Team 3 Students, ENGR 240 Spring 2024 Session
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Apr. 8, 2024

Wylee Fitz-Gerald, ONC Post-Secondary Education Coordinator
2474 Arbutus Rd.
Victoria, BC V8N 1V8

Dear Wylee,

We hope this message finds you well. Attached to this letter is our team's proposal in response to RFP# ONC 202401, detailing a potential interactive display implementation for the Burrard Inlet Community Observatory.

Our solution is an outdoor interactive kiosk adjacent to the Brockton Point lighthouse in Stanley Park, Vancouver. Our research explored the feasibility of implementing a kiosk in this location, including the necessary measures for weatherproofing against salt spray and rain, and the legal process for acquiring a permit from the Vancouver Park Board to install the kiosk.

Alongside the kiosk's physical design, we considered aspects of accessibility and inclusivity in our solution. Our report outlines several easily-toggleable accessibility features that should be implemented, including language options, colour blindness modes, described video, closed captioning, text-to-speech, and Bluetooth audio output. For inclusivity and alignment with the Vancouver Park Board and ONC's values of Truth and Reconciliation, we researched and included potential points of collaboration with the local First Nations groups, primarily the Tsleil-Waututh as they are closest to the lands of Burrard Inlet. Our suggestions include incorporating First Nations art into the physical design of the kiosk, and presenting the First Nations' cultural significance of wildlife and the environment alongside the data collected by ONC's Burrard Inlet Community Observatory.

We appreciate your time and consideration, and look forward to hearing from you and receiving feedback on our proposal.

Sincerely,

Jonah Carroll Dullaert, Nathan Manke,
Angus Milne, Luke Thomas, and James Kuzyk
ENGR 240 Team 3

Attachment: "Furthering Ocean Networks Canada's Goals: Proposal for an Interactive Display Unit in the Burrard Inlet Area"

Furthering Ocean Networks Canada's Goals: Proposal for an Interactive Display Unit in the Burrard Inlet Area

In Response to RFP: ONC 202401

Submitted to: Wylee Fitz-Gerald, ONC Post-Secondary Education Coordinator

Submitted by: Jonah Carroll Dullaert, Nathan Manke, Angus Milne, Luke Thomas, and James Kuzyk

University of Victoria, ENGR 240

Apr. 8, 2024

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Executive Summary

Through RFP# ONC202401, Ocean Networks Canada (ONC) requests potential interactive display designs that complement their cabled community observatories. As part of the Canadian Ocean Literacy Coalition (COLC), ONC recognizes a deficiency in ocean literacy among the Canadian population. However, ONC currently lacks a means of educating the general public on the subject, as the data collected from their observatories is presently only available in a raw, highly technical form on ONC's confusing and cumbersome Oceans 3.0 web portal.

Our team recommends the installation of an outdoor interactive kiosk in Brockton Point, Stanley Park, to complement the nearby Burrard Inlet Community Observatory. This observatory and location were chosen due to Vancouver's high population density, Stanley Park's 18 million annual visits, and Brockton Point being accessible to people of varying degrees of mobility.

Our approach to a solution involved many areas of research, including the feasibility of installation in Brockton Point, weatherproofing design choices, accessibility features, and how to make the kiosk inclusive of First Nations culture.

Having addressed the above necessary considerations in our report, we are confident our solution adequately addresses ONC's needs, satisfies all ONC's objectives and constraints, and furthers ONC's mission to improve ocean literacy in Canada. As such, we support proceeding with an implementation of our solution on the conditions that ONC first

- Performs additional research into local material and labour costs for kiosk construction and installation.
- Investigates further points of collaboration with the local First Nations, primarily the Tsleil-Waututh, given their historic closeness to the land.

Glossary

ONC	Ocean Networks Canada, a not-for-profit organization founded by the University of Victoria that has spearheaded analysis of and data collection from ocean ecosystems via their cabled observatories.
COLC	The Canadian Ocean Literacy Coalition, a nationally and internationally recognized force for improving ocean literacy.
Observatory	An underwater apparatus roughly the size of a small car, equipped with numerous sensors that collect various types of data from the surrounding environment.
RFP	Request For Proposal, a document posted by an organization that outlines a project. Contractors/companies will then bid on the RFP by submitting proposals for potential project solutions.
CAD	Canadian Dollars.
HVAC	Heating, Ventilation, and Air Conditioning, a system that keeps a given space at a stable temperature and humidity.
UI	User Interface. Any sort of system a user interacts with to engage or control a device.
pH Sensor	Sensor that measures the acidity, or alkalinity, of sea water by the concentration of hydrogen ions in the water column.
Hydrophone	Device that converts underwater sound waves into electrical signals.
CDT - Pressure	Device that measures the pressure of seawater.
Fluorometer	Device that measures the level of fluorescence in the water column.
DOM	Dissolved Organic Matter, measured by ONC's Observatory.

1. Background

ONC was established in 2007 as a University of Victoria initiative and remains largely publicly funded. As a part of the COLC [1], ONC aims to educate the public about local ocean ecosystems, delivering data from coastal community observatories to their respective communities in an engaging, understandable, and publicly accessible form [2]. ONC has ongoing research operations at all three of the country's coasts, aiming to provide real-time, open-source data for scientific, educational, and industrial purposes. With high regard for First Nations communities, ONC monitors, records, and communicates information about Canada's coastal waters while respecting indigenous land ownership and traditions.

