



HOW CLOSE IS MY NEAREST PARK?

In 2016, the Vancouver Park Board conducted a spatial analysis of parks and other public green spaces in neighbourhoods across Vancouver.* A walking network that modeled actual walking routes was developed to understand how long it takes to walk from home to your nearest park.



Photo retained from Park Metrics Study, Golder Associates Ltd., 2016

^{*}The Park Board contracted Golder Associates Ltd. and Licker Geospatial Consulting Co. to conduct this study. All the maps were updated in 2018 with 2016 census data. This document is a revision of the Golder Associated Ltd. Park Access Study produced in 2016.

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INTRODUCTION

We use our parks and green spaces for everything from sport activities to socializing with friends, enjoyment of the natural environment and everything else in between! Access to our diverse network of green spaces is essential to our health and wellbeing, our urban fabric, the natural environment and our City's identity.

The park provision study is guided by the Park Boards Strategic Vision:

"To be leaders in parks and recreation by connecting people to green space, active living and community."

The park provision study determines how connected we are to our parks system through a mapping analysis of the physical distance it takes for residents to walk to a park or other public green space such as school yards, plazas or parks adjacent to Vancouver -- these are the elements that make up the green space network in Vancouver.

Walking distance is not as simple as measuring from A to B. Vancouver is a city of steep hills and we all walk at different speeds! Sometimes traffic lights and intersections slow us down and often we choose the shortest route over the most direct route. To simulate the real walking distance, the study considers terrain, walking routes beyond the street network and intersection delays.

In addition, the park provision study investigates the areas of our city where parks and green spaces are working the hardest. These parks are surrounded by a greater amount of people living and working nearby than other parks in our green space network.



The park provision study helps us understand the entire green space network, how we access it and how we use it.

DEFINITIONS

PUBLIC GREEN SPACE

PARK
GREEN SPACES
SCHOOLS
POPS
FUTURE PARKS

PARK

Parks are public open spaces managed by the Vancouver Park Board. They are free and accessible for all.

GREEN SPACES

These are green areas within the city that are not formally recognized as parks but are either owned by the City of Vancouver, or by other lower mainland jurisdictions.

SCHOOLS

These are open spaces that are adjacent to both private and public schools. The land is managed by the Vancouver School Board

POPS

Privately Owned Public Spaces (POPS) that are free and accessible for everyone but are held in private ownership.

FUTURE PARKS

Future Parks are parks that are anticipated through upcoming redevelopment processes. These are subject to approvals and may change.

FUTURE POPULATIONS

Future Populations are population projections to 2041 that are created based on policies, plans and potential future redevelopment processes. They are estimations subject to change.

SNAPSHOT

	ha	
PARKS	1,168	
GREEN SPACES	1,291	
FUTURE PARKS	14	
TOTAL	2,473	

OF PARKS

243

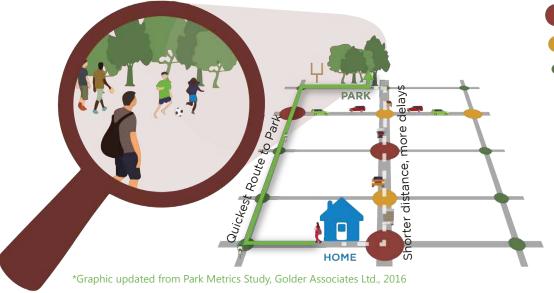
METHODOLOGY

A five-step process was developed to build a model that represents how people who live and work in Vancouver access their parks and green spaces and identifies which parks and green spaces are serving the greatest amount of people.

1 My route to and from the park

The walking network for a Vancouverite may include sidewalks, trails, greenways, the seawall and city streets. A big hill or a busy intersection means it takes longer to get from A to B. In order to measure how long it takes to walk to a park requires modeling the actual way we move and navigate along our walking route. This includes accounting for delays block by block. The model accounts for a 2 minute delay at intersections without a stop light and a 1 minute delay at intersections with a stop light.

Figure 1. illustrates how we walk to parks showing that the quickest route is actually the longest distance when delays along city streets are taken into consideration.



2 Who lives here?

In order to identify who is accessing our parks. We collected data at the smallest of scales - the census block. Each census block was represented as a single point in the model and was measured using population data.



Population data was sourced from the National Household Survey and the Census of Canada (2016).

