

UNDERSTANDING MOBILITY IN PARKS TO PAVE THE WAY FOR AN INTEGRATED PARK NETWORK

Burrard Inlet

English Bay

False Creek

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It has been a great pleasure to work in the aspiring 'World's Greenest City' with the Board of Parks and Recreation as a UBC Sustainability Scholar.

Photo credit: Kevin Parsons

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Introduction

Project purpose and scope

The Greenest City Action Plan's (GCAP) Access to Nature and Active Transportation Goals led the way for VanPlay's vision for a network of parks, green spaces, and recreation areas that are interwoven into everyday life to connect us with nature, each other, and ourselves. Although Vancouver's park system is well distributed across neighbourhoods, connecting to, through and from green spaces and recreation areas has been a challenge. With eighteen greenways in various modes of development (i.e., existing, being constructed, proposed) and no current policy for how greenways and parks interact, there is an opportunity to enhance Vancouver's ability to deliver an integrated and connected parks and greenways network.

A core challenge to an integrated and connected park network is understanding park mobility infrastructure and existing greenway interactions with parks to determine safe, efficient, environmentally sound and community-directed mobility near, to and through parks. This report identifies key observations and planning considerations to help inform future work on connections between parks and major greenways throughout Vancouver. To further support park mobility infrastructure, a proposed

mobility classification system for parks has been developed in order to inventory pathway types and study the level of mobility currently occurring in parks. This classification system will also support the eventual creation of guidelines for future pathways in parks. By understanding both park and greenway interactions as well as a mobility classification system, the Park Board can be better prepared to align future park development with the goal of an integrated and connected park system.

Policy Context

The GCAP's main strategy is to keep Vancouver on the leading edge of sustainability. The strategy comes to fruition by creating a common vision to develop opportunities that build a strong local economy and inclusive vibrant neighbourhoods for future generations. The report identifies that in 2015 nearly 50% of all trips originating in the city were made by foot, bike and/or transit. By 2040, GCAP has set to increase the current marker of 50% to two thirds of all trips. To reach this goal, GCAP recognises that land-use and urban design are key determinants in its success. Specifically, it is essential that walkable communities are built with new approaches to cycling that focus on bike routes that are for all ages and abilities. To fulfill this, the GCAP established enhanced green transportation as a major goal. Green transportation acknowledges the positive impact of modes of active transportation has for a city, from lowered emissions to the

promotion of physical health.

A key component of active transportation is the connection between parks and greenways as they provide an opportunity for people to have an experience rather than just reaching a destination. Greenways also provide important infrastructure that enables better access to nature for Vancouver residents (Access to Nature Report, 2020). Many key destinations for Vancouverites are parks (i.e. Stanley Park, Queen Elizabeth Park). Therefore, the GCAP includes access to nature as a main goal. To provide adequate assembly between parks and greenways, the GCAP understands that green transportation must focus on mobility so it is safe, convenient, and enjoyable. The report focuses on the importance of increasing accessibility to city parks and greenways. By doing so, these spaces can contribute to our sense of community by creating places that encourage the promotion of physical and emotional health.

The Vancouver Park Board further addressed these goals, in VanPlay, Vancouver’s Parks and Recreation Services Masterplan. This report provides a 25-year outlook on how to manage the future of Vancouver’s park and recreation, and identifies threats and opportunities that may shape or hinder its success. In relation to mobility to pave the way for an integrated parks network, VanPlay has acknowledged that there must be easier access and connection between parks with active modes of transportation.

With over 230 parks and 24 community centres under its jurisdiction, safe and continuous access to its parks and cultural facilities is a key “big move” for VanPlay.



Figure 1: Hastings Park (Empire Fields) exemplifies the concept of continuous access

Transportation Plan 2040 is a guide that will help inform transportation planning, land use decisions and public investments for the years ahead. The plan sets both high-level policies and specific actions that support the idea of an integrated parks and greenways network. The first key initiative is to provide a blueprint for an enhanced pedestrian realm. This means to address gaps in the current network and begin to design a green network that is safe, comfortable and accessible to everyone. The plan also outlines the need for an upgraded and expanded cycling network to more efficiently connect people to destinations. The plan identifies that cycling routes are most.

useful when they connect to form a cohesive and legible network.

All three of these major planning policies emphasize the need to understand mobility within both a city and parks context in support of an integrated park network

Project Methods

This project used four main methods of gathering and processing information in the research and analysis phase: *Jurisdictional scan, geographic information system (GIS) park and greenway inventory, site visits and staff engagement.*

Method	Description
Jurisdictional scan	The jurisdictional scan comprised of understanding best practices for pathway mobility classification systems throughout North America. This section contains further best practices of park and greenway interactions globally. It is essential that Vancouver aligns itself in its own context but remains aware of other jurisdictions mobility and trail classifications and integrated park network strategies.
Geographic information system (GIS) park and greenway inventory	To understand Vancouver’s existing park and greenway infrastructure a variety of information was gathered and analysed using ArcGIS. The following information was mapped: major destinations, park facilities, park amenities, pathways, greenways, bikeways, population density, park classifications. Once mapped, a variety of tables and figures were developed to visualize certain trends.
Site Visits	Thirty site visits were conducted across Vancouver’s park system. Five parks were chosen from each park classification which includes destination, community, neighbourhood, local and urban plazas. The parks were chosen based on whether the greenway physically interacts with the parks. It was essential that the parks studied were based on a variety of greenways and neighborhoods.
Staff Engagement	Internal staff were consulted on a regular basis to align the project amongst multiple departments. Specifically, planning staff from the Planning, Policy and Environment team, City of Vancouver’s Engineering Greenways refresh team, and landscape architects from the Park Development team were an essential part of the process.

Table 1: Descriptions of project methods

Limitations

Research and industry standards on what makes an effective integrated park network is limited, especially in relation to greenway connections. A comprehensive literature review was not conducted which may allow for a better understanding of potential best practices for an integrated and connected park system.

Time and scope constraints also did not allow for community engagement or feed back to better understand citizens perceptions on the experiential qualities of parks and greenways. This work is needed in order to refine the proposed observations and considerations discussed later. In relation, equity-seeking groups that warrant explicit partnership in the creation of an integrated park network should be consulted including: Musqueam, Squamish and Tsleil-Waututh Nations, immigrants and people of colour, low-income residents, unhoused and precariously housed residents, LGBTQTS+, and people with disabilities.

Due to gaps in GIS information, pathway types in the Mobility Classification System were inventoried and derived from a sample of 30 parks that were surveyed, but the mobility classification system applies to all 230 parks. To create a full inventory of all mobility assets using the mobility classification system, all

230 parks should be studied through site observations or other computer analysis tools.

Although these limitations exist, this report is the starting point and foundation for future research.

Literature and Definitions

The concept of an integrated park network in combination with greenways is still relatively new for many jurisdictions. Numerous cities have greenways and have conducted research on their importance. One of the most common definitions of greenways as described by Ahern et al (1995) is “networks of land containing linear elements that are planned, designed and managed for multiple purposes including ecological, recreational, cultural, aesthetic, or other purposes compatible with the concept of sustainable land use”. As identified by Horte et al (2020), when it comes to greenways and their planning and design specifications, there is not one universally accepted greenway typology.

When it comes to an integrated and connected park system this can also carry different meanings across municipalities. In a Vancouver context, the Park Board understands it as:

“a seamless public realm that connects places, such as community centres, trail systems and large parks together, and publicly accessible

water-front lands that expand access regionally and protects ecosystems. The network will create places to play, exercise, and socialise while providing pathways for the movement of urban wildlife, and rainwater; and creating beautiful and direct and intuitive connections for pedestrians and cyclists of all ages and abilities.” (City of Vancouver, 2021)

For this report to be meaningful, it is essential to understand that there is not one set definition of what or how an integrated park network can be achieved. Rather, it is a vision that will take multiple iterations and collaborations to successfully imagine and implement.

Jurisdictional Scan

This jurisdictional scan is essential to understand where Vancouver is in respect to its progress for an integrated park system as well as a trail classification system. Table 2 below is a sample of some of the most populous cities in the Lower Mainland and across Canada to better understand where Vancouver falls in its efforts for an integrated park system. This data was collected based on whether the municipalities have a masterplan, or set of formalized city documents, that set out policy goals for accomplishing an integrated and connected park network and a solidified trail classification system. Two set of criteria were scanned for each municipality:

1. Do cities have an established trail classification system?
2. Have there been any policy or formalized city documents working towards an integrated and connected park network?

	Trail Classification System	Integrated Parks and Trails Network
City of Burnaby	No	No
City of Coquitlam	Yes	No
City of New Westminster	No	Yes
City of North Vancouver	Yes	Yes
City of West Vancouver	No	No
City of Richmond	No	No
Langley City	Yes	Not Known
Calgary	No	Yes
Edmonton	No	Yes
Hamilton	Yes	No
Kitchener	No	No
Montreal	No	No
Ottawa	Yes	Yes
Toronto	Yes	Yes
Winnipeg	No	No
Vancouver	No	Yes

Table 2: Jurisdictional scan of Lower Mainland and major cities in Canada

Just less than half of nearby cities have existing trail classifications which are often identified in park system masterplans. A large portion of these guides include park and trail inventories, resource and capacity analyses, visions, recommendations, and concise trail specifications that include amenities, users, design elements and descriptions.