1.1 ONC's Proposed Problem

ONC recognizes a lack of ocean literacy within the communities around their underwater observatories on the coasts of Canada. Although their observatories constantly gather information about coastal marine ecosystems, ONC currently needs an adequate means of communicating their data to non-specialists in understandable ways.

ONC has taken a step to address this issue by creating an RFP to design interactive informational kiosks, strategically located near the following observatory locations: Burrard Inlet, Cambridge Bay, China Creek, Hartley Bay, Kitamaat Village, Prince Rupert, and Holyrood Bay [3]. These kiosks will supplement their communities' ocean knowledge, translating the data collected from the given nearby observatory into an engaging, user-friendly form.

1.2 ONC's Kiosk Objectives

Table 1 identifies measurable objectives any solution to ONC's proposal should attempt to satisfy, as discussed in RFP# ONC 202401 [3].

Table 1: *Solution objectives for ONC's proposal.*

Objectives	**Measurement**	**Unit**
Any successful solution should be informative, presenting data from the local coastal community observatory.	The number of types of data implemented from the observatory's web portal in ways that are understandable to non-specialists.	Integer number.
Any solution must be robust, allowing the unit to function continuously for as long as possible.	Frequency of necessary maintenance to ensure the unit remains operational.	Number of days.
Any solution must have a thorough selection of accessibility features to best accommodate users with a wide variety of needs.	The number of accessibility features implemented appropriately into the kiosk.	Integer number.
All solutions must be implemented in a cost-effective fashion.	Initial cost of implementing the kiosk, as well as ongoing maintenance expenses.	Canadian Dollars.

1.3 ONC's Constraints

In accordance with constraints outlined in RFP# ONC 202401 [3], any proposed solution must

- Meet all safety and regulatory standards.
- Abide by intellectual property and patent rules.
- Not include any offensive visuals, audio, or other content.
- Be constructed within ONC's budget.
- Be inclusive of First Nations traditions and culture.

1.4 Our Proposed Solution

Our solution is designed to meet ONC's objectives, further their goals, and satisfy all the required constraints. We propose a two-screened informational kiosk situated in Brockton Point, Stanley Park, Vancouver. It will include considerations for all of the following: environmental factors, such as weather and ocean spray; cultural factors, focused on First Nations communities and customs; economic factors, specifically the implementation cost and maintenance costs given by ONC's requirements; and accessibility factors, including barriers in physical abilities and language.

2. Location

The choice of location for our kiosk was based on four factors: activity and popularity, accessibility, security, and ease of maintenance. As such, for a kiosk complementing the Burrard Inlet Community Observatory, we chose Stanley Park as an ideal general location. Stanley Park is a world-renowned public park in the City of Vancouver, attracting over 18 million visitors annually [4]. The location is popular with tourists and locals for its natural beauty, aquarium, amphitheatre, pool, and other amenities.

2.1 Pinpointing an Ideal Location

Within Stanley Park, Brockton Point is our specific location of interest. It is a prime location due to its substantial foot and car traffic, providing an audience for our interactive display while dissuading vandalism. In addition, the observatory itself is located just off the shore of Brockton point, potentially making a directly wired or low-latency wireless connection between the kiosk and observatory possible. **Figure 1** and **Figure 2** below highlight the location of Brockton Point within Stanley Park. **Figure 3** denotes the specific location of the kiosk across the road from the lighthouse. This location was chosen to avoid impeding access to the lighthouse and to make it easily accessible for both use and maintenance.

