

**First Nations Access to Public Services in Greater
Vancouver**

GEOB 270 Final Project

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Intent:

This project attempts to shed light on daily life on First Nation Reserves that are present within the Greater Vancouver as the overarching region. Our mission is to compare the immediate availability of public service amenities in a specifically determined buffer around the said communities. Our methodology and decision making is described below, followed by the data analysis.

Data Acquisition/Bibliography:

“BC Ministry of Health.” Victoria, Victoria, Feb. 2002.

Standards of Accessibility and Guidelines for Provision of Sustainable Acute Care Services by Health Authorities (page 5)

Kelly, Charlotte, et al. “Are Differences in Travel Time or Distance to Healthcare for Adults in Global North Countries Associated with an Impact on Health Outcomes? A Systematic Review.” *BMJ Open*, vol. 6, no. 11, 24 Nov. 2016, doi:10.1136/bmjopen-2016-013059.

“Vehicle Kilometres Travelled.” *Metro Vancouver*, 2011,

www.metrovancouver.org/metro2040/sustainable-transportation/vehicle-movement/vehicle-km-travelled/Pages/default.aspx.

Dataset Name: Attributes/tabular data: Source:

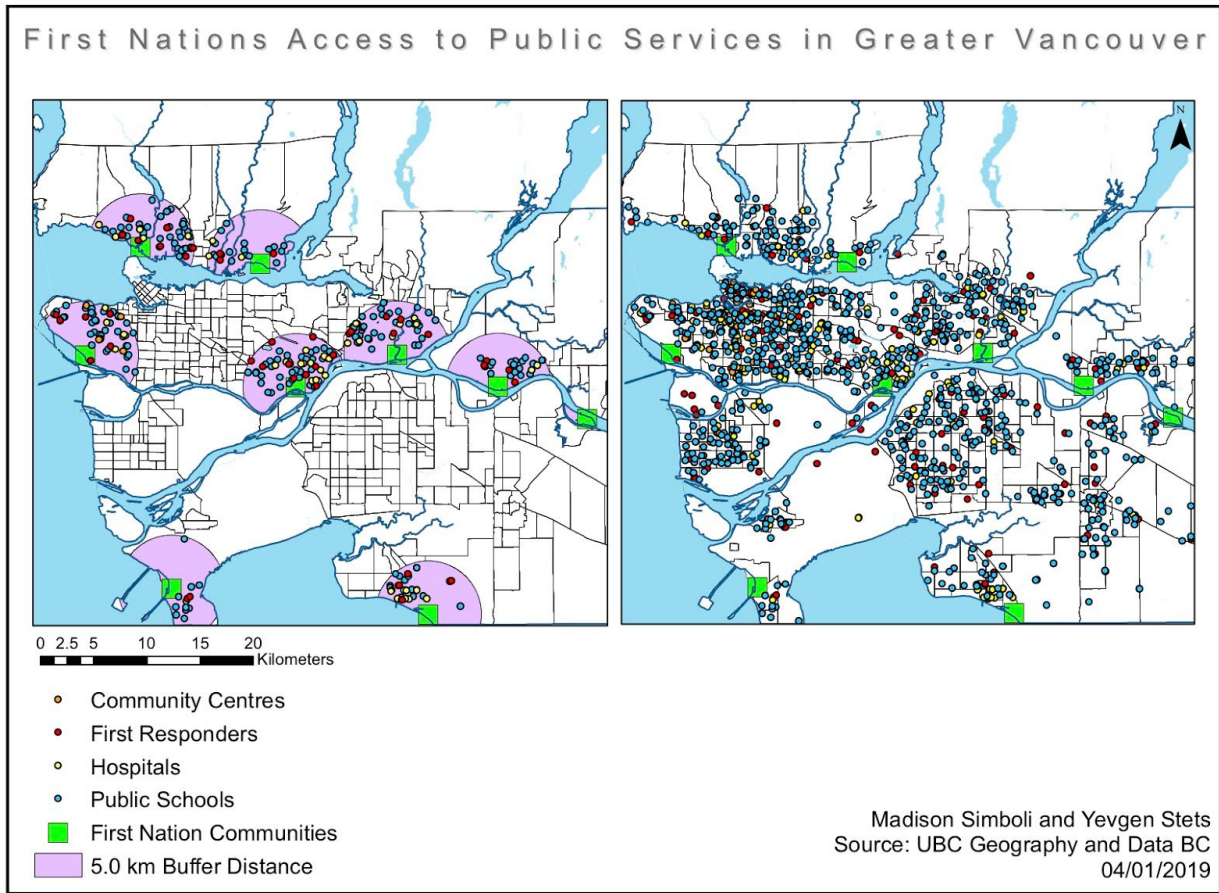
Community Centres	Vector Data (point data)	https://data.vancouver.ca/datacatalogue/communityCentres.htm
First Nations Communities	Tabular Data	https://catalogue.data.gov.bc.ca/dataset/first-nation-community-locations
First Responders	Vector (point data)	https://catalogue.data.gov.bc.ca/dataset/first-responders
Hospitals	Vector (point data)	UBC Department of Geography G: Drive