Of all the BC municipalities studied, only the City of North Vancouver has made a conscious effort to develop an integrated park network. In 2002 the City of North Vancouver established their “Parks and Greenways Strategic Plan”. The vision of this plan extends beyond park boundaries to include consideration of the role public lands play in the city’s open space system. Therefore, this plan proposes integrating and adapting greenways into the park system.

Less than half of major cities in Canada have an established trail classification system.

Of the cities scanned, Calgary, Edmonton, Ottawa, Toronto, and Vancouver have made conscious efforts through formalized documents to develop an integrated park network. Of the cities trying, the most impressive is the City of Edmonton, who developed “Breathe: Edmonton’s Green Network Strategy”. This 30-year strategic plan sets direction for the sustainable care and expansion of Edmonton’s parks and open spaces. The Green Network Strategy outlines how to preserve and enhance city’s natural

areas, parks, plazas, greenways, and recreation spaces. Through an in-depth inventory, the plan outlines a variety of opportunities and policies to encourage the connection and integration of open space at the site, neighbourhood, city and regional levels. It should be noted that all the cities with integrated park network plans are only in the planning phasing and have not seen its completion.

As seen in table 2, Vancouver does not have an established trail classification system and only has the initial intent for integrated park network. However, there is a strong foundation of greenways and quality parks with strategic efforts from GCAP, VanPlay and Transportation Plan 2040 to make an integrated park network a reality.

Analysis of the Current Parks and Greenways Network

How are Parks currently serviced by Greenways?

In order to determine how to create an integrated park network, an analysis on the current network and how it's functioning is critical. To understand how people get to parks, it is essential that we study how the current parks and greenways network interacts. Using the Park Classification System from VanPlay, we can analyze these interactions at a manageable scale.

The proposed five-tier classification system was developed to describe Vancouver's park system more accurately:

- Destination Park
- Community Park
- Neighbourhood Park
- Local Park
- Urban Plaza

Within Vancouver's park system there are approximately 113 parks that are being serviced by greenways. Of these interactions there are eighteen greenways in various phases of development.

When trying to describe best practices for park and greenway interactions, it is essential to factor in park type. The main reason being

the variation of park size. For example, the way in which a greenway intersects a destination park, which is over 20 hectares and often hosts a variety of attractions, will be completely different than a local park which is less than 2.5 hectares and has limited amenities and precious open space. To visualize the interactions, figure 2 indicates the location of park and greenway interactions. Each park is colour coded depending on its park classification. To provide additional context it includes both established and proposed greenways.

Park Type	Criteria	Examples	# in the Park System	Percent of Parkland Area
Destination	<ul style="list-style-type: none"> - Large in size (>20 hectares) - Large number of amenities (>15); venue for events concerts, weddings - Attracts tourists and populations from the region, in addition to local residents - Maintained at a higher level to meet user expectations, keeps up with higher use and ensures space is suitable for programming 	<p>Stanley Park Queen Elizabeth Park Hastings Park</p>	5	44%
Community	<ul style="list-style-type: none"> - Medium to large in size (<20 ha, average of 6.4 ha) - Large number of amenities (6-15); includes sports hubs and beach parks - Attracts populations from across the City of Vancouver 	<p>John Hendry Park English Bay Beach Park</p>	101	22%
Neighbourhood	<ul style="list-style-type: none"> - Medium in size (<10 ha, average of 2.6 ha) - Medium number of amenities (3.7) - Attracts population from across the City of Vancouver 	<p>Maple Grove Park Aberdeen Park</p>	50	31%
Local	<ul style="list-style-type: none"> - Small in size (<2.5 ha, average of .54 ha) - Select amenities, mostly passive (four or less) - Attracts neighbourhood residents 	<p>Ash Park Foster Park</p>	63	2%
Urban Plaza	<ul style="list-style-type: none"> - Small in size (less than .4 ha) - Select amenities (three or less), low in landscape cover - Located in areas with high day-time population- attracts daytime users 	<p>Pioneer Place Yaletown Park</p>	9	<1%

Table 3: Park classification table

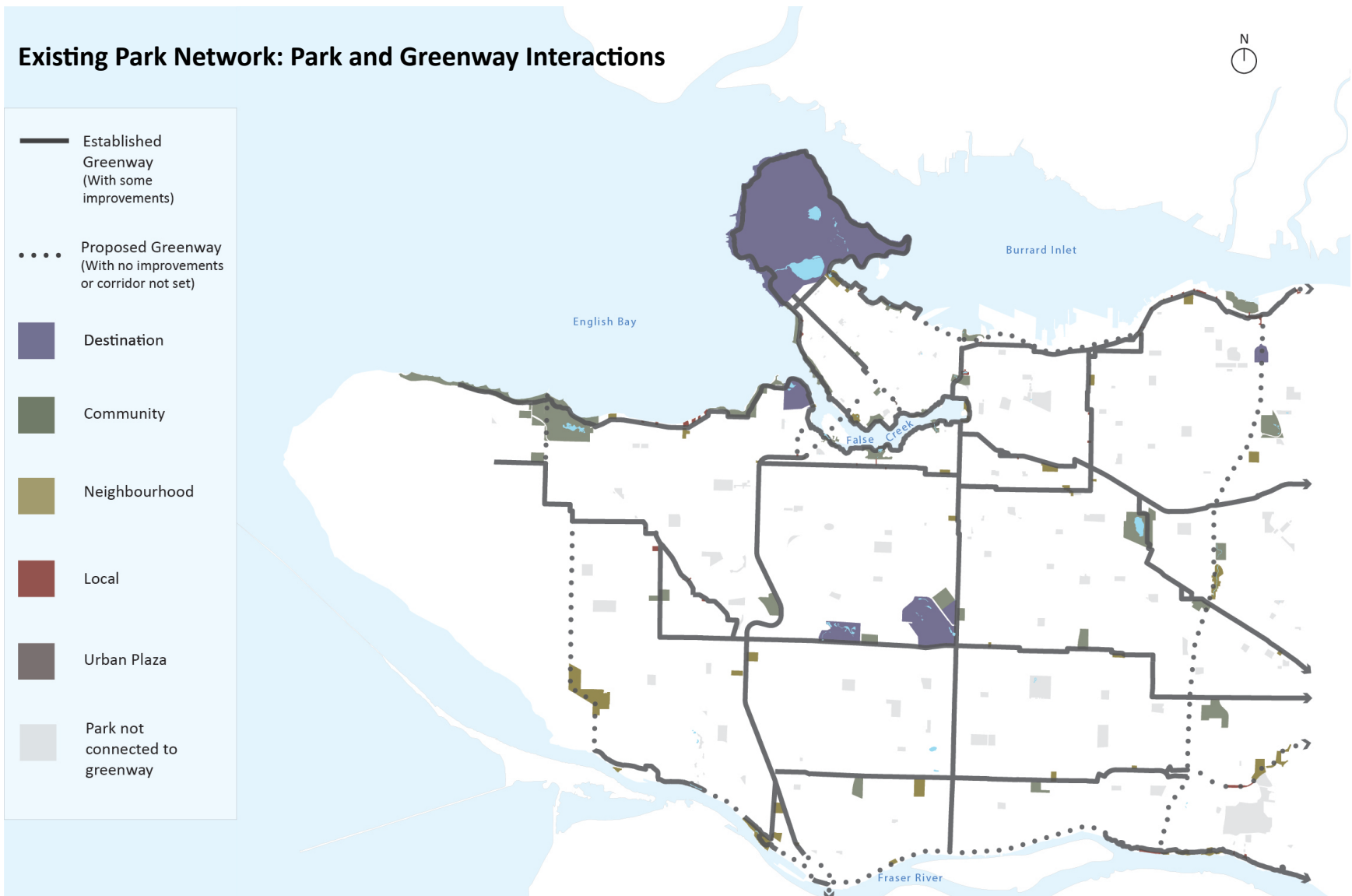


Figure 2: Map of existing park network

As seen in figure 2, all 5 destination parks are being serviced by a major greenway. Community parks on the other hand are being underserved as only 34 of 101 (33%) interact with a major greenway. Of the 50 neighbourhood parks 36 (72%) are being serviced, which is the second most serviced park type. Of the local parks 35 are being serviced out of 63 (55%). Lastly, only 3 of the 9 (33%) Urban Plaza's are being serviced. In the entire park system only 49% of parks are being serviced by major greenways. Subsequently, it can be assumed that there is need to increase the amount of parks currently being serviced.

Looking at one type of important Park Board assets, community centres, we see that there is minimal connection to the 24 community centres as reflected in figure 4. Only 42% of community centres are being serviced by

existing and proposed greenways. Through site visits it was observed that if a community centre is within a park that interacts with a greenway, it is unlikely to have a direct connection to that greenway. VanPlay acknowledges community centres as being an essential component to vibrant communities in Vancouver. Thus, if we are to develop an integrated park network, it is essential that we work towards providing accessible modes of active transportation to these vital nodes.