Figure 1: *Map of Stanley Park. Brockton Point on the far right. [5]*

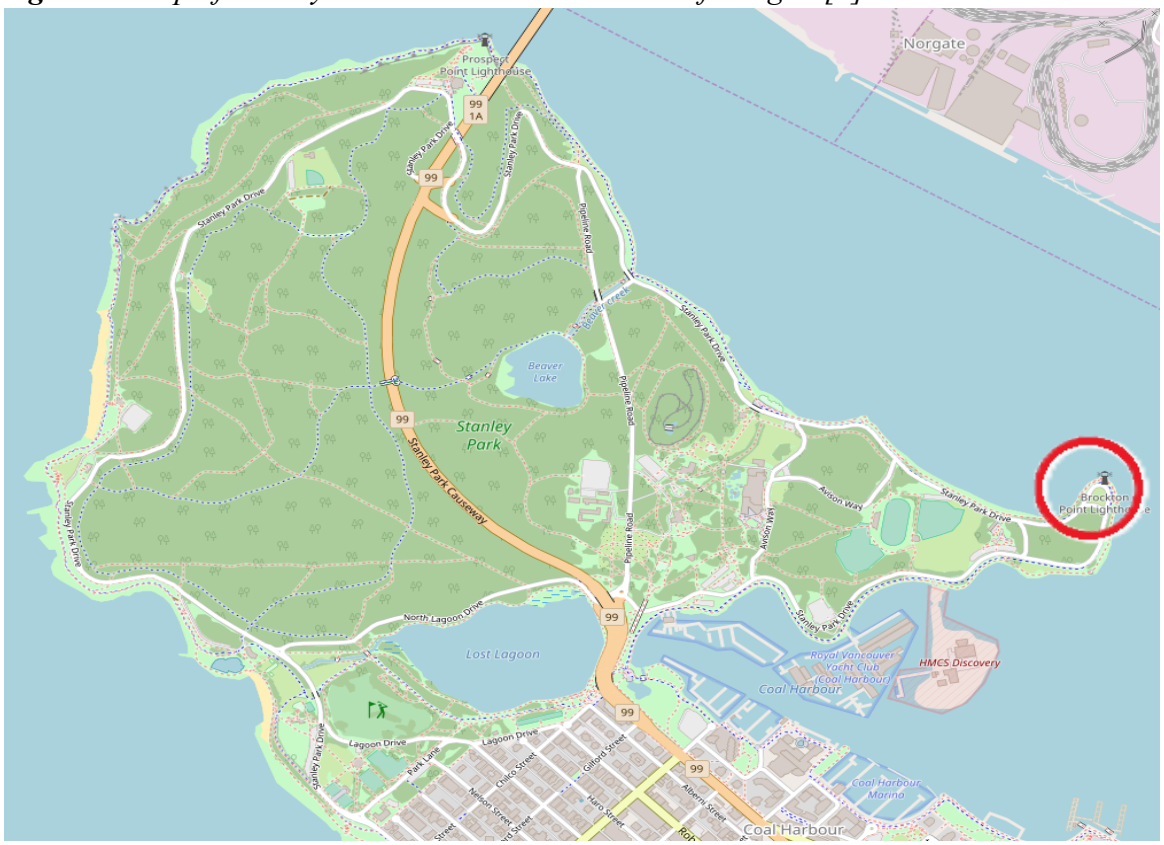


Figure 2: *Aerial view of Brockton Point. [6]*

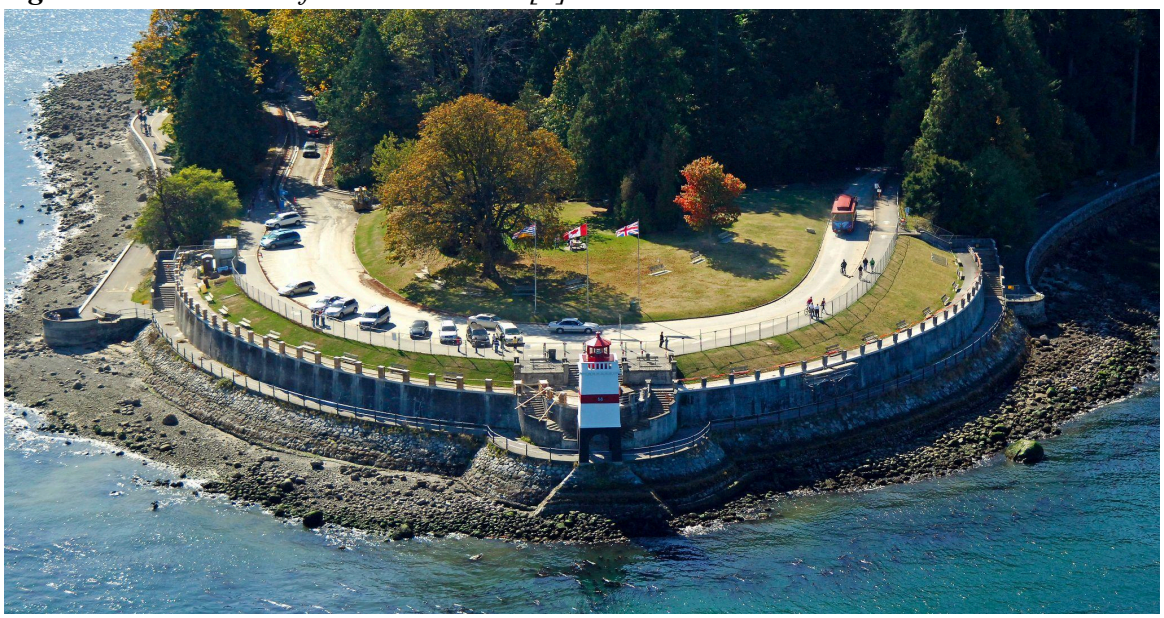


Figure 3: *Overhead picture of Brockton Point; location of interest in red circle.*

