

Attachment 1

Phase One Overview

YCLT Stream Team: Project Outline

Elizabeth, Juno, Lili, Lucille, Max, and Ruqaiyah

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Problem statement

The climate crisis is causing weather to be more intense and unpredictable in Metro Vancouver. Impermeable surfaces like concrete and fake grass prevent water absorption and thereby exacerbate local flooding. Increasing urban green spaces with native plants and natural drainage helps mitigate and adapt to climate change.

Project type:

- **Mitigation:** Stormwater infiltration areas increase local climate mitigation by expanding carbon sinks within the city. Native planting increases biodiverse green spaces in the city, enhancing the ability of local ecosystems to sequester greenhouse gases.
- **Adaptation:** As the impacts of the climate crisis worsen, humans and nonhumans face more extreme weather conditions. An infiltration area adds to greenspaces and biodiversity, which enhances local ecosystem resiliency within the city. Stormwater infiltration areas absorb water during intense rain and prolong the length that water stays in the ecosystem during periods of drought. Nature-based stormwater management also reduces the urban heat island effect.
- **Education:** With plaques and signage, we can educate people walking by about daylighting, stream recovery, climate action, and the history of the Glen Brook. We can also discuss our future plans to continue daylighting the stream, and provide information for passersby to get involved in the project. We hope to find the original Indigenous name of the river, which can help educate locals about the Indigenous history of the area. Since the proposed site is at Terry Hughes Park, this infiltration area also provides opportunities for students at Glenbrook Middle School to partake in looking after the garden, learn about daylighting, ecosystem restoration, Indigenous history, and the Glen Brook, and finally work as a space for play, gathering, and learning.

Project description:

During urbanization, streams are diverted into underground pipes to make way for roads and city infrastructure. Daylighting a stream – opening the stream up and restoring it to its original state – is a good way to prevent flooding and promote biodiversity.

Our team drew inspiration from a project created by Douglas College (The Lost Streams of New Westminster Project) that mapped out an approximation of where streams in New Westminster used to be. One location on the map that has the most potential for our project is the Glen Brook stream.

The Glen Brook is a piped stream that ran through Terry Hughes Park, the JIBC, təməsew̓txʷ Aquatic Centre, and through the Glenbrook Ravine to join as a tributary to the Fraser River. Our long-term goal is to work on daylighting the Glen Brook throughout the Glenbrook Ravine, but our project this year is an infiltration area in Terry Hughes Park, along the traditional path of the stream. This site was chosen as it is quite muddy and water has difficulty being absorbed into the ground. This demonstration area will include native plants to increase the biodiversity of the park, increase the efficiency of flood mitigation in the park, and lower greenhouse gas emissions to mitigate our contributions to the climate crisis. Additionally, the stormwater management area will provide recreational and educational opportunities about the local ecosystems to park visitors and Glenbrook Middle School students. We plan to include signage and seating so this place can be a place to relax, learn, play, and create community.

While the stormwater infiltration area at Glen Brook is not a full restoration of the entire stream, this project demonstrates the potential to educate the community on the history of the stream and the benefits of daylighting. After the YCLT term ends, we plan to continue working as an independent group with the City and community to daylight and restore the Glen Brook over time where feasible to do.

Goals:

- Create a space to collect excess rainwater to prevent flooding in New Westminster
- Create a space for native plants to grow and increase green space in New West, therefore reducing greenhouse gas emissions
- Help restore a local aquatic ecosystem and promote local biodiversity
- Create a community space for New Westminster residents that also provides climate education opportunities

Objectives:

- Find the Indigenous name of the chosen stream.
- Honour the lost stream in Terry Hughes Park through stormwater management which will also function as a community space. The infiltration area will include opportunities for leisure and play, and can be used by the middle school as an outdoor learning space.
- Collaborate with the Communications Team of the YCLT to design educational signage for the stormwater management area. These signs will include:
 - The Indigenous name of the stream, as well as any other Indigenous knowledge about the stream we may learn in the research phases of the project
 - A historical map of the Glen Brook
 - What daylighting means in the context of covered streams
 - The benefits of daylight streams and nature based solutions for stormwater management
 - Our groups hope to eventually further daylight the stream

- Work with staff, as well as volunteers from the YCLT, Glenbrook Middle School, and the larger New Westminster community to prep the site and construct the new area.
- Hold an opening celebration after the installation of the infiltration area that could include educational speakers, snacks, and an opportunity to share our hard work with the community.

Methodology

- 1) **Preliminary Research:** We will consult elders/experts to find the Indigenous name of the Glen Brook.
- 2) **Further Research:** We will work with staff to determine the budget and source of funding for the proposed infiltration area & daylighting initiative. This further phase of research with the city will include:
 - a. Determining who within the city will be assisting the YCLT in the project installation, providing the necessary resources & staff time
 - b. Working with the YCLT on a creation of a detailed timeline for the implementation of the infiltration area, with this information in mind.
 - c. Investigating the possibility of collaborating with Glenbrook Middle School later in the implementation phase.
 - d. Start planning a celebration (after implementation is complete) for everyone involved and those living in the neighbourhood.
- 3) **Design Phase:** We will work with the relevant experts to design the infiltration area itself, bringing our vision to life. This will include:
 - a. Consulting an expert, (preferably, an Indigenous expert/elder) to determine what we should plant in the area. This will also be an opportunity to learn if there's any other relevant details we're missing about the stream that we could include in the signage and educational opportunities.
 - b. Work *with* staff to create a design for the space, including the plant layout, seating, and signage. The seating could potentially be integrated into the design through natural seating features such as boulders and logs.
- 4) **Education Phase:** We will work with the YCLT Communications Team to inform community members about our project and its benefits, as well as further work on the signage. This could also include recruiting community members to volunteer in the implementation phase.

- 5) **Implementation Phase:** We will work with staff and volunteers from the YCLT (and preferably also the Glenbrook Middle School) to install the infiltration area. We will also work with the YCLT Communications Team to promote our team's work. This could include sharing how community members could get involved as we work to continue this initiative past the term of the YCLT.
- a. This could even also include a grand opening-style celebration after installation is complete, with possible participation with the middle school.

Resources Required

Item	Assistance/Support from City Staff
Team to do the planting around the daylighted stream & infiltration area	The YCLT team has interest in doing some planting ourselves, but lack training. We'll need support from staff in going out and installing the infiltration area.
Money for resources (plants, equipment) and labour	We will require funding for the material requirements for the garden and the staff time involved. This could possibly come from the city's Climate Action Reserve Fund, but staff will need to decide the best source of funding.
Team to design the stormwater management/infiltration area	The YCLT team has interest in being involved in the design process, but we lack professional expertise. This will involve designing the planting, the seating, the nonliving aspects (drainage, big rocks, logs, etc.), and finalizing a location within Terry Hughes.
Team to design the plaque	The YCLT will need help to make educational plaques that align with the City's design scheme.
Engineers to locate pipes nearby and figure out the logistics/possibility of daylighting one of them	For our future plans of daylighting the Glen Brook within the Glenbrook Ravine, we would like some assistance from City engineers to ascertain the feasibility of separating the storm and sewage pipes, bringing storm water to the surface, how much funding we would need for this project, how long this project would take, and if we need to work with Metro Vancouver (since the Glen Brook flows through a Metro Vancouver storm and sewage pipe).