reduce GHG emissions as most buildings use natural gas for space and water heating. However, in order to promote the rapid and widespread uptake of heat pumps that is required to meet GHG reduction targets, local industry must be prepared to meet demand and ensure that installations are streamlined, efficient, and adequately provide for heating needs. This project addresses a significant barrier to the uptake of heat pumps in Kamloops, which is the capacity of local retailers and installers. The scholar will undertake several research activities to assess knowledge and training gaps, availability of cold climate heat pump models, etc., as well as preparing case studies that outline the steps that were taken by those who have already installed heat pumps. (City of Kamloops) 250 hours

2022-018 Research the Impacts of Innovative Fenestration Materials on the Embodied & Operating Carbon of Buildings Some estimates place the global CO2 emissions of buildings at nearly 40%, representing a huge area for potential improvement in the effort to mitigate climate change.

One large contributor to a building's carbon impacts are windows, not only from the high embodied carbon of traditional fenestration materials, but also the low energy performance of those materials over a building's lifespan. This project delves into comparative research analysis between North America's traditional fenestration materials: predominately aluminum and vinyl, and new high-performance fiberglass options. This type of research is at the forefront of the architecture, engineering and construction (AEC) space, and represents a significant opportunity to help improve the performance of buildings and reduce their impact on our energy grid, and subsequent CO2 emissions. (Cascadia Windows & Doors) 250 hours

2022-019 Developing a sustainability action plan for the West Vancouver Police Department The West Vancouver Police want to do their part to help mitigate the impact of climate change and adapt policing to a more environmentally sustainable model. This project will support the development of a sustainability action plan to help the organization move forward with their environmental sustainability efforts by looking at current practices to assess areas where sustainability practices can be implemented, and provide options for implementation. (West Vancouver Police Department) 250 hours

2022-020 Innovative approaches to intercultural climate engagement As civil society organizations (ENGOs more specifically) are beginning to reckon with past mistakes and strive for equity and inclusivity, they need tools to create meaningful and lasting organizational change. The purpose of this project is to identify and create innovative approaches to intercultural climate engagement by centring Indigenous and diverse lenses. This includes generating reflection, analysis, tools and practices, enabling ENGOs, educational institutions, and other NGOs more generally, to engage with and learn from diverse communities on the climate crisis. The Scholar will develop a 'process guide' exploring questions of authentic relationships, intercultural collaborations that are respectful of protocol, and how we might centre the work with the lands and waters in good ways. (Sierra Club of British Columbia Foundation) 250 hours

2022-021 Research to inform the carbon reduction strategy at Herschel Supply Co. Herschel Supply designs and manufactures the finest quality backpacks, bags, travel goods, accessories, and apparel for everyday explorers around the world. Our goals at Herschel Supply are to make any products we put out into the world more sustainable and engage in innovative re-commerce models of business as we move toward a more circular economy in the future. 2022 is a key year on our carbon reduction journey, commencing with a GHG accounting then proceeding to science-based target setting and ultimately road mapping our global carbon reduction strategy. In 2022 we are working with external carbon consultants and our internal team to conduct a GHG inventory, set a science-based target (ultimately to be submitted to Science Based Targets initiative (SBTi)) and create the path to our 2031 global emissions reduction strategy. The successful student will play a key role in the creation and implementation of our

scope 1, 2 and 3 global GHG emission reduction strategy driven by accurate climate data. (Herschel Supply Co.) 480 hours

2022-022 Case study research to tell the story of the Sustainability Scholars Program We believe that the contribution of the Sustainability Scholars program has been significant in supporting our regional partners to achieve their sustainability goals. However, little work has been done to temporally or thematically draw connections between the projects and explore their impact on regional sustainability. We feel that it is long past due to examine the work that has been produced and generate a narrative that talks about the successful work that has been done so far. The purpose of this project is to review the projects posted in the online Scholars Project library and generate a set of case studies and narrative pieces to support knowledge dissemination about the project work Sustainability Scholars have produced over the past 12 years. The work will include a review of similar programs across the globe (and other examples) for best practices in qualitative narrative style reporting on sustainability work. (UBC Sustainability Initiative) 250 hours