2.2 Laws and Regulations

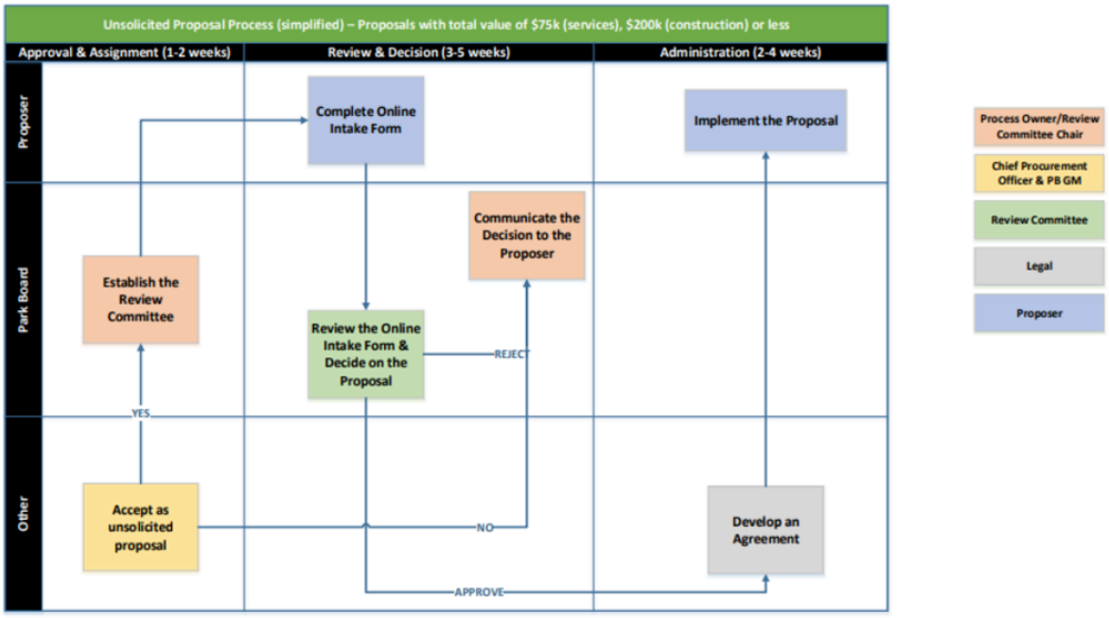
The Vancouver Park Board oversees and manages all parks in the City of Vancouver; the Park Board outlines the policies and procedures for an installation, such as the kiosk, in their "Unsolicited Proposal Process" [7]. Due to its service and construction costing less than CAD 75,000 and CAD 200,000 respectively, our kiosk would qualify as a "Tier I (simplified) proposal." Tier I proposals benefit from a more streamlined application process, with timelines of 6 to 11 weeks for review and approval.

The proposal begins with the submission of an Online Intake Form that will be evaluated by a review committee. Moreover, the proposal requires a design and construction plan, a management and maintenance plan, and an energy requirement evaluation. The proposal will be evaluated on its conformance with factors of

- **Equity & Reconciliation:** The project's alignment with the Park Board Reconciliation Mission, Vision and Values, and the City's social values.
- **Alignment with Priorities:** Its response to a community need or service deficiencies.
- **Value for Money:** How the proposal provides public benefit, and clearly outlines the financial partnership for the Park Board, i.e., capital, operating costs, and asset replacement.
- **Feasibility:** The practicality of timelines, clear goal identification, project resource availability, and actions the proposer will take to maintain the asset.
- **Uniqueness & Innovation:** How well it provides a service not currently planned or delivered by the Park Board.

Fortunately, our kiosk will offer a number of community benefits while aligning with many of the Park Board's values. Once approved, implementation would involve executing a legal agreement with the Park Board and obtaining a building and electrical permit. **Figure 4** outlines the Board's process.

Figure 4: *Vancouver Park Board Unsolicited Proposal Process (simplified) [7].*



3. Kiosk Design

In our research, we found that many considerations needed to be made when designing and implementing an accessibility-focused outdoor interactive display unit.

3.1 Physical Design Elements

The section below lists a variety of essential kiosk design considerations and elements. We have elected to design a dual-sided kiosk with two screens, each measuring 50" diagonally with a 4:3 aspect ratio. The kiosk will be powered by the City's power grid, supplemented by solar panels.

3.1.1 Weatherproofing

A significant consideration when constructing an outdoor kiosk is ensuring the unit is protected from the forces of nature. Using data collected by Environment Canada in the Vancouver area, we came to the following conclusions:

- **The kiosk must be designed to operate at ambient temperatures between -15 °C and 35 °C [8] [9].** This is the extreme temperature range for the Vancouver area.. An HVAC unit would be installed inside the kiosk to cool the internal hardware during hotter months and heat during warmer months, a standard design approach for interactive display units of this type [10].

- **The kiosk's internals must be adequately protected from rain and moisture.** Vancouver often receives over 1000 mm of rain annually. Ensuring no moisture can get inside of the kiosk is thus paramount to the unit's safety and continued functionality. Every seam on the kiosk's housing should have waterproof seals, and the kiosk should feature a roof or overhang to protect the unit and any users from rain or other wet weather.

Given the kiosk's proximity to Burrard Inlet's waters, we felt it imperative to account for potential corrosion from ocean salt spray. Some preliminary research quickly led us to learn that chemical coatings are applied to metal structures to make them resistant to the effects of salt spray. Amid the myriad of companies attempting to sell products, we found a recent study detailing advances in Graphene Oxide-based anticorrosive coatings, with testing showing how they outperform older, more traditional chemical coatings used for salt protection [11]. As such, our kiosk would have such a coating applied to its metal components.

3.1.2 Kiosk Externals

The external components of the kiosk also impact its weather resistance, as well as its visual appeal and implementation feasibility. With this in mind, our external design choices are as follows:

- **The kiosk case will be constructed using weather-resistant materials.** Due to its corrosion resistance, we recommend using stainless steel for the kiosk body. External kiosk parts will be manufactured to fit together snugly, and waterproof seals will keep out moisture.
- **The roof, side panels and supporting kiosk legs will be made with specially designed hardwood and incorporate First Nations artwork.** Hardwood should be more cost-effective and easier to install than steel or other metals. Additionally, we would like to commission a local First Nations group to design artwork for the side panels.
- **Our kiosk will be solar powered and wired to the power grid.** We have elected to install a battery and two 200W solar panels on the kiosk's roof [12] for self-sufficiency during sunny months.
- **The kiosk will be installed on a small concrete pad, with a paved path to the sidewalk and road.** This will ensure that it is accessible to everyone and will not become muddy or unreachable.