By mapping out the interactions we can see that there is a significant opportunity to develop an integrated park system by utilizing greenways. Of these greenways, many are still undergoing development, so there is an exciting opportunity to manage the development of both greenways and parks together.

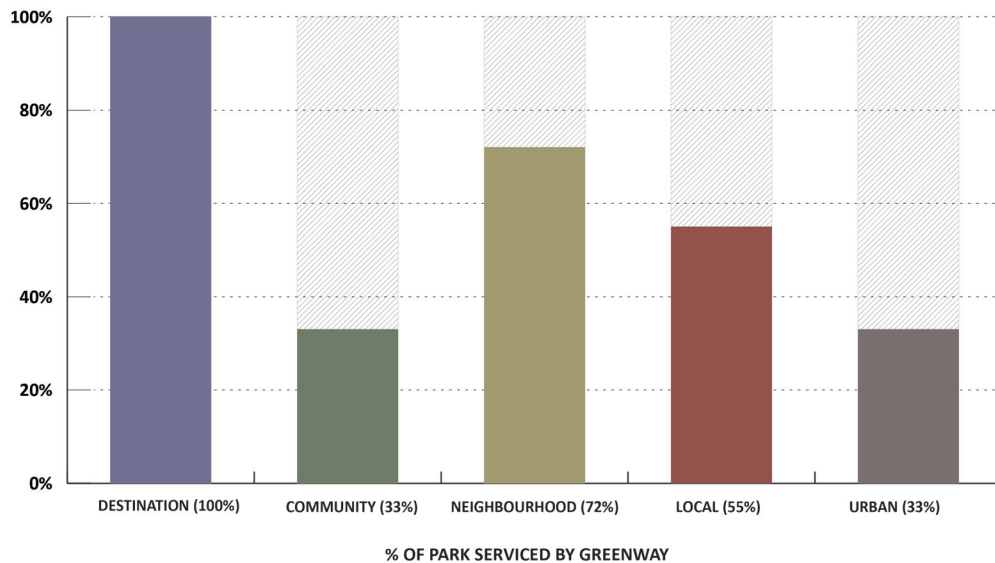


Figure 3: Bar graph of parks serviced by major greenways

Existing Community Centres Serviced by Greenways

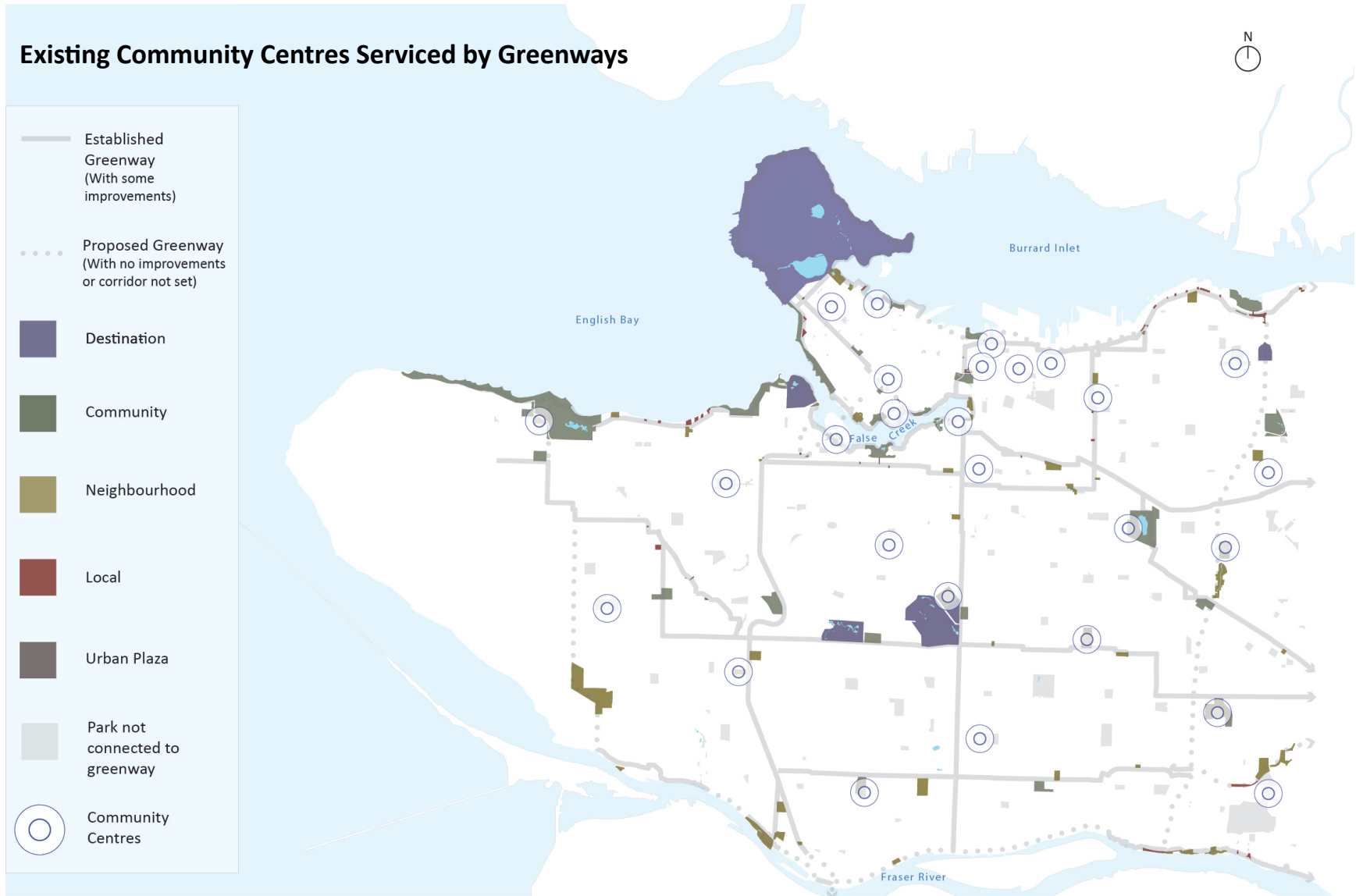


Figure 4: Map of existing community centres being serviced by greenways

How do they interact?

The scope of this project is looking at parks that directly connect to one another. There are three main types of interactions: **ADJACENT**, **THROUGH** and **COMBINATION**.

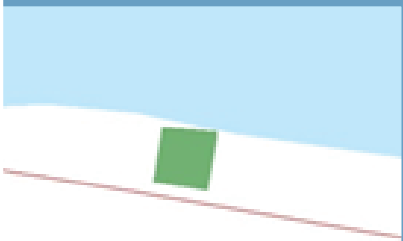


Type of Interaction	Explanation	Example
<p style="text-align: center;">ADJACENT</p>	<p>A greenway runs adjacent to the park</p>	 <p><i>Park Site on Point Grey @ Trutch</i></p>
<p style="text-align: center;">THROUGH</p>	<p>A greenway runs through a large section of the park</p>	 <p><i>Charleston Park</i></p>
<p style="text-align: center;">COMBINATION</p>	<p>A greenway runs adjacent and through the park at different stages.</p>	 <p><i>Kitsilano Beach Park</i></p>

Table 4: Table of types of interactions between greenways and parks

By understanding how parks and greenways interact, the Park Board can begin to develop planning principles and interaction typologies for parks. It can also help to begin the conversation on where, when, and how a greenway should interact with a park.

Figure 5 identifies the percentage of interactions of greenways with parks by type for the entire system. Approximately 77% of all parks serviced by greenways, have the greenway running adjacent to the park, while 21% of all parks have the greenway running through the Park and only 2% of parks have a

COMBINATION condition (where a greenway runs both adjacent and through the park at various locations). For the parks that have greenways running through or a combination of through and adjacent, these are mostly parks on the seaside, where greenways are employed so that users can enjoy the seawall routes. Therefore, linear parks and the green network along the seaside play an important role in the overall park network.