2022-023 Assessing the viability of innovative testing methods to monitor bacteriological activity in the water supply system Overall bacterial concentrations within the treated transmission system may impact free chlorine residual effectiveness, increase the formation of biofilms and produce taste and odour issues. Current microbiological laboratory testing involving traditional methods take considerable time to generate results (e.g., Heterotrophic Plate Count (HPC) analysis). New testing technologies are emerging such as the Adenosine Triphosphate (ATP) method which provides more rapid results. The Scholar will undertake a study to assess alternative testing methods for confirming the overall bacterial activity within the water supply system. This information will be benefit systems operations in managing water quality issues. (Metro Vancouver) 250 hours

2022-024 Reclaimed Water Pricing Structures and Benefits Assessment for the Metro Vancouver Region Metro Vancouver is interested in exploring the potential value of benefits achievable from the use of reclaimed water and examples of reclaimed water pricing models, to aid policy implementation and the evaluation of potential future projects. The Scholar will be Identifying existing and planned reclaimed water pricing structures and identifying quantified financial and environmental benefits associated with reclaimed water use, both of which will be valuable to Metro Vancouver's efforts to implement a reclaimed water policy that is under development, including analysis of the potential value of reclaimed water use projects. (Metro Vancouver) 250 hours

2022-025 Review and cost analysis of low-emission alternatives to open-air burning of residential vegetative waste for the Metro Vancouver region The purpose of this project is to improve understanding of the feasibility and costs of current and potential residential vegetative waste management practices that reduce emissions from open-air burning of vegetative debris on residential properties in Metro Vancouver. The Scholar will review existing practices and jurisdictional policies, evaluate the availability of regional resources and services, and analyze economic barriers to implementation of alternatives to open-air burning of vegetative waste for residential properties. (Metro Vancouver) 250 hours

2022-026 Research to establish dedicated innovation and training spaces within Wastewater Treatment Plants The adoption of new and more sustainable wastewater treatment operational improvements and technologies is hampered by the gap between bench-scale research at universities and the need for demonstration in more relevant environments. The conventional approach to technology scale-up requires large financial capital for pilot or demonstration systems; in contrast Test spaces with access to continuous wastewater flows and input commodities embedded within a utility where new technologies can be rapidly demonstrated have the potential to remove that barrier and accelerate the pace of innovation. This project seeks a review of existing utility spaces used by wastewater treatment plant operators and researchers and associated partnerships with universities and industrial partners. (Metro Vancouver) 250 hours

2022-027 Supporting Metro Vancouver's Fleet Climate Action Strategy Further development is needed for Metro Vancouver's Fleet Climate Action Strategy to help identify how the emissions reduction targets will be achieved along with any potential risks and/or challenges. The Scholar will explore and report on a range of aspects that impact fleet emissions including renewable fuels, developing technologies, life cycle impacts and infrastructure challenges. (Metro Vancouver) 250 hours

2022-028 Evaluation of alternative breakwater materials for habitat restoration Shoreline infrastructure protection and resilience has been identified as a concern for critical components of the Metro Vancouver wastewater treatment system due to rising sea level, winter storm surges, and the effects of climate change. Biorock, a mineral accretion technology, represents a potential for alternative sustainable building material, to net carbon sequestration, and to augment subtidal habitat to increase biodiversity and ecosystem function. This project seeks to identify opportunities to improve the sustainability of ocean infrastructure including a review of current practices, to identify marine species with symbiotic relationships to human-built structures, and opportunities to incorporate habitat creation in a Biorock design. (Metro Vancouver) 250 hours