By integrating these physical and internal design elements, the outdoor interactive kiosk will withstand harsh weather conditions and provide an engaging and visually appealing experience for users, promoting connectivity and cultural appreciation.

3.1.3 Kiosk Internals

The internals of the kiosk are a critical component of the kiosk, being the functional heart of the implementation. As such, they must be durable, reliable, and require minimal maintenance. Our main findings are below:

- **The kiosk will require very little computational power.** Its primary functions will be to store and display data, text, and pre-rendered videos, and fetch updates regularly from

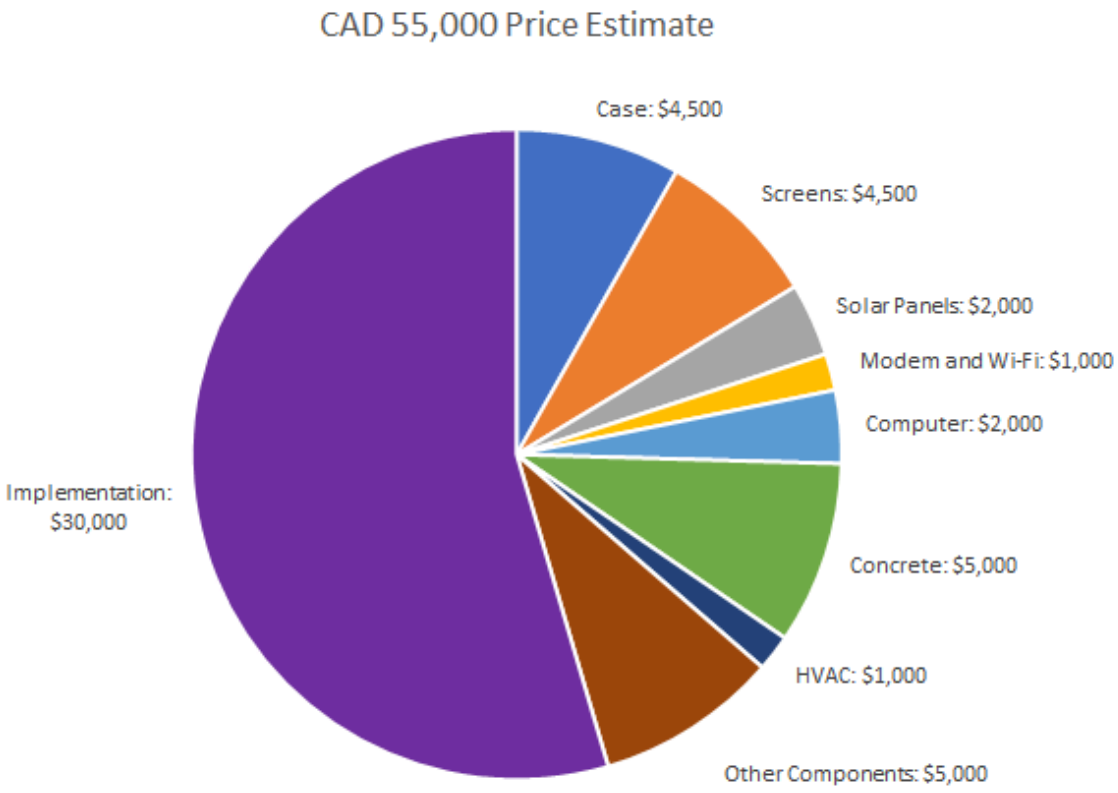
ONC's database. As such, an overall inexpensive computer can be used to run the kiosk's software.

- **The kiosk will be equipped with internet connectivity and offer access to public Wi-Fi**. A robust internal modem will be installed, allowing for up-to-date data to be displayed in the kiosk. An unintentional benefit of the router is the ability for the area to become a City of Vancouver Wi-Fi Public hotspot. Although the City offers such hotspots in various places, Brockton Point is not currently serviced [13]. The proposed router will offer Wi-Fi around the kiosk in a 300m radius.

3.1.4 Estimated Kiosk Costs

The estimated cost is expected to be between CAD 20,000 and CAD 30,000 for all components required to assemble a functioning, aesthetically pleasing kiosk. The rest of the budget has been set aside for the installation and labour. Our estimated budget is CAD 55,000, a sum chosen to allow a buffer if unforeseen circumstances require additional funds from the project maximum of CAD 80,000. Although maintenance costs are not included in this budget, they should be considered for the successful long-term operation of the kiosk.

Figure 5: *Budget breakdown estimate.*



3.2 User Interface Design

Alongside the physical characteristics of the kiosk, the user interface (UI) design is critical to making a usable implementation. Following common usability heuristics [14] when designing a UI not only improves the user experience (UX) of the system but also increases engagement due to ease and efficiency of use [15]. As such, a few significant considerations were made when designing the preliminary kiosk UI.