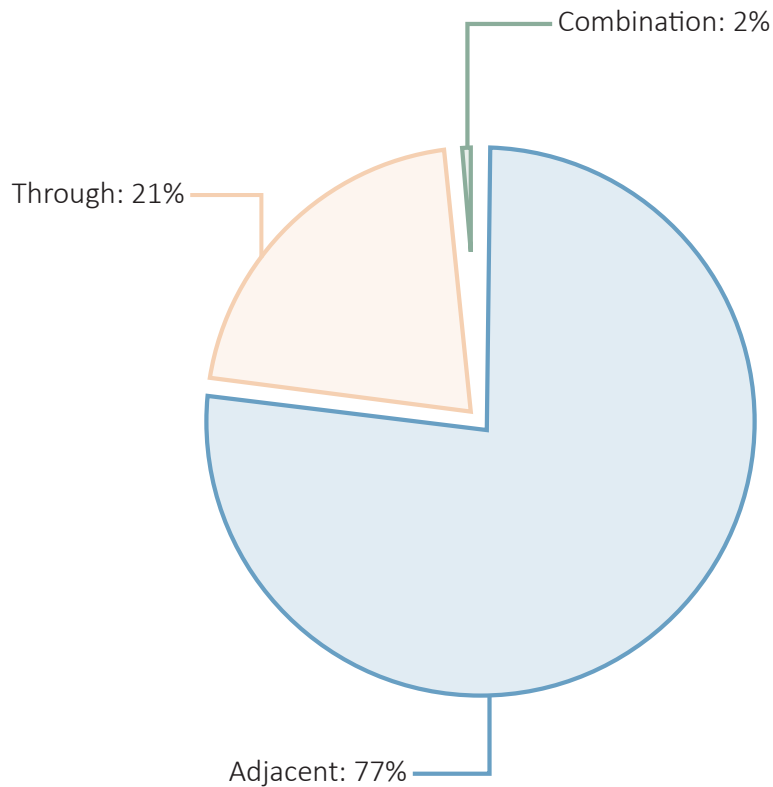


Figure 5: Pie chart displaying percentage of types of interactions

Observations & Considerations for an Integrated Park Network

Through the GIS mapping, research and site analysis work, five observations and considerations were made about the success of greenway and park interactions in their ability to provide connectivity, but also not impact valuable open green space. The following observations and considerations have been developed highlighting park and

greenway interactions based on a number of factors. This section will be vital in developing and refining future planning principles and guidelines for how both parks and greenways can develop in cohesion with each other. The table below summarizes the observations and considerations and what types of parks they typically apply to:

Observations	Park Type				
	Destination Parks	Community Parks	Neighbourhood Parks	Local Parks	Urban Plaza
1 Greenways route through destination and community parks in order to service key destinations and attractions					
2 Mobility through destination and community parks have separated pedestrian and cycling paths when accessing a major destination					
3 In most cases, greenways run adjacent to smaller parks					
4 Parks with lower volumes have shared pedestrian and cycling pathways					
5 Greenways run adjacent to smaller parks, except when they straddle directly on a major or city-wide greenway network					

Table 5: Integrated park network observations that are applied to park type

Observation #1:

Greenways route through destination and community parks in order to service key destinations and attractions

Example:

Both destination and community parks have a variety of destinations and attractions that are serviced by greenways. For example, in Sunset Beach Park, which is a community park, it has a concession, food trucks, public washrooms, a designated quiet beach and access to the False Creek Ferry pier. This park has high foot traffic and amenities are often in frequent use. Figure 6 shows where the seaside greenway routes through.

The major greenway routes through the park and provides easy access to the major destination points and amenities. Recently, the city turned the eastbound roadway on Beach Avenue into bike lanes to reduce traffic on this specific section of the seaside greenway. Figure 7 shows the newly designated footpath in Sunset Beach Park.

During the site visit the foot path was in high use, but it seemed less congested and well connected to its destination points and amenities because there were no cyclists. At a minimum, destination and community parks should have established major greenway pedestrian paths to access major destinations and amenities.



Figure 6: Map of Sunset Beach Park



Figure 7: Pedestrian path at Sunset Beach Park

Example of Gap:

Queen Elizabeth Park is a Destination Park that is 52.9 hectares in size. Within this park there a variety of destinations including the Bloedel Conservatory, pitch and putt, and the highest point of elevation in Vancouver. Figure 8 highlights the Ontario and Ridgeway greenways adjacency to the park.

Figure 9 shows a desire line appearing along the Ontario greenway. This may indicate that people want access to the destinations within the park, but are forced to find alternative routes in.

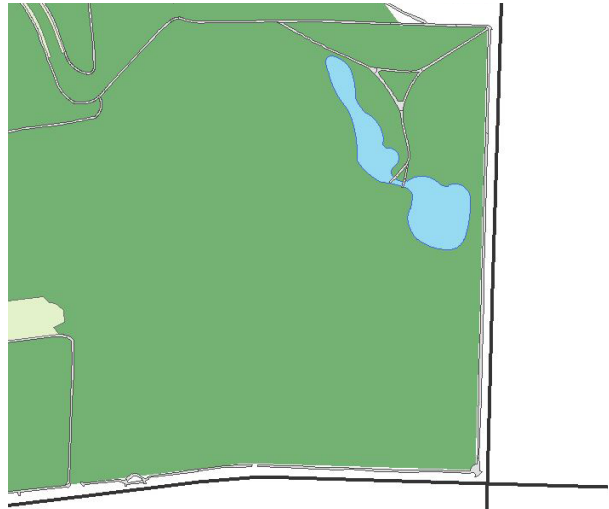


Figure 8: Map of Queen Elizabeth Park major greenway interactions



Figure 9: Desire line next to Ontario St greenway at Queen Elizabeth Park

Observation #2:

Mobility through parks have separated pedestrian and cycling paths when accessing a major destination

Example:

To support walking and rolling of all ages and abilities it is best practice and now industry standard that major greenways pedestrian and cycling paths that run through destination and community parks are separated. An excellent precedence is Hastings Park at Empire Fields which is a destination park. Both destination and community parks experience higher park use. By separating both foot paths and cycling paths it will provide a safer user experience by designating paths for specific modes of mobility.

Figure 10 and 11 show one possible alternative for separating foot and cycling paths: utilizing barriers, pavement markings. However, this will not always be possible if the park does not have the space to accommodate both pedestrian and cycling path widths.



Figure 10: Separated foot and cycling path at Hastings Park (Empire Fields)

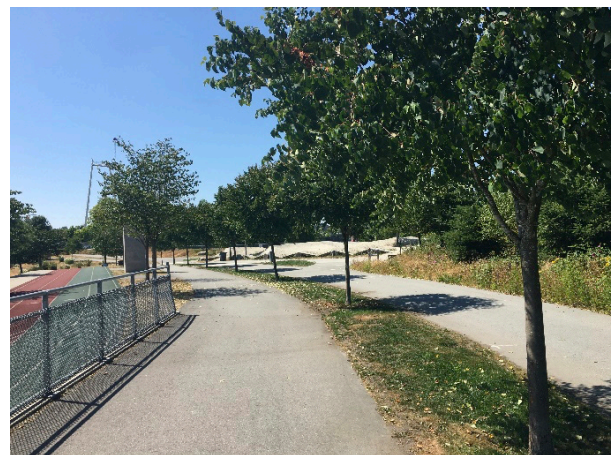


Figure 11: Barrier between foot and cycling paths at Hastings Park (Empire Fields)

Example of Gap:

Figure 12 and 13 identify two access points in Kitsilano Beach Park which is a community park. There is a frequented beach, sport facilities, swimming pool, playground, and restaurant. Both the entrances have shared cycling and pedestrian access. It was observed that each access point becomes highly congested. This congestion can lead to unsafe scenarios when pedestrians and cyclists begin to overlap to reach the same destination point. In other words, current scenarios do not align with AAA scenarios as not all ages and abilities can safely and comfortably navigate these access points.



Figure 12: Entrance into Kitsilano Beach Park



Figure 13: Entrance into Kitsilano Beach Park

Observation #3:

In most cases major greenways run adjacent to smaller parks

Example:

Figure 14 is of Jean Beaty Park which is a local park along the Seaside greenway. This park is .12 hectares in size. With such limited space, as many local parks and urban plaza's have, it is likely resulted in major greenways to run adjacent.

Figure 15 and 16 provide a closer look to the planning of the park and greenway interaction. The pedestrian path runs directly adjacent to the park but has a circulation path for people to access park amenities. Cyclists on the other hand are required to dismount from the greenway and enter the park. This provides a safe experience for all modes of active transportation as cyclists and pedestrians are not competing for space.

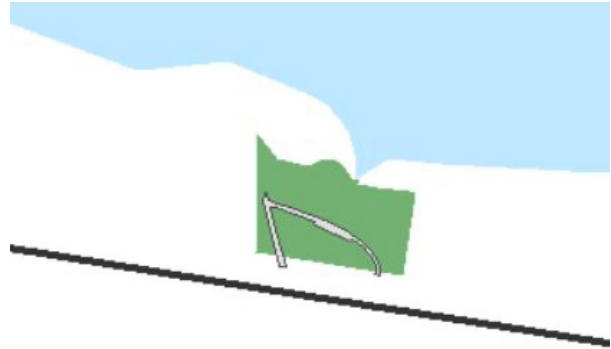


Figure 14: Jean Beaty Park adjacent to Seaside greenway



Figure 15: Jean Beaty Park from Point Grey Road



Figure 16: Jean Beaty Park entrance from pedestrian path

Example of Gap:

Clark Park in east Vancouver has a pathway down the middle of the Park that is often used as a shortcut to the 14th Avenue greenway at Commercial Drive. This park is also under review for an adjacent city greenway that will connect to the BC Parkway greenway. The current pathway dissects the park in half but is a shared pathway between pedestrians and cyclists. There is limited room to consider widening this path due to some old mature cedar trees, therefore a route adjacent to the park servicing the 14th Avenue greenway instead of through the park, would avoid this impact (see fig. 17).