2022-029 Research on building form and character features that support high performance building design Many municipalities have detailed form and character development permit guidelines to inform the development community on how buildings should be designed from an aesthetic perspective. While these guidelines add great value to developing functional and visually interesting neighbourhoods, such guidelines can create artificial boundaries around design strategies that focus on energy and emissions. The Scholar will compile a sizable dataset of buildings, review design/forms and establish a series of common features, strategies, traits, etc. and compare them with common design expectations in the Township of Langley. The final report will provide a pathway of the steps to take to formally address gaps between municipal design expectations and what design patterns/strategies are most cost effective. (Township of Langley) 250 hours

2022-030 Building toolkits to support remote Indigenous communities' transition to sustainable energy systems There are 27 remote First Nations communities in British Columbia, the majority of which still rely on diesel power generation. Diesel generation is an expensive form of power production that releases greenhouse gas emissions and contributes to climate change. Relying on diesel generation increases vulnerability and decreases resiliency in remote communities, as communities rely on a

volatile fuel to power their lives. Moreover, reliance on energy sources that exacerbate harm to all our relations, both human and non-human, is often not aligned with the worldviews of First Nations.

One important pathway to reducing diesel dependency and increasing resiliency in remote Indigenous communities is increasing local capacity to develop renewable energy and energy efficiency projects. This involves , among other things, providing resources and support. The purpose of this project is to create toolkits to support communities who are just getting started on their pathway to renewable energy systems. (Coastal First Nations - Great Bear Initiative) 250 hours

2022-031 Leveraging existing policies to reduce embodied carbon in retrofits and homes built to upper steps of the BC Energy Step Code CEA is working on an Embodied Emissions implementation guide and is looking to deepen its research. The student will help determining optimal carbon budget pathways for retrofits and upper Step Code homes and influence broader strategies. (Community Energy Association) 250 hours

2022-032 Analysis of community energy and emissions data to understand progress toward reaching targets Little work has been done to collectively track local climate action progress in BC. Yet, and perhaps unique in North America or even the world, energy, emissions and solid waste data is available for each individual BC community from 2007 to the present. The project will assess how communities across BC have been progressing in energy & emissions trends, work that no-one else has done. The Scholar will analyse data and conduct research. (Community Energy Association) 250 hours

2022-033 Advancing low carbon resilient buildings following a disaster: Compiling a playbook for local government leaders BC communities are increasingly responding to climate related disasters including fires, heat waves, floods and associated landslides. When communities are in a crisis and recovering from a disaster, decisions must be made quickly and often the easiest way is the way that is selected. The purpose of this project is to compile an action-based low carbon resilient community playbook for use before and after disasters for buildings and infrastructure so that better is faster. (Community Energy Association) 250 hours

2022-035 Research to understand best practices in communicating the benefits of building electrification By empowering homeowners and building decision makers with information on the benefits of electrification and methods for how to find the right contractors, adoption of heat pumps and other low carbon technologies will increase and contribute to lower community GHGs. At the same time, providing contractors with the tools they need to be successful heat pump advocates will result in a better experience for the home and building owner.

The Scholar will be doing research, interviews and developing content for low carbon electrification communications to make electrification easier for homeowners. (Zero Emissions Building Exchange (ZEBx)) 250 hours

2022-036 Research to fill the training gap for Indigenous audiences on high-performance building and energy management The Aboriginal Housing Management Association (AHMA) wants to better support

its members (Indigenous housing and service providers) in building capacity to manage energy use and advance equity in the high-performance building and residential energy management sectors. Work for this project will involve evaluating training programs to createng a resource to make training information valuable and accessible for an Indigenous audience; and creating a plan to help AHMA to fill gaps in training and meet our members educational and training needs. (Aboriginal Housing Management Association) 250 hours

2022-037 Research to evaluate equitable approaches to multi-unit residential rental building electrification retrofits in Victoria, BC. Within the City of Victoria, buildings account for approximately half of total greenhouse gas emissions (GHGs), with the vast majority coming from larger buildings that include multi-unit residential buildings. To meet the City's climate action targets, the current retrofit rate needs to at least double and include deeper energy efficiency and fuel switch (i.e., electrification) measures. There are many barriers that property owners and managers face to undergo deep retrofits, which include potential tenant displacement in a housing market where the rental vacancy rate has been well below the balanced rate of 3-5% for many years. This project aims to further investigate barriers to installing low carbon solutions such as heat pumps for building owners/ managers, as well as provide recommendations as to how these technologies can be adopted without negatively impacting renters. (Integral Group) 500 hours