Figure 6: *Wireframe mockup of kiosk menu.*

- **Making the UI clean and minimalist:** We elected to take a minimalist approach to the amount of interactive elements shown on screen at a time. This reduces clutter, keeps users from becoming overwhelmed, and makes the kiosk more intuitive to use.
- **Using recognizable and self-explanatory icons where possible:** Every menu and feature is represented by an icon, with text labels appearing where necessary or appropriate. Symbols transcend written language. Thus, using icons to denote the different features of the kiosk makes the system inherently more accessible.
- **Providing persistent accessibility features:** The bottom bar of the display features several kiosk options. In the **Figure 6** mockup they are, from left to right, Hearing Aid Pairing, Descriptive Audio, Closed Captioning, Language Options, and Colour Blind Modes (all discussed later in section 4.2). Display brightness can also be adjusted. This widget bar persists on all screens, allowing users to easily and efficiently customize their experience to suit their needs.

In the actual implementation, we would recommend beautifying this interface by putting aerial and underwater footage of Burrard Inlet as the background of most pages. When left idle for an extended period, the kiosk displays should go into sleep mode, dimming to conserve power while still displaying interesting facts and data about Burrard Inlet, alongside territory acknowledgements.

4. Display Content

This section outlines the content featured on our proposed interactive display unit, describing ideas for communicating ONC's data and going into further detail regarding considerations for making the kiosk's content as accessible as possible.

4.1 Communicating Data

As described at the beginning of this report, the main goal of this kiosk is to increase ocean literacy within the community surrounding the observatory. To accomplish this task, we have developed several approaches for effectively communicating ONC's data and conventional ocean knowledge.

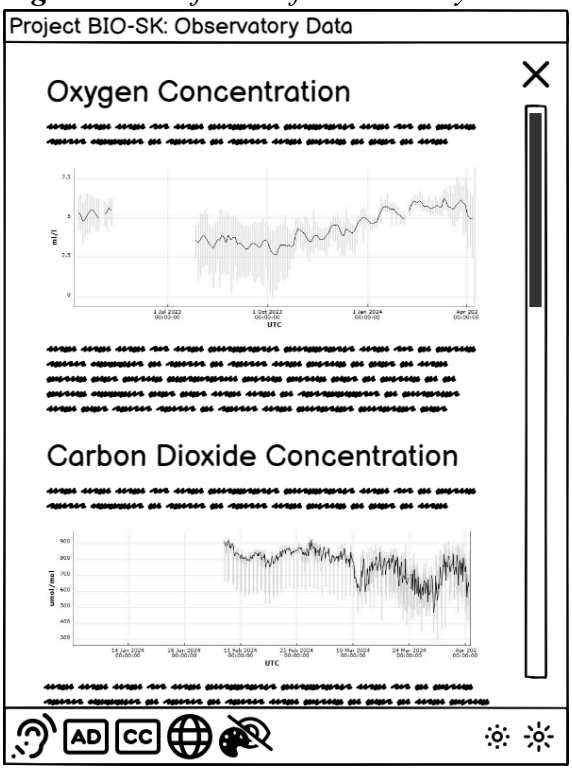
4.1.1 Integrating Live and Historic Data

According to RFP# ONC 202401 [3], the display must communicate data collected from the Burrard Inlet Community Observatory in compelling ways. Our design includes an "Observatory Data" tab, as seen above in **Figure 6**, where users can find live and historical data. To make this information understandable to non-experts, we suggest that ONC provide explanations to supplement user interpretations.

These explanations can describe a given measured metric's role in a marine ecosystem, how it is recorded, what happens if its levels are high or low, and how it relates to climate change, if applicable. For instance, the following questions can be answered:

- **pH Sensor:** What is the habitable pH range for marine life?
- **Hydrophone:** How does noise pollution affect the ecosystem?
- **CDT - Pressure:** How are tides and water pressure related? Is there a significant trend?
- **Fluorometer:** How does this impact water colour and the presence of phytoplankton?
- **DOM:** How do microorganisms use dissolved organic matter?

Figure 7: *Wireframe of Observatory Data.*



By providing connections like those above, we believe ONC's data can be represented in a way that is understandable to a broad audience. **Figure 7** provides a wireframe of how this may look.

Beyond ONC's scientific data, we recommend including information on ONC, the kiosk, and the Burrard Inlet area within the kiosk. An "About the Project" tab would explain the purpose of the kiosk and introduce ONC's mission and desired impact, while an "About Burrard Inlet" tab would include information on the area and its ecosystem. For example, a marine life index could

be included within the latter tab, maintaining a record of animals in the area by detailing the creature's name, place on the phylogenetic tree, diet, and other relevant information. This conventional information will complement ONC's scientific data in increasing users' ocean literacy.

4.1.2 Gamification

Conclusions drawn by Hakulinen and Auvinen suggest that gamification elements in an educational context yield favourable results in terms of engagement, user retention, knowledge, and cooperation [16]. Thus, we considered it beneficial to include games in the kiosk design. Our ideas include

- **A quiz game** where users connect their phones to the kiosk via a QR code or URL. An ocean-related question would be displayed on the kiosk screen, while four possible answers would appear on connected phones. Users would each choose an answer from their phone, after which the kiosk screen displays the correct answer and awards points.
- **A marine wildlife guessing game** where users will be prompted to guess the animal corresponding to the provided fact, image, video, or sound. The correct answer will be revealed alongside other relevant and interesting information upon response.

Furthermore, we suggest that a leaderboard be added to track user scores. Compared to those given information more traditionally, users engaged in a gamified environment obtain a "higher average of points, badges, and number of logins" [17]. Such a statement supports the idea that the friendly competition fostered by a leaderboard will further incentivize user engagement.