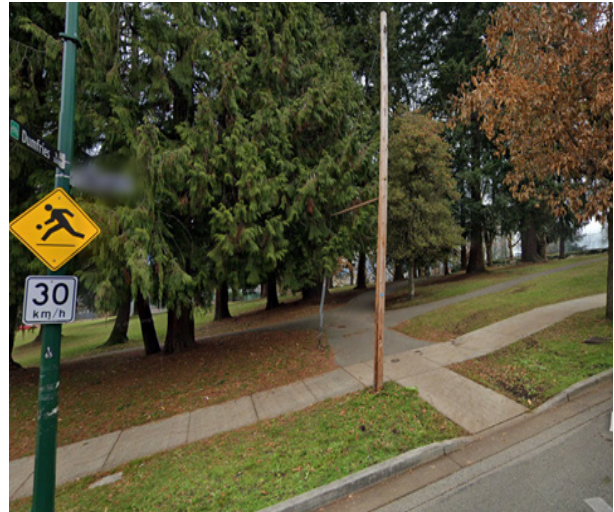


Figure 17: Clark Park entrance from 14th Ave



Figure 18: Clark Park looking towards 14th Ave from inside

Observation #4:

Parks with lower volumes have shared pedestrian and cycling pathways

Example:

There are many parks in the Park Board system that experience lower volumes of users due to lower population densities. As an example, in neighborhood parks like Comox-Helmcken which has 146 ppl per hectare, they will require a separated pedestrian and cycling path because of a higher population utilizing the space (see fig. 21). However, neighborhood park Fraser River Park has only 17 ppl per hectare. As you can see in figure 19 there is ample space with a lower volume density. In this case, a shared pedestrian and cycling greenway through the park maximizes available green space and supports the overall experience of the park. With less pedestrian and cycling traffic, multiple modes of active transportation can utilize the greenway in a manner that aligns with AAA standards.



Figure 19: Shared pedestrian and cycling path in Fraser River Park



Figure 20: Shared pedestrian and cycling path near entrance of Fraser River Park

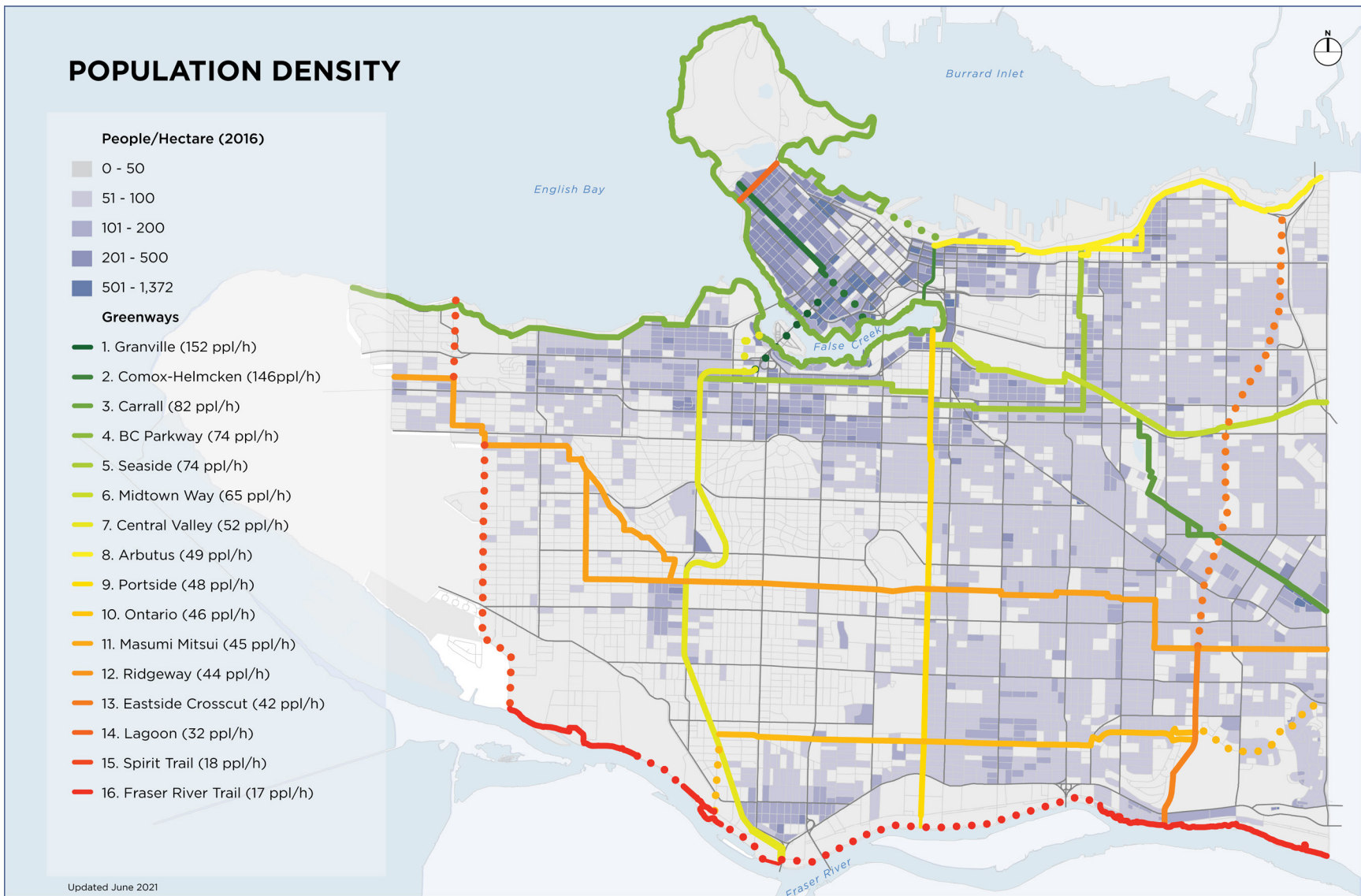


Figure 21: Map displaying population density by greenways from the draft Greenways Existing Conditions Report (2021)

Example of Gap:

Jericho Beach Park is a community park along the Seaside greenway. This park has a shared pedestrian and cycling path. At first glance this makes sense as the Population Density map suggests that this area has 0-50 people per hectare. However, this park receives high volumes of people especially in the summer months. This is being amplified due to the increase in Vancouver’s population as the park is only becoming more frequented. Subsequently, figure 23 shows the lack of adequate space and delineation of pedestrian and cyclists as a desire line has appeared (see fig. 24). Therefore, some parks that are getting higher volumes of users should consider a separated cycling and pedestrian path as per consideration #2.



Figure 22: Shared Seaside pedestrian and cycling paths greenway in Jericho Beach Park



Figure 23: Jericho Beach Park shared pathway near Point Grey Road



Figure 24: Desire line appearing along pathway

Observation #5:

Greenways should run adjacent to the park, except when it is directly on a major or city-wide greenway network

Example:

As established in Consideration #3, in most cases greenways run adjacent to smaller parks. However, greenways can route through a smaller park when it is on a major greenway network. An example of this is Seaforth Peace Park. This park is not currently connected to the major greenway system but it is under review to be incorporated as an extension. This park does an excellent job in retaining valuable greenspace while integrating active transportation that meet AAA guidelines (see fig. 25, 26)



Figure 25: Entrance into Seaforth Peace Park from Chestnut St.



Figure 26: Two way cycling path inside Seaforth Peace Park

Example of Gap:

Rosemont park is a local park adjacent to the Masumi Mitsui greenway. This park is an excellent example of when a major greenway should route through a smaller park. Currently, the greenway runs along Rosemont Drive with little to no connection to this valuable greenspace. This space also lacks any existing mobility infrastructure. Judging by figure 28 and 29 we can see multiple desire lines on points of entry. This may indicate, in circumstances when space allows for it, to route the major greenway through the park to support the entire integrated and connected park network. Otherwise, people may choose, as seen through Rosemont park, to create their own paths throughout.

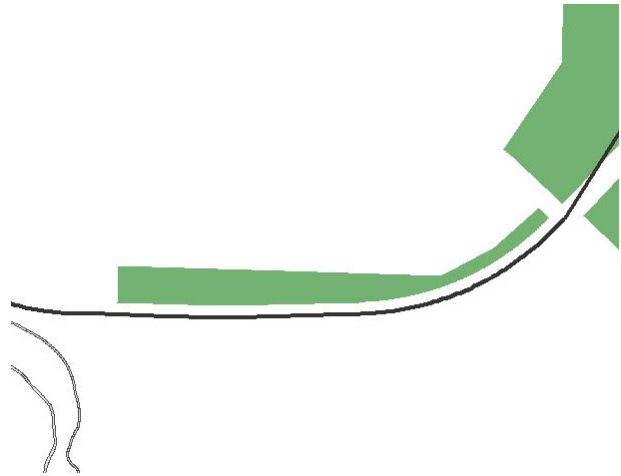


Figure 27: Rosemont park adjacent to the Masumi Mitsui greenway



Figure 28: Two desire lines going towards the entrance of the park along Kerr St



Figure 29: Desire line exiting the park towards Butler St

Existing Mobility Infrastructure Conditions

To help further study, analyze, plan for, and manage mobility in parks, it is important to understand existing conditions in Vancouver's mobility infrastructure. Figures 30, 31 and 32 provide an insight into common park mobility infrastructure trends identified through site visits. Figure 30 is of the Seaside greenway routing through Vanier Park. This path is highly used but currently has varying widths as well as surfacing material. As seen in Vanier Park the primary material is gravel which can be hazardous in certain weather conditions. Figure 31, in Kitsilano Beach Park is a trend noticed throughout Vancouver's park mobility infrastructure where there are various surfacing materials in a relatively short distance. By not having continuous material, it may reduce the experiential quality of an integrated park system. Lastly, figure 32 is a desire line that has appeared in Trout Lake. Desire lines can be a positive sign that users are utilizing the parks freely. However, left unnoticed they can keep widening which implies that it is a popular route which may need to be resurfaced to make it accessible for all ages and abilities.