2022-038 Identifying retrofit design options, incentives, and barriers for low-carbon, climate resilient apartments Apartment buildings in the Metro Vancouver region historically have not required cooling and are vulnerable to overheating under climate change. Heat pumps offer an elegant solution to providing low carbon emission heating and cooling for homes under current and future climate conditions. However, heat pump retrofit options for individual apartment units are currently limited, potentially costly and subject to barriers for approvals. Further, apartment owners have poor understanding of available options, how to find installers, get building approvals, or access incentives. This project will help apartment owners find technology options and installers, gain approvals, access incentives, and facilitate retrofits in apartment units in UBC residential neighbourhoods and across the region. The project will also identify gaps and barriers that will be valuable to policy makers and utilities to support program and incentive design. (UBC) 250 hours

2022-039 Promoting health equity and inclusivity in wellbeing at UBC: Research and engagement with equity-deserving groups The purpose of this project is to understand the gaps in the mental health and physical activity programs and services that are available to equity seeking groups on campus. And to identify opportunities to inform UBC's approach to embedding wellbeing across our university culture and leading action and collaboration locally and globally. The focus will be on intersectional approaches with key considerations for health equity and the social and environmental determinants of health. (UBC) 250 hours

2022-055 Identification of resources to support climate action programming in community centres In 2021, British Columbia experienced climate change through a heat wave, an unprecedented wildfire season, and essential infrastructure damage and loss of life resulting from floods. Enabling community climate action requires supported social change that aligns with the City's Climate Emergency Action

Plan and goals of other levels of government. Community centres reach a broad spectrum of community members from diverse ethnicities, socio-economic statuses, and ages positioning the Park Board's Recreation system in a key space for weaving climate policy imperatives into social, educational and recreational opportunities. The Scholar will create a resource package to support program development including a research and interview-based assessment of the top areas of meaningful community climate action and interest, and a scan of existing community resources for programming. (City of Vancouver) 250 hours

2022-056 Supporting the development of a Green and Blue-Green Roof Information Portal at the City of Vancouver The Citywide Integrated Rainwater Management Plan (IRMP, 2016) and the City of Vancouver's recently adopted Rain City Strategy (RCS, 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). The IRMP and the RCS also introduced specific rainwater management performance targets, and it is anticipated that green and blue-green roofs will play an important role on some private sites in achieving these targets. The purpose of this project is to undertake research to support development of content for an online portal containing information about i) green/ blue green roof design, installation, and maintenance guidelines and ii) minimum design standards that address important implementation requirements, thereby resulting in the construction and ongoing maintenance of higher quality green and blue-green roofs in the City. In turn, this will support successful implementation of the RCS, and optimize its environmental, social, and economic benefits. (City of Vancouver) 250 hours

2022-057 Estimating the whole life carbon contribution of the construction and operation of parking spaces in the City of Vancouver The goal of the project is to determine the whole life carbon contribution of the construction and operation of parking in new developments in the City of Vancouver. For the project, the scholar will be asked to review current City policies and plans on the assessment of embodied and operational carbon from parking construction and use, conduct a literature review of whole life carbon assessment approaches and GHG contributions of parking, develop calculations for the embodied and operational carbon contribution to GHGs of parking, as well as create embodied and operational estimates of the carbon contribution of parking. The Parking Management Branch could be going to Council as early as spring 2023 with amendments to remove parking minimums city-wide from the parking by-law and expand parking maximums. The research conducted by the scholar will provide important support to underpin these recommendations. (City of Vancouver) 250 hours