4.2 Software Accessibility

Nearly half of Vancouver's population speaks a primary language other than English or French [18], and 410,510 Greater Vancouver residents identify as having a disability [19]. Therefore, creating a solution that adequately serves these groups is critical to ONC's accessibility objectives; increasing the potential kiosk audience size will directly and positively impact ONC's ability to improve ocean literacy. We have developed our solution with Vancouver's Accessibility Strategy [20] in mind to overcome differences in physical and mental ability and language barriers.

4.2.1 Visual Impairments

Although 8% of the world's population is affected by colour blindness, implementing a solution to accommodate all variations of the affliction is difficult [21]. Colour blind screen modes are a traditional approach, with users selecting the ideal adjustment for their type of colour blindness. However, with scale, this approach becomes less ideal. A more practical solution that does not require colour blindness modes would

- **Use consistent colour settings** and a unified palette across all screens and kiosk pages.
- **Use high-quality monitors** for the kiosk screens, making it easier for an individual with colour blindness to differentiate colours.
- **Follow the universal design process** outlined by Karas [21] to ensure an individual's colour blindness will not impact their interaction with the kiosk.

Our solution would be designed with the elements above in mind, but it will also include manually-selectable colour blind modes for those who want to use them.

Additionally, navigating the kiosk screen depends on a user's ability to comprehend text and images. Our recommendations include a text-to-speech tool for reading out page content and audio description features for detailing any graphical elements. When combined with the UI design choices described in section 3.2, these tools will make kiosk content more accessible to those with dyslexia, illiteracy, or other reading or comprehension challenges.

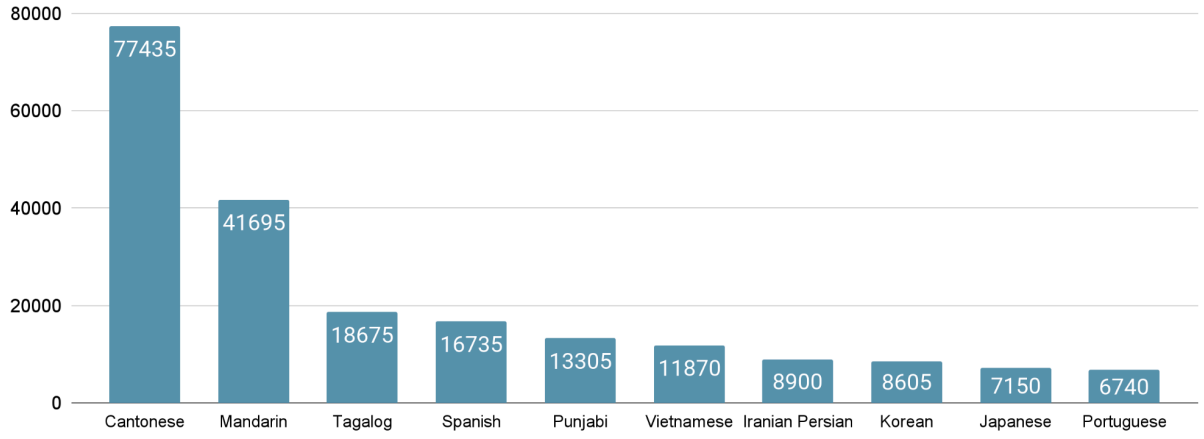
4.2.2 Hearing Impairments

Many elements of our kiosk design include sound. Thus, accommodating hearing impairments is a necessity. The most effective solution, described by Hernandez [22], would stream kiosk audio directly to a user's hearing aids or headphones through Bluetooth. However, older hearing aid models may not have Bluetooth capabilities, so a backup solution should also be provided. The most common alternative solution is providing closed captioning for all relevant audio and video, which we recommend in addition to Bluetooth functionality.

4.2.3 Language Options

As around 270,000 of 630,000 Vancouver residents speak a primary language other than English or French [18], including language options on the kiosk would significantly increase its reach. Our solution targets the most prominent languages in the area, organized below in **Figure 8**.

Figure 8: *The 10 most prominent foreign languages in Vancouver [18].*



Implementing translations of all written and spoken content to these top 10 languages would allow the kiosk to serve approximately 210,000 of 270,000 individuals of the area who speak a foreign mother tongue. As stated earlier in section 3.2, the language of the display can be changed at any time via the widget bar at the bottom. The kiosk will also prompt users to select a language as it wakes up from its sleeping state.

4.3 Cultural Inclusivity

Aligned with ONC and the City of Vancouver's goals for Truth and Reconciliation, we propose a few ways to involve the local Musqueam, Squamish, and Tsleil-Waututh nations in the development of the kiosk. Though Vancouver recognizes each group, more focus may be put on the Tsleil-Waututh Nation as they have the closest connection to the inlet. The kiosk can involve the groups through the following methods:

- **Consult the First Nations** on cultural stories from the inlet to include in the "About Burrard Inlet" tab. These can be delivered in written form, or with recorded video or audio.
- **Present the Indigenous cultural significance** of local marine wildlife alongside the scientific information in the marine life index mentioned earlier. For instance, parallels can be drawn between the behaviour of Orcas and Tsleil-Waututh familial beliefs [23].
- **Program the kiosk to display land acknowledgements** after a language is selected when the kiosk exits sleep mode. This can be done via on-screen text and an audio recording in the selected language.