2 minute delay
Busy street, no stop light
1 minute delay

No delay

3 Who works here?

Parks are used by everyone who lives, works and visits Vancouver. The model accounts for people who might not live in Vancouver but come to Vancouver everyday for work or school. Data was collected from the City of Vancouver that included employees and school-aged children to better capture the complete picture of park users.

4 Who will live here?

As our population continues to grow in Vancouver it means that more and more people are accessing parks and green spaces. Population projections by neighbourhood were included as part of the model. These projections help to identify which parks will be working the hardest in the future.

Where is my closest park?

The last component of the model required measuring access points in the park. These access points represent your place of arrival when you enter a park. We know that all our parks come in different shapes and sizes with many different entry locations. To create this measure we used theoretical points that were placed along the boundary of a park or green space. Each of these points represented a possible point of entry.

Research Principles

In order to determine the way in which we travel to and through a space to arrive at our destination, principles were developed to understand pedestrian behaviour.

- » People will take the shortest route to access their nearest green space
- » Travel time is dependent on physical distance, walking speed and the walking environment (ex. terrain)
- » Walking speed is measured at 80 meters per minute. This is an average and is not inclusive of all residents
- » Walking speed is modified dependent on the condition. Walking uphill takes longer and, therefore, the time it takes to walk uphill is calculated by reducing the average walking time (80 meters per minute) by half of the inverse of slope grade (ex. a steep slope of 50% grade will have a walking speed of 60 meters per minute).
- » Walking routes include all non-highway roads, trails, stairways, diagonal crossings and mid-block crossings



We acknowledge that ability to access public green space by walking is not inclusive of all Vancouver residents and may not represent a diversity of ages and abilities. This study uses walking speed as an approximate measure of time.

Walking Network

Figure 2. illustrates the walking network used to evaluate the time it takes to walk to your nearest green space. Figure 2 show the elements that make up our walking network: local streets (residential), busy streets (commercial), intersections with stop-lights (signalized), intersections without stop-lights and local intersections.

A busy street with a signalized stop-light at an intersection is measured differently than an intersection without a stop-light because the time spent waiting for a break in traffic at an intersection without a stop-light could take longer than at a signalized crossing. For that reason, a 2 minute delay is added to an intersection without a stop-light and a 1 minute delay is added to an intersection with a stop-light.

Figure 2 illustrates that the longest walking distance to the park (green dashed line) actually takes the least amount of time when considering the actual street network condition. The shortest distance to the park (yellow dashed line) is along a busy commercial street with many signalized intersections that slow down the time it takes to walk to the park.

Figure 2. modelling the actual walking network



^{*}Graphic updated from Park Metrics Study, Golder Associates Ltd., 2016

KEY FINDINGS

Park Walk Scores

Walking distances are categorized into three increments. These measurements are averages that set a baseline for calculating distance and time. The study uses these three measurements to identify how long it takes to walk to a public green space.



5 minute = 400 m

8 minute = 650 m

10 minute = 800 m

Who uses our public green spaces now and in the future?

- » Residents of Vancouver
- » People who work or go to school in Vancouver
- » Projected future populations

See the tables on the following page to learn about the proximity to parks and green spaces within a 5, 8 and 10 minute walk for residents, people who work and go to school in Vancouver and our future populations.

Highlights

99%

Of Vancouver residents live within a 10-minute walk to a public green space. This includes parks, green spaces, and schools.

99%

Of people who work or go to school in Vancouver are within a 10-minute walk to a public green space. This includes parks, green spaces, and schools.

		5 minute	8 minute	10 minute	Totals
Residents of Vancouver	4				
	Tel Parks	%59	25%	%/_	%26
	Parks and green spaces	73%	22%	%4	%66
	Parks, green spaces spaces and schools	83%	15%	1%	100%
		5 minute	8 minute	10 minute	Totals
Work or go to school in Vancouver	Parks	62%	32%	%2	%66
	Parks and green spaces	%99	762	4%	%66
Tahle I	Parks, green spaces	83%	15%	2%	100%
undated from					
Park Metri		5 minute	8 minute	10 minute	Totals
Future Population	Parks	%59	26%	%9	%26
der Associat	Parks and green spaces	73%	22%	4%	%66
8	Parks, green spaces and schools	82%	15%	%8	100%

The Hardest Working Parks

Not all of our parks experience the same level of use. Some of our parks are surrounded by high population densities and a high concentration of people working and visiting Vancouver. This analysis identified the amount of people who live within 5, 8 and 10 minute walking distances. Figure 3. illustrates that Coal Harbour Park and Cathedral Square Park are working the hardest during the day and that English Bay Beach Park and Barclay Heritage Square are the hardest working parks in the evening.