2022-058 Review of Best Practices to Mobilize Community Climate Action and Development of Climate Literacy Materials Research completed by a Sustainability Scholar last year identified a number of areas to more closely understand the link between social capital and mobilization. One of the areas of work identified was to develop a campaign to build climate confidence, which according to the Scholar's report "is a cognitive social capital dimension that supports a system of meaning toward climate action. Climate confidence affirms people's values that drive action, through conversations open to debate with confidence in supported science, economics, and a sustainable future." Through best practice research

this project aims to determine the role other cities are playing in mobilizing their community around meaningful climate action, as well as utilizing those findings to create a common set of climate literacy materials applicable to the participants/members of the City's existing mobilization networks and beyond. (City of Vancouver) 250 hours

2022-059 Research on living shoreline alternatives for the Stanley Park seawall Stanley Park is the largest park and natural area in Vancouver with 9 km of shoreline in the Burrard Inlet. Climate change, sea level rise, and more frequent extreme weather events increases the strain on hardened shorelines, like sea walls. Research shows that living shorelines are a more resilient approach to accommodate anticipated sea level rise by absorbing wave action, reducing erosion down shore, increasing biodiversity, and even sequestering carbon. The project would primarily focus on opportunities and designs for the intertidal zone, including rocky intertidal, salt marsh, and pebble/sand beaches, but should also consider how these intertidal practices could protect and enhance nearshore habitat, such as existing eel and kelp beds. (City of Vancouver) 250 hours

2022-060 Research to support development of a decision framework for climate resilient asset management at the City of Vancouver Climate change increases risk levels and makes it more difficult to deliver desired levels of service at a reasonable cost. Accordingly, this project will support the asset management teams to prioritize renewal and improve their infrastructure in a way that is climate aware and resilient. Asset classes managed by the City range from water and sewer infrastructure to streets and sidewalks to electrical conduits and junction boxes. Proactive risk management of engineered assets and timely asset improvements can enhance the overall resilience of asset systems to impact of climate change. The purpose of the project is to incorporate a climate risk component into a central standardized decision-making tool to be used across all asset classes within Engineering Services. (City of Vancouver) 250 hours

2022-061 Analyzing collision data to identify priority locations for road safety improvements within the City of Vancouver The City of Vancouver is interested in developing a High Injury Network as a component of our Vision Zero road safety strategy. Vision Zero is a philosophy that aims to achieve the goal of zero traffic-related fatalities and serious injuries. High Injury Networks are a tool to map out street intersections and corridors with high severity collisions, so that they can be targeted for road safety improvements. The purpose of this project is to help the Traffic and Data Management Department gain a better understanding of where high severity collisions are occurring. The scholar will create a High Injury Network map to help the Traffic and Data Management Department identify key street corridors to target for future road safety improvements. (City of Vancouver) 250 hours

2022-062 Filling the walking data gap: Research to understand traffic signal push-button data Vancouver is a multi-modal city. Having transportation options that are easy, accessible, and flexible allows people to save time and money while increasing their health and well-being. As part of the Transportation 2040 Plan and the Climate Emergency Action Plan, the City of Vancouver is targeting that at least two third of trips will be taken via walk, bike, or transit. In order to improve the quality and quantity of walking routes, data on volumes and preferences is crucial. The purpose of this project is to determine the feasibility of using pedestrian push button data to infer pedestrian volumes at a location,

infer changes in walking update (walking trends), and recommend signal timing changes. (City of Vancouver) 250 hours

2022-063 Comparative life cycle analysis of heavy-duty vehicles fueled by renewable diesel, electricity or hydrogen fuel cells The City is interested in reviewing alternative fuel sources for heavy duty vehicles, and we are looking to complete a life cycle analysis of three similar heavy-duty vehicles, each fueled by a different fuel source including renewable diesel, battery electric, and hydrogen fuel cells. The Scholar working on this project will analyze the fuel sources available to the City of Vancouver, and consider the environmental impact of the fuel delivered to the City of Vancouver as well prepare a life cycle analysis of the varying components required for the three types of drivetrains. (City of Vancouver) 250 hours