Figure 30: Vanier Park



Figure 31: Kitsilano Beach Park



Figure 32: John Hendry Park (Trout Lake)

Proposed Mobility Classification System

The following mobility classification system was developed for all pathways in Vancouver’s parks to set standards and effectively manage mobility within parks (see tab. 6). Largely based on volume and the role each pathway plays in the overall mobility network, a description of each classification type from A through to E includes the type of use, average capacity, trail width typology, surfacing and slope. Further details on this classification can be found below this table including examples in parks today.

The following section includes a profile of each classification type, along with an example in the current network, capacity, and other details. Using this classification system, an inventory of all pathways through parks is an important next step to understanding the mobility within parks, and the overall network of mobility across parks and greenways.

	Pathway Role	Type of Use / Accessibility	Capacity	Trail Width	Surfacing	Slope
Class A: AAA Greenways	Provides urban connections to important destinations throughout the city.	Walking Jogging Cycling Roller Blading Stroller Wheelchair	High	3 to 5 mts	Asphalt Concrete	Optimum 2-3% Maximum: 8%
Class B: Passive Pathways	Provides an opportunity for passive park circulation.	Walking Jogging Cycling Roller Blading Stroller Wheelchair	Low to Moderate	1.5 to 3 mts	Asphalt Unit Pavers Concrete	Optimum 2-5% Maximum: 8%
Class C: Connector Pathways	Short distance paths that provide connection to facilities and/or passive pathways and greenways.	Walking Stroller Wheelchair	Low to Moderate	1.5 to 2 mts	Asphalt Gravel Unit Pavers Concrete	Optimum 2-5% Maximum: 8%
Class D: Nature Trails	Pathways that provide connection to natural settings (i.e. forests)	Walking Jogging Cycling	Low	1 to 3 mts	Gravel Mulch Compacted Earth	Optimum 2-10% Maximum: 30%
Class E: Informal Trails	Pathways that act as desire lines for a shorter navigated route.	Walking Jogging Cycling	Low	.5 to 2 mts	Grass Compacted Earth	Maximum: 8%

Table 6: Proposed mobility classification system

Class A: AAA Greenways

Pathway Role:

Major greenways accommodating all user types, often separated and provides connection to major destinations with parks and around the City.

Capacity:

High

Trail Width:

3 to 5m

Example:



Figure 33: Hastings Park (Empire Fields)

Surfacing:

Asphalt, Concrete

Slope:

3-5%

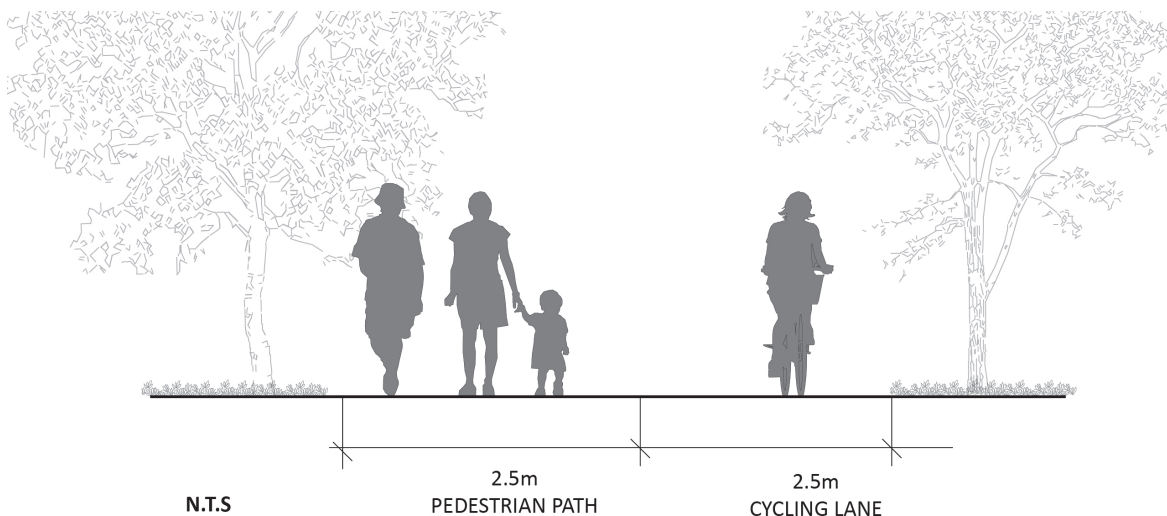
Recommended Amenities:



Type of Use/Accessibility:

Walking, jogging, cycling, roller blading, stroller, wheelchair

Typical Section:



Class B: Passive Pathways

Pathway Role:

Informal paths mainly for pedestrian and sometimes shared use, in order to experience a park, rather than arrive to a destination.

Capacity:

Low to Moderate

Trail Width:

1.5 to 3m

Example:



Figure 34: New Brighton Park

Surfacing:

Asphalt, Concrete, Unit Pavers, Gravel

Slope:

2-5%

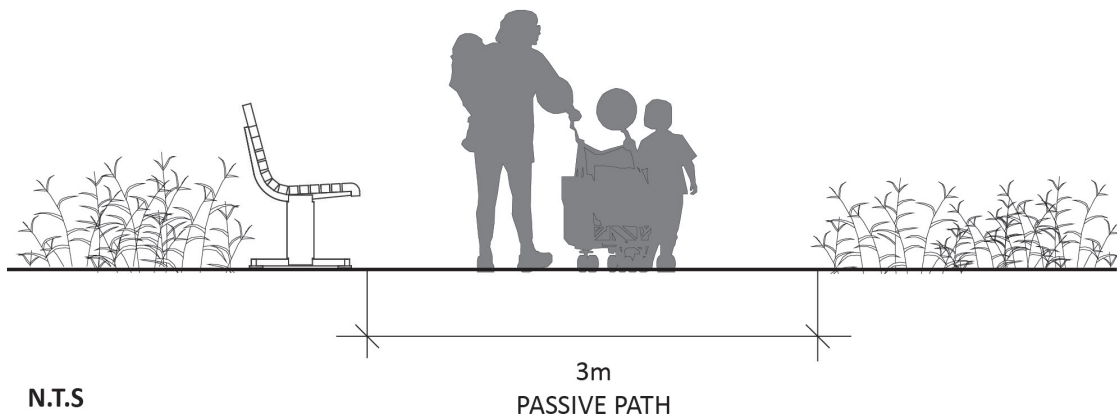
Recommended Amenities:



Type of Use/Accessibility:

Walking, Jogging, Cycling, Roller Blading, Stroller, Wheelchair

Typical Section:



Class C: Connector Pathways

Pathway Role:

Short distance pathways that provide direct connections to facilities from parking lots, roadways, other pathways, and other facilities.

Capacity:

Low to Moderate

Trail Width:

1.5 to 2m

Example:



Figure 35: Sunset Beach Park

Surfacing:

Asphalt, Concrete, Unit Pavers, Gravel

Slope:

2-5%

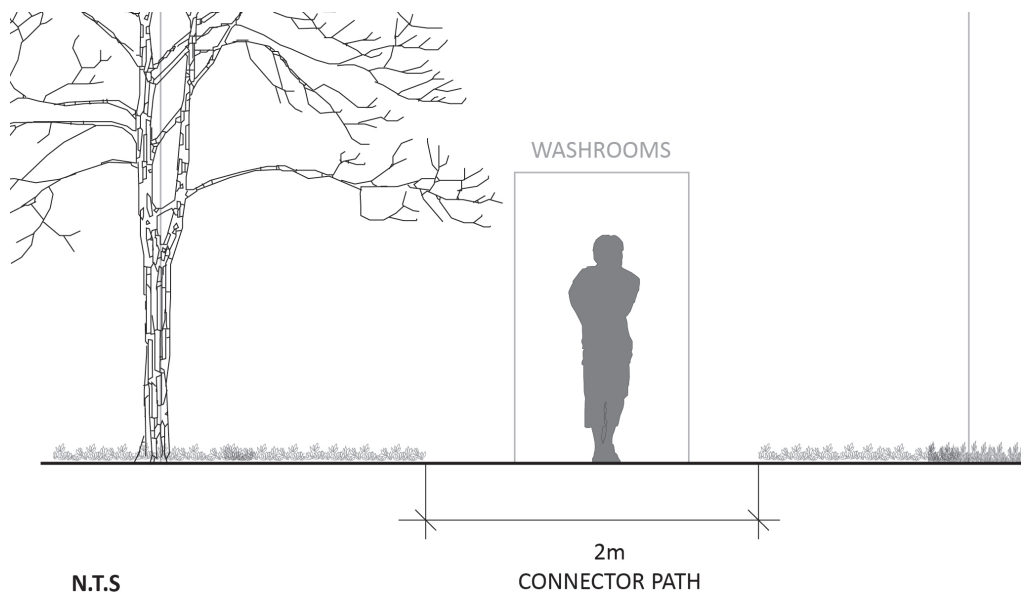
Recommended Amenities:



Type of Use/Accessibility:

Walking, Stroller, Wheelchair

Typical Section:



Class D: Nature Trails

Pathway Role:

Pathways that provide connection and opportunity to discover and enjoy natural settings.