Ocean (Pacific Ocean)	Vector (polygon)	UBC Department of Geography G: Drive
Public Schools	Tabular data	https://catalogue.data.gov.bc.ca/dataset/bc-schools-school-locations
Rivers	Vector (polyline)	UBC Department of Geography G: Drive
Shoreline (Lower Mainland)	Vector (polyline)	UBC Department of Geography G: Drive
Vancouver Census Tracts	Vector Data (polygon)	UBC Department of Geography G: Drive

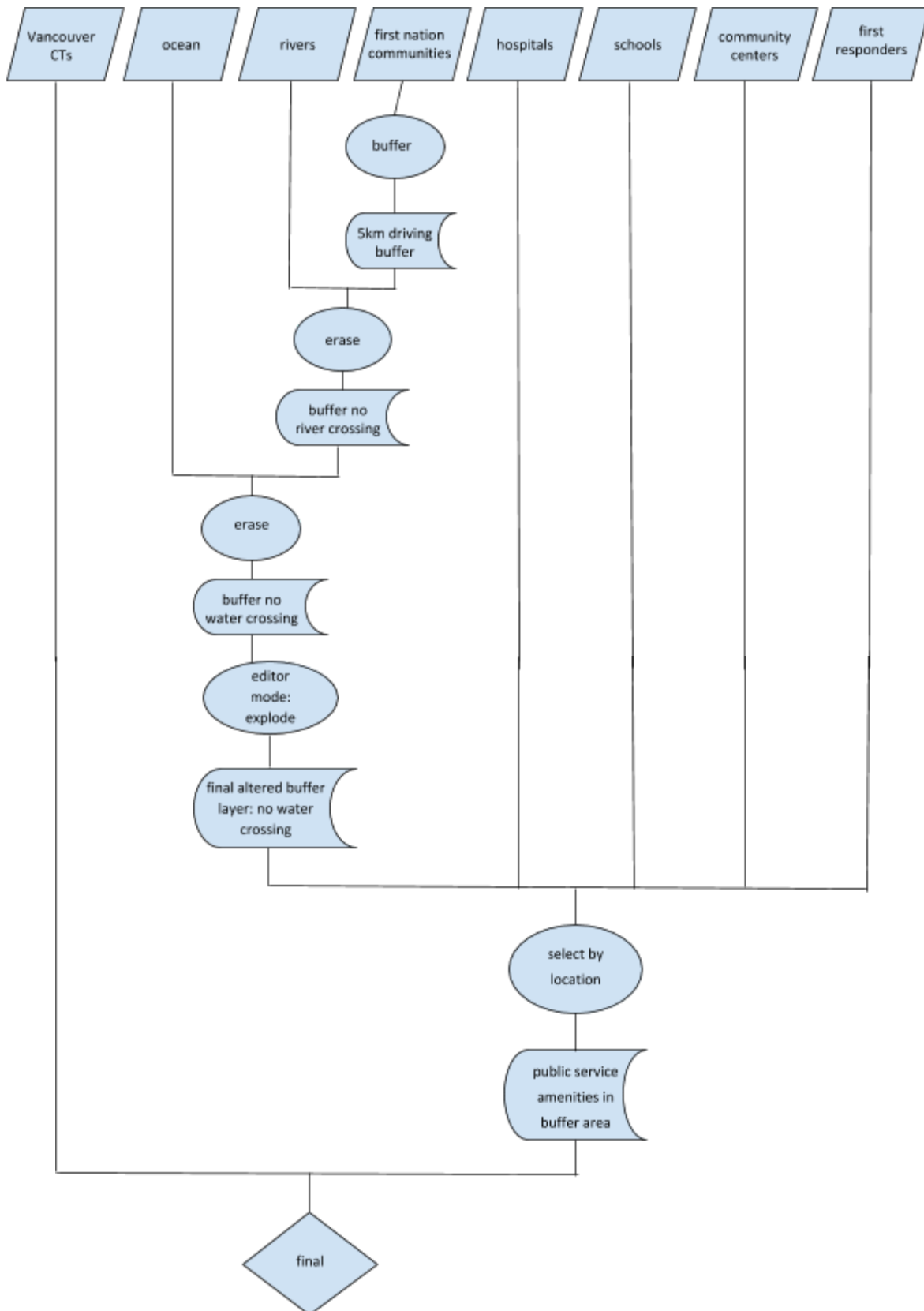
GIS Analysis:

In order to create the visual that we have produced, we began with downloading the above-mentioned layers of data from the stated beside them sources and importing them all into ArcMap. First order of business was to create a dedicated area of research outlining the First Nations Communities that fall within the boundaries of Greater Vancouver as marked down by the Vancouver Census Tracts. Such action has been achieved via the *buffer* tool that we set for 5.0km (the decision for 5.0km is explained in the report section below). In order to achieve the topographical definition to the established buffer zone, we used the *erase* function to showcase the water bodies that intersected the buffer. First, we erased the *Rivers* layer out of the buffer, and then from the newly created buffer with no river crossings we erased the *Ocean* layer. Further, in order to minimize travel time, which would not include water crossings, we entered the *Editor Mode*, selected each individual buffer as one object, then applied *Explode* feature which allowed us to separate the buffer in smaller pieces as presented topographically, and then individually select those pieces and delete any bits that would assume water crossing. This process was repeated for all of the buffers around the First Nations Communities until completion. The final map was achieved by using *Selection by Location* of all the attributes (public service amenities in question) to the reformed and altered buffers. This created a new layer for visualizing the research question. After this, a second *dataframe* has been created in order to produce two maps for the comparison of access to public service amenities between First Nations Communities and Greater Vancouver as a whole. In the second dataframe, we copied the basic necessity to recreate the geospatial visualization of Greater Vancouver (Vancouver CT, Ocean, Rivers, Shoreline), plus we added the data for the amenities in question to create a simple map for the scattering of data points.

The final visualization is as follows:



Work Flow Chart:



Analysis:

Although our literature says an hour is considered to be the acceptable time to reach a first responder service, Vancouver is a dense city. Based on that, we feel like an hour is too generous of a time frame, so instead, we created a buffer of 5 km around each of the First Nations community. We justify this decision based on the fact that the average commute for someone living in Vancouver is 7.4 km in Metro Vancouver (Metro Vancouver, 2011). In an emergency situation, we believe the acceptable travel distance is no more than 5km. This would also fall under Standards of Accessibility and Guidelines for Provision of Sustainable Acute Care Services by Health Authorities (BC Ministry of Health). The presented map shows the comparison of the overall availability of public services such as community centres, first responders, hospitals, and public schools throughout Metro Vancouver in comparison to the First Nations communities within the region. The indicated buffer zone on the map corresponds to the above-mentioned 5km radius. We decided to cut the buffer by rivers and the ocean, as to prevent any water body crossings, as it would not be realistic to expect such measures being taken in case of an emergency. Despite us highlighting the availability of public schools and community centres, we have decided to base all travel time and distance around the emergency scenario in order to provide the most efficient access to the amenities in question. It should be noted, that we specifically chose to look at public schools, and not the schools that are specific to the First Nation Reserves, as we wanted to contain the scale of this project to the class - GEOB 270, and to fit the given timeline within the learning term at UBC. There is information on such schools, we just chose to not include it to simplify the project. Furthermore, when looking at the marker for hospitals, it must be noted that that category also includes care facilities such as senior homes.

From our study, it can be seen that the presented First Nations communities are underserved by the public service amenities when comparing them to the entirety of Metro Vancouver. Such a conclusion was invoked due to the sparse distribution of the factors in question. It is seen that no point is in the direct centre of the community, meaning that some travel by a vehicle is required, making the access not immediate. In addition, we have not observed any presence of community centres that intersect the boundary of access set up by us other than near the UBC Point Grey Campus; we are treating such result as an anomaly, due to such services being present on a university campus that firstly targets its students, and then the public. Furthermore, as the reserves move away from the city centre, we observe a big decline in the availability of amenities, making it even harder to access simple life requirements. Such a pattern is especially profound in the areas like Tsawwassen, White Rock, and Deep Cove. Given this, we do not deem such availability to be profound, neither it is satisfactory to uphold the living standards of our First Nations Communities; hence making the conversation and action around the reconciliation

movement even more prominent than ever. Our study helped uncover the not so pretty truth of living on the reserve, and we hope that this simple map is able to educate many and give some insight, on what it is like to live and dwell on a reserve that was set aside by the Crown. This work is not meant as a form of criticism, but rather as an educational tool.