2022-064 Research to reduce the impacts of street/sidewalk pavement rehabilitation on the urban forest The City of Vancouver manages the rehabilitation of pedestrian, cycling, and vehicular infrastructure. Maintaining concrete/asphalt pavements is critical to mobility, accessibility, and network resilience. In this context, we're looking to strengthen the relationship between street/sidewalk maintenance, the urban forest, and other natural systems. This Greenest City Scholars project will explore ways the City of Vancouver can use concrete and asphalt rehabilitation of streets and sidewalks as an opportunity to improve the ecological services provided within street right-of-way and reduce the overall impact and footprint of this kind of infrastructure renewal work. (City of Vancouver) 250 hours

2022-065 Researching a policy framework for integration of rapid transit stations with affordable housing development Development intensification at rapid transit stations enables Cities to provide housing jobs and community benefits where they are accessible by sustainable transportation modes. Challenges resulting from the timing, procurement and mandate of partner agencies can result in a disconnect between the delivery of rapid transit projects and land use planning for the transit corridor. Vancouver does not currently have a policy mechanism that contemplates appropriate development specifically for those sites near rapid transit. Given the complexity in the planning, design and delivery of major transit infrastructure projects, it is challenging under our current policies and plans to integrate development with stations. The aim of this project is to address the financial and regulatory framework challenges that prevent urban integration of transit and development and examine how affordable housing can be provided at key transit nodes. This work will have direct applicability to the future planning process and business case development for the UBC Skytrain Extension. (City of Vancouver) 250 hours

2022-066 Equity Impacts of Energy Submetering & Low Carbon Building Policies District energy and or building-scale heat pumps that supply thermal energy to large multi-use or multi-residential buildings typically have one centralized energy meter. The thermal energy bill and the recovery of those costs is dealt with by the building owner or property manager. Increasingly, building owners are turning to third-party sub-metering services that allow them to directly recover the costs associated with suite-level thermal energy consumption by their tenants. Energy sub-metering and suite-level billing are generally understood to be effective tools in reducing energy consumption by allowing the consumer to see their

energy usage and associated costs, giving them the ability to modify their behaviour if desired. However, such service providers operate in a largely unregulated space where rate setting and billing practices are often opaque; this may leave some groups of residents vulnerable to unfair business practices for an essential service. This project will focus on gaining an understanding of the current state and practice of energy sub-metering and suite-level billing, including business model and billing practices, to identify any associated externalities that may be borne by various resident groups. (City of Vancouver) 250 hours

2022-067 Researching possibilities for justice-oriented workplace accommodation and accessibility policies The City of Vancouver's workplace accommodations are currently administered through an individualist, compliance-based lens, arising out of the practices designed to "return to work" after a workplace injury. While the City recognizes the duty to accommodate, the work of advocating for and receiving accommodations rests on staff with disabilities. The City's consideration of accommodations is also quite narrow in scope excluding, for example, accommodations for religious and/or cultural practices and holidays. Ascribing to the medical model of disabilities, the City places a burden of evidence on individuals in order to grant accommodations, requiring staff to interact with gatekeepers who may not have adequate understanding of the spectrum of disabilities and access needs, including, for example, mental illness. The purpose of this project is to examine possibilities and establish imperatives for shifting to a more progressive, justice-oriented corporate accessibility or accommodation policy/ies at the City of Vancouver. (City of Vancouver) 250 hours

2022-068 Equity, Cultural Safety and Humility in the Context of Early Learning and Childcare The context of planning for childcare delivery is rapidly shifting due to converging factors including new senior government commitments to a universal system of childcare, increased public awareness of childcare as an essential service, and growing concern over persistent inequities in childcare participation rates, particularly among urban Indigenous families. The City has long prioritized improving the availability of quality and affordable early learning and childcare spaces for families through the development of new, non-profit operated, childcare centres. As a City of Reconciliation, the City is also committed to ensuring that these childcare centres (existing and new) are designed and programmed in ways that are equitably accessible and considered "culturally safe" to urban Indigenous children and families. To do so effectively, the City is seeking greater clarity around how cultural safety and humility is operationalized in the context of early learning and childcare facilities and programs. (City of Vancouver) 250 hours