Figure 3. Day and Night Use in Parks

The Hardest Working?

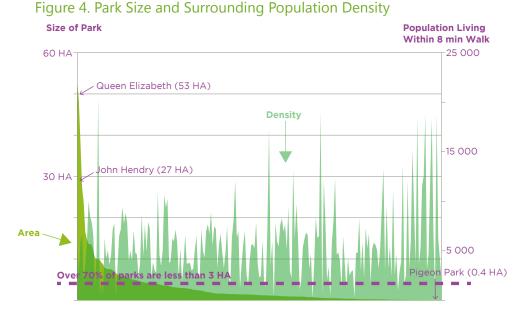
Hardest working is a measure of the parks surrounded by the greatest volume of users. In the daytime this is measured by amount of employees and schools nearby and during the evening this is measured by the amount of residents living nearby.

Barclay **Coal Harbour Heritage Square Park** 0.63 hectares • 0.95 hectares 23,438 residents • 45,097 residents within an or employees within an 8 8 minute walk minute walk Cathedral Square English Bay Park Beach Park • 0.27 hectares • 9.86 hectares • 78,251 residents or 23,602 residents employees within an within an 8 minute walk he hardest for 8 minute walk day-time users **Parks working** the hardest for evening users

*Graphic updated from Park Metrics Study, Golder Associates Ltd., 2016

Small but Mighty

While some of our parks are large like Stanley Park and Queen Elizabeth Park, the majority of our parks are less than 3 HA in size. Figure 4. illustrates that often times are smaller parks are surrounded by the most amount of people.



Stanley Park at 392 HA is not included in this graph.

CONCLUSION

The park provision study is a tool to help understand how we all access our diverse network of parks and green spaces. This analysis illustrates that simply measuring distance to a park is not an accurate indicator of how long it takes to walk to a park. Instead we built a model that calculates actual distance depending on terrain, intersection delays and routes that are beyond the street network such as greenways, sidewalks and seawalls. Through this study we have identified that approximately 99% of our population lives within 10 minutes of a park or other green space.

Further, we have discovered that sometimes our smallest parks are working the hardest. We measured population density surrounding our parks by identifying resident populations and the population of people working or going to school in Vancouver in relationship to where our parks are located. This helped us identify just how hard are parks are working in areas across the city.

As Vancouver grows and changes, this study will help us plan for a parks system that meets the needs of our future populations. At the same time, the study captures a snapshot of current use and access patterns across the city today. This will help us to understand how we can continue to provide a parks system that is accessed and enjoyed by everyone.



Photo retained from Park Metrics Study, Golder Associates Ltd., 2016

MAPPING ANALYSIS

» Walking Times to Nearest Parks (Residents)

These maps illustrate the time it takes for residents living in Vancouver to walk to their nearest park or other green space. The map depicts 5 minutes or less, 5-8 minutes, 8-10 minutes and over 10 minute walk times.

Walking Times to Nearest Parks(People who work and go to school in Vancouver)

These maps illustrate the time it takes for people who work or go to school in Vancouver but may not live in Vancouver to walk to their nearest park or other green space. This is often referred to as day-time populations. The map depicts 5 minutes or less, 5-8 minutes, 8-10 minutes and over 10 minute walk times.

» Walking Times to Nearest Parks (Future populations)

These maps illustrate the time it will take for future residents of Vancouver to walk to their nearest park or other green space. These projections are based off of plans, policies and potential future redevelopments. The map depicts 5 minutes or less, 5-8 minutes, 8-10 minutes and over 10 minute walk times.

» Proportion of Residents Exceeding a 5-minute Walk to their Nearest Park

These maps illustrate the amount of people who do not live within a 5 minute walk to their nearest park or other green space. The population circles represent proportion of people. For example, a small circle represents 5-50 people where as a large circle represents over 1000 people. The areas with the larger circles illustrate the most significant number of people who do not have access to a green space within 5 minutes of their home.

» Parks Area Per Capita

This map illustrates the areas in Vancouver that are the best served by the park system and the least served. The Vancouver Park Board's Management Plan (1992) developed a standard for park service with a goal of 1.1 ha of park land per 1000 residents. This map shows the areas that are meeting this goal in blue and the areas that are not meeting this goal in dark orange and red.

WORK & SCHOOL

FUTURE POPULATION

FUTURE POPULATION

FUTURE POPULATION

PARK AREA PER CAPITA