Example:

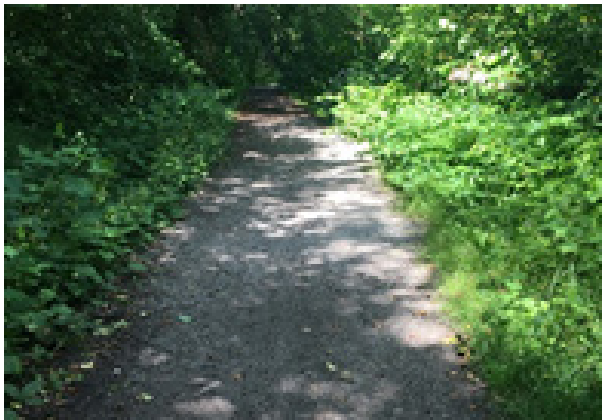


Figure 36: Jericho Beach Park

Type of Use/Accessibility:

Walking, Jogging, Cycling

Capacity:

Low

Trail Width:

1 to 3m

Surfacing:

Gravel, Mulch, Compacted Earth

Slope:

2-8%

Recommended Amenities:



Typical Section:



Class E: Informal Trails

Pathway Role:

Pathways that act as desire lines for a shorter navigated route. It is vital that there is a class for desire lines so there are set standards as to whether or not they must be decommissioned or moved to another class and developed to be more accessible by all ages and abilities.

Example:



Figure 37: John Hendry Park (Trout Lake)

Type of Use/Accessibility:

Walking, Jogging, Cycling (may also vary as it is not established pathway)

Capacity:

Low

Trail Width:

.5 to 2m

Surfacing:

Grass, compacted earth

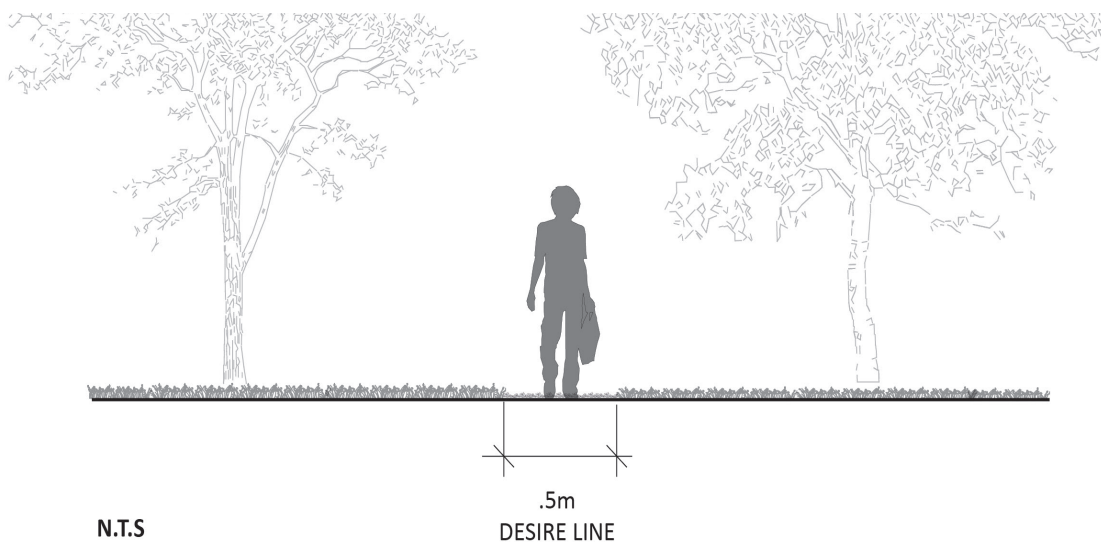
Slope:

Maximum 8%

Recommended Amenities:

N/A

Typical Section:



Recommendations and Conclusion

Recommendations

This report serves as the starting point for an integrated and connected park system. For this vision to come to fruition a wide variety of research and planning will need to follow. Below are a few key areas that should be researched and explored further:

- The city has recently begun to integrate blue-green systems into the street network. Blue-green systems are networks of connected park-like streets that manage water and land in a way that replicates natural functions and provides ecosystem services. Future research should be conducted on how blue-green systems can be utilized to integrate parks, greenways and the wider city street network.
- This report primarily focused on parks connections to major citywide greenways. Currently, transportation is undergoing a greenway refresh. The Park Board must continue to align the integrated park network with the updated greenway refresh which may allow for further opportunity to connect parks with other greenway types.
- As shown in appendix A, there is also an expansive network of on-street bikeways shared with vehicles. More research must be conducted on how parks can better integrate

with this other mode of active transportation.

- It is recommended that an Evaluation Matrix that helps determine the potential for greenways to route “through” parks be developed. Key considerations could be scored and park/greenway interaction evaluated for suitability. Some key considerations are:

1. Does the park straddle a city-wide or major greenway network?
2. Is the park located on the waterfront as part of the continuous Seaside greenway?
3. Is the park a destination or community park with major destination points (with high number of users)?
4. Is the park in a mostly non-residential (ex: commercial or industrial) neighbourhood or high traffic area?
5. Is the park high on the priority list for major renewal?

- For an integrated park network to become a reality, a next logical step is to create design guidelines based on the mobility classification system proposed in the section "Proposed Mobility Classification System". Additionally, further research must be conducted on how these design guidelines can be integrated with greenway design guidelines.

- Vancouver is experiencing rapid population growth. As the population grows it is likely there will be more park use as the amount of people per hectare will increase. It is advisable that population density projections are considered for park development and greenway interactions to align with future population growth.
- A full inventory of all pathways in parks using the developed classification system in GIS is recommended as part of the Park Board's asset management program in order to help plan for the future of an integrated and connected park network.

Conclusion

The Park Board is laying the foundation towards achieving VanPlay's connected network of parks and open spaces, and in support of GCAP's goal of making Vancouver the greenest city in the world. The quality and quantity of parks in combination with the City's expansive greenway network provides an excellent opportunity for an integrated park network. With consistent collaboration with the City's Transportation Planning and Engineering branches, Vancouver's park system is likely to be one that serves all ages and abilities for generations to come.