2022-069 Research to understand the benefits of granting practices that support grassroots organizing Research indicates that funding to the non-profit sector often supports established, formalized NGOs, whereas those organizing at the community level lack access to these resources. Yet, those organizing at the grassroots level are often people in equity-denied groups that may experience the most gaps in funding and supports, and the most challenges in accessing them. The City increasingly relies on these groups to provide their lived experience of the needs of Vancouver residents that face the greatest barriers to achieving health and well-being; but, even so, most such groups are not yet represented in

our granting programs. The project will explore, from the City's perspective as a municipal funder, how grant investments can better foster broader community well-being. In doing so we will be increasing our ability to respond to criticisms that current grant practices benefit established non-profit organizations at the expense of the grassroots' organizing that is crucial to helping equity-denied groups challenge the barriers they face. (City of Vancouver) 250 hours

2022-070 Research to support safe, accessible, and comfortable experiences at voting places With the upcoming 2022 election, the City of Vancouver wants to review and update its practices in providing support for election workers who will serve voters on the front lines. Creating a safer voter experience will draw on the expertise already provided in City-released reports, and external reports. We are looking for a Scholar to assist us with research that will inform the design of the training module that we could deliver to approximately 1,500 workers who will be assisting voters. This module will outline barriers that voters face that we would want our election workers to be aware and sensitive about to ensure that the voting place is more welcoming for all. (City of Vancouver) 250 hours

2022-071 Exploring how urban street furniture contributes to climate change resiliency and sustainability Street furniture—including bus shelters, benches, litter cans, automated public toilets, and more—has the ability to shape the urban environment and define a city's identity. In providing these amenities for the City of Vancouver, there is an opportunity to increase accessibility, livability, safety, and inclusion. The City is now at a unique moment as it embarks on the process to sign a new contract with a vendor to provide street furniture for the next 20 years. Through this contract, multiple thousands of street furniture objects will be provided for the City. This research project help City staff a) understand the opportunities for street furniture to increase urban livability in a changing climate, and b) help reduce the carbon footprint of the new furniture. By exploring and comparing the carbon footprint of both existing and innovative materials that could be used, as well as how street furniture itself could enhance urban climate change resiliency, the Scholar will directly influence the built environment for many years to come. (City of Vancouver) 250 hours

2022-072 Green infrastructure analysis & concept design for the Cambie Street Heritage Boulevard Heritage boulevard is a 12m wide, 4.5km long median on Cambie Street. A "unicorn" for GI, due to the large area of underutilised open space, great infiltration rates, and minimal conflicting utilities, Heritage Boulevard is drastically underperforming in terms of the environmental, economic, and social benefits it could provide. It 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. This project proposes to do a study inventorying all potential asset locations and mapping out the Green Rainwater Infrastructure (GRI) retrofit potential for Heritage Boulevard. (City of Vancouver) 250 hours

2022-073 Accessible and Equitable Drinking Fountain Placement Strategy The City of Vancouver's Waterworks Utility receives bulk water from Metro Vancouver and distributes it to its customers in a safe, reliable and sustainable manner. Waterworks strives to ensure that potable water is available to the public for hydration, hygiene and cooling off, and that the City is prepared for pandemics and other emergencies. The City provides access to drinking water in many of our parks, civic buildings and in the

public domain such as sidewalks and mini-parks and plazas. With changes to our weather due to global climate change, such as extreme heat events, our goal is to provide more drinking fountains targeted to high need/high risk areas. The focus of this project would be to determine where these new fountains should be installed, what an appropriate walking distance is from one fountain to the next, and what our "first five years" end goal should be. This project will research various criteria, including socio-economic impacts, previous heat maps, climate change forecasts & trends, etc., to establish where fountains are most needed, to recommend quick-start installations to accomplish in the first five years and to help develop medium to long term installation plans. (City of Vancouver) 250 hours