With these methods, users are given the opportunity to recognize Indigenous culture while learning about Burrard Inlet's undersea environment.

4.4 Promoting Engagement with ONC

A recent study by Wang, Xiaoyuan Lu, and Shi shows a positive correlation between an organization's use of user/customer mailing lists and the amount of engagement in company services by users [24]. As such, we believe it would benefit ONC's social engagement to allow kiosk users to sign up for an emailing list, get involved in ONC events, and provide feedback through the Getting Involved page on the kiosk main menu. This page would provide users with a direct URL and a QR code to scan with their mobile devices, leading to a service sign-up webpage.

5. Conclusion

Our proposed solution delivers live and historical data from ONC's Burrard Inlet Community Observatory in understandable and engaging forms to knowledgeable individuals and the general public alike. Accessibility is a core element of our kiosk's physical and software design. We considered individuals who used wheelchairs, people afflicted with various hearing and vision impairments, and those who would prefer to engage with the kiosk in one of several languages other than English. As is vital in this age of Truth and reconciliation, we also suggested multiple ways of incorporating First Nations culture, teachings, and history into the interactive unit. We also researched what design elements are needed in outdoor kiosks, especially those installed close to the ocean. We offered several potential measures to ensure the unit would withstand the weather of Burrard Inlet year-round. For material costs, we determined that our solution should fit well within ONC's budget of CAD 80,000.

6. Recommendations

We recommend that ONC proceed with the following steps to test the feasibility of our solution:

- **Research local suppliers of components** for kiosk construction, to determine a precise, real-world cost estimate for materials.
- **Investigate the labour costs for installation** of the kiosk within Brockton Point.
- Investigate further languages to include as options in the kiosk, via census data.
- **Look further into points of collaboration** with the Tsleil-Waututh First Nation in case we missed something major in our report.
- **Develop insights** to draw from ONC's collected data so that non-experts may interpret the graphs.
- **Consider implementing a video camera system** on the Burrard Inlet Community Observatory, to allow further interactive engagement in a way already possible on most other ONC community observatories.

If, upon further analysis, the cost of materials and implementation still prove reasonable, then we recommend ONC pursue a full implementation of our solution. Our solution will fulfill ONC's objectives, meet its constraints, and further its goal as part of the COLC to improve ocean literacy among the population.

7. References

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8. Appendices

Appendix A: Work Logs

Task	Member(s)	Relevant Date
Amass and record the objectives the proposal should meet.	All members	Mar. 8
Solidify member roles.	All members	Mar. 8
Finish the Work Plan.	All members	Mar. 9
Submit the Work Plan.	Jonah	Mar. 9
Research what language options to implement into the kiosk, to best serve the population of Burrard Inlet.	Nathan	Mar. 11
Choose a visual theme for the presentation.	All members	Mar. 11
Research prior successful implementations of similar informative kiosks, to get ideas on design elements.	Luke, James	Mar. 12
Research how colourblind modes are implemented into software.	Angus	Mar. 12
Research hearing aid connection integration for the kiosk.	Angus	Mar. 12
Research gamification strategies for software.	Angus, Nathan	Mar. 16
Introductory sections (including client context, problem definition, and overview of solution).	Angus	Mar. 16
Pinpoint where we would ideally want the kiosk to be: Brockton Point, Stanley Park.	Luke	Mar. 17
Research how to address other accessibility challenges. (deafness, dyslexia, sight troubles, height differences)	Angus, Nathan	Mar. 21
Look into potential points for First Nations collaboration.	Nathan, Jonah	Mar. 19
Pre-matter: title page, work-in-progress table of contents, glossary, and placeholder letter of transmittal and executive summary pages.	Jonah	Mar. 23
Conclusion & Recommendations sections.	Jonah	Mar. 24

Assemble work-in-progress bibliography in IEEE style.	Luke	Mar. 21
Investigate Burrard Inlet's weather conditions, and approaches for withstanding them.	Jonah	Mar. 21
Research Vancouver's laws and regulations to ensure our solution will abide by them.	James	Mar. 21
Submit the Draft Report.	Jonah	Mar. 22
Accumulate and summarize remaining information from each aspect of the project into sections of the presentation.	Each member for their own sections.	Mar. 24
Developed a price estimate.	Luke	Mar. 24
Create user interface mockups.	Jonah	Mar. 24
Refine the slides for readability; unify the style.	Jonah, Nathan	Mar. 24
Rehearse as a group and edit slides as needed to make the 10-minute mark.	All members	Mar. 25
Submit Group Presentation slides.	Jonah	Mar. 26
Deliver Group Presentation.	All members	Mar. 26
Investigate what data is collected by the Burrard Inlet observatory, and how it could be delivered in a comprehensible way.	Angus, Nathan	Mar. 27
Synthesize and complete the kiosk design and budget sections.	Luke, James	Mar. 28
Write the Letter of Transmittal.	Jonah	Mar. 29
Write the Executive Summary.	Jonah	Mar. 30
Create more user interface mockups.	Jonah	Apr. 7
Thorough final editing of Client Report.	All members	Apr. 7-8
Final adjustments to IEEE-formatted reference section.	Luke	Apr. 8
Submit Client Report.	Jonah	Apr. 8