References

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Appendices

Appendix A: Map of parks and established bikeways



Appendix B: Data based on parks serviced by greenways

Greenway	Park	Park Classification	Greenway Interaction	Greenway Type	# Parking Lot Spaces	Picnic Tables	Bike Racks	Benches	Washrooms	Drinking Fountains	Community Centres
Seaside	Spanish Banks Beach Park	Community	Through	Waterfront	4	53	2	11	2	1	
Seaside	Locarno Beach Park	Community	Through	Waterfront	4	43	6	34	1	1	1
Seaside	Jericho Beach Park	Community	Through	Waterfront	3	29	11	79	2	1	
Seaside	Hastings Mill Park	Neighbourhood	Adjacent	Waterfront	0	0	1	16	0	0	
Seaside	Jean Beaty Park	Local	Adjacent	Waterfront	0	0	0	3	0	1	
Seaside	Park Site on Point Grey at Trutch	Local	Adjacent	Waterfront	0	0	0	3	0	0	
Seaside	Volunteer Park	Local	Adjacent	Waterfront	0	0	0	8	0	0	
Seaside	Tatlow Park	Neighbourhood	Adjacent	Waterfront	0	0	1	9	1	0	
Seaside	Margaret Pigott Park	Local	Adjacent	Waterfront	0	0	0	4	0	1	
Seaside	Park Site on Point Grey at Stephens	Local	Adjacent	Waterfront	0	0	0	6	0	0	
Seaside	Park Site on Point Grey at Trafalgar	Local	Adjacent	Waterfront	0	1	1	4	0	0	
Seaside	Kitsilano Beach Park	Community	Combination	Waterfront	2	21	19	138	2	4	
Seaside	Hadden Park	Community	Adjacent	Waterfront	1	0	0	36	1	0	
Seaside	Vanier Park	Destination	Adjacent	Waterfront	6	0	7	40	1	1	
Seaside	Sutcliffe Park	Community	Adjacent	Waterfront	0	1	4	22	0	1	1
Seaside	Charleson Park	Community	Adjacent	Waterfront	0	0	0	29	0	2	
Seaside	Hinge Park	Community	Adjacent	Waterfront	0	6	2	53	0	2	
Seaside	Habitat Island Park	Community	Adjacent	Waterfront	0	0	0	N/A	0	0	
Seaside	Triangle Park	Urban Plaza	Adjacent	Waterfront	0	0	0	8	0	0	
Seaside	Creekside Park	Neighbourhood	Through	Waterfront	0	0	1	17	0	1	
Seaside	Coopers' Park	Community	Combination	Waterfront	0	0	0	72	0	2	
Seaside	David Lam Park	Community	Through	Waterfront	0	2	1	163	1	2	
Seaside	George Wainborn Park	Neighbourhood	Through	Waterfront	0	2	2	75	0	1	
Seaside	Sunset Beach Park	Community	Through	Waterfront	2	6	8	53	1	0	
Seaside	English Bay Beach Park	Community	Through	Waterfront	2	8	5	196	1	2	
Seaside	Alexandra Park	Local	Adjacent	Waterfront	0	0	0	17	0	1	
Seaside	Morton Park	Local	Adjacent	Waterfront	0	0	0	5	0	0	
Seaside	Stanley Park	Destination	Through	Waterfront	59	62	47	37	16	18	
Seaside	Marina Square	Community	Adjacent	Waterfront	0	0	1	27	0	0	
Seaside	Cardero Park	Local	Adjacent	Waterfront	0	0	0	14	0	0	
Seaside	Devonian Harbour Park	Neighbourhood	Through	Waterfront	1	0	1	12	0	1	1
Seaside	Harbour Green Park	Community	Adjacent	Waterfront	0	0	8	126	1	3	
	Total = 32				84	234	128	1317	30	46	3
Lagoon	West End Minipark - Chilco St @ Comox St	Local	Through	Downtown	0	2	0	2	0	1	
Lagoon	Stanley Park	Destination	Adjacent	Downtown	59	62	47	37	16	18	
	Total = 2				59	64	47	39	16	19	0
Fraser River Trail	Deering Island Park	Neighbourhood	Adjacent	Waterfront	0	0	0	4	0	0	
Fraser River Trail	Fraser River Park	Neighbourhood	Through	Waterfront	2	9	N/A	26	1	2	
Fraser River Trail	Fraser River Trail Park	Local	Adjacent	Waterfront	0	1	N/A	4	0	0	
Fraser River Trail	Park Site on Shaughnessy Street	Neighbourhood	Adjacent	Waterfront	0	4	0	6	0	0	
Fraser River Trail	Gladstone-Riverside Park	Local	Through	Waterfront	1	0	0	6	0	0	
Fraser River Trail	Riverfront Park	Neighbourhood	Through	Waterfront	0	10	6	44	0	3	
Fraser River Trail	East Fraserlands Neighbourhood Park South	Local	Adjacent	Waterfront	0	0	0	0	0	0	
Fraser River Trail	Kincross Corridor-South	N/A	Adjacent	Waterfront	0	0	0	4	0	0	
	Total = 8				3	24	0	94	1	5	0
Portside	CRAB Park	Community	Adjacent	Waterfront	0	0	1	39	1	1	
Portside	Wendy Poole Park	Local	Adjacent	Waterfront	0	0	0	2	0	0	
Portside	Oxford Park	Neighbourhood	Adjacent	Waterfront	0	0	0	2	0	0	
Portside	Dusty Greenwell Park	Local	Adjacent	Waterfront	0	0	0	4	0	0	
Portside	Cambridge Park	Local	Adjacent	Waterfront	0	0	0	2	0	0	
Portside	Park Site on Trinity Street	Local	Adjacent	Waterfront	0	0	0	2	0	0	

Portside	Burrard View Park	Neighbourhood	Adjacent	Waterfront	1	5	0	12	1	1	
Portside	New Brighton Park	Community	Adjacent	Waterfront	0	20	3	44	2	3	
Portside	Creekway Park	Local	Through	Waterfront	2	0	0	16	0	0	
Portside	Bates Park	Local	Adjacent	Waterfront	0	0	0	1	0	0	
	Total = 10				3	25	4	124	4	5	0
Midtown Way	Choklit Park	Local	Adjacent	East-West	0	0	0	2	0	0	
Midtown Way	Laurel Landbridge Park	Local	Adjacent	East-West	0	0	0	5	0	0	
Midtown Way	Willow Park	Local	Adjacent	East-West	0	0	0	6	0	0	
Midtown Way	China Creek South Park	Neighbourhood	Through	East-West	0	6	1	5	0	1	
Midtown Way	Jonathan Rogers Park	Neighbourhood	Adjacent	East-West	0	0	0	11	1	1	
Midtown Way	W.C. Shelly Park	Neighbourhood	Adjacent	East-West	0	0	0	5	0	1	
Midtown Way	Alice Townley Park	Local	Adjacent	East-West	0	0	0	5	0	0	
Midtown Way	Woodland Park	Neighbourhood	Adjacent	East-West	0	0	0	9	1	1	
	Total = 8				0	6	1	48	2	4	0
Spirit Trail	Musqueam Park	Neighbourhood	Adjacent	North-South	1	0	0	4	0	0	
	Total = 1				1	0	0	4	0	0	0
Arbutus	6th and Fir	Neighbourhood	Adjacent	North-South	0	2	2	5	0	0	
Arbutus	5th and Pine	Local	Adjacent	North-South	0	2	5	5	0	0	
Arbutus	Delamont Park	Neighbourhood	Adjacent	North-South	0	0	0	9	0	0	
Arbutus	Quilchena Park	Community	Adjacent	North-South	0	0	0	24	1	1	
Arbutus	Kerrisdale Park	Neighbourhood	Adjacent	North-South	2	0	1	6	0	1	
Arbutus	Kerrisdale Centennial Park	Neighbourhood	Adjacent	North-South	1	2	5	20	0	0	1
Arbutus	Riverview Park	Neighbourhood	Adjacent	North-South	0	0	0	5	0	0	
Arbutus	William Mackie Park	Neighbourhood	Adjacent	North-South	0	1	0	8	0	0	
	Total = 8				3	7	13	82	1	2	1
Ontario	Creekside Park	Neighbourhood	Adjacent	North-South	2	0	1	16	0	0	
Ontario	Mount Pleasant Park	Neighbourhood	Adjacent	North-South	1	8	3	13	0	1	
Ontario	Nat Bailey Stadium Park	Destination	Adjacent	North-South	7	2	5	3	0	0	
Ontario	Riley Park	Community	Adjacent	North-South	1	3	10	16	0	1	
Ontario	Queen Elizabeth Park	Destination	Adjacent	North-South	18	10	3	3	3	6	
	Total = 5				29	23	22	51	3	8	0
Eastside Crosscut	Empire Fields - Hastings Park	Destination	Through	North-South	1	0	0	4	0	4	
Eastside Crosscut	Renfrew Community Park	Community	Adjacent	North-South	2	5	6	26	0	1	1
Eastside Crosscut	Renfrew Ravine Park	Neighbourhood	Through	North-South	0	0	0	11	0	0	
Eastside Crosscut	Slocan Park	Community	Through	North-South	0	2	0	9	0	1	
Eastside Crosscut	Gladstone-Riverside Park	Local	Adjacent	North-South	1	0	0	6	0	0	
	Total = 5				4	7	6	56	0	6	1
Central Valley Greenway	Carolina Park	Local	Adjacent	East-West	0	0	0	2	0	0	
Central Valley Greenway	China Creek North Park	Neighbourhood	Adjacent	East-West	5	5	1	15	0	1	
Central Valley Greenway	John Hendry (Trout Lake) Park	Community	Adjacent	East-West	5	17	32	82	1	1	1
	Total = 5				10	22	33	99	1	2	1
Parkway	John Hendry (Trout Lake) Park	Community	Through	East-West	5	17	32	82	1	1	1
Parkway	Slocan Park	Community	Adjacent	East-West	0	2	0	9	1	1	
Parkway	Melbourne Park	Neighbourhood	Adjacent	East-West	0	0	0	12	0	1	
	Total = 3				5	19	32	103	2	3	1
Ridgeway	West Point Grey Park	Community	Adjacent	East-West	1	5	0	26	1	2	
Ridgeway	Park Site on Blenheim	Local	Adjacent	East-West	0	0	0	0	0	0	
Ridgeway	Valdez Park	Local	Adjacent	East-West	0	0	0	2	0	0	
Ridgeway	Balaclava Park	Community	Through	East-West	0	2	0	15	1	1	
Ridgeway	Park Site on Quesnel Drive	Local	Adjacent	East-West	0	0	0	0	0	0	
Ridgeway	Park Site on Puget Drive	Local	Adjacent	East-West	0	0	0	0	0	0	
Ridgeway	Park Site on Trafalgar Street	Local	Adjacent	East-West	0	1	1	4	0	0	

Ridgeway	Vandusen Botanical Garden	Destination	Adjacent	East-West	1	8	31	117	2	2	
Ridgeway	Oak Meadows Park	Community	Adjacent	East-West	1	2	1	10	0	0	
Ridgeway	Queen Elizabeth Park	Destination	Adjacent	East-West	18	10	3	3	3	3	
Ridgeway	Cartier Park	Neighbourhood	Adjacent	East-West	0	0	1	11	0	1	1
Ridgeway	Kensington Park	Community	Adjacent	East-West	1	0	3	22	0	1	
Ridgeway	Jones Park	Neighbourhood	Adjacent	East-West	0	4	0	4	1	0	
Ridgeway	Killarney Park	Community	Adjacent	East-West	1	0	7	38	0	1	1
Total = 14					23	32	47	252	8	11	2
Masumi Mitsui	Oak Park	Community	Adjacent	East-West	1	9	1	15	1	3	1
Masumi Mitsui	Winona Park	Neighbourhood	Adjacent	East-West	0	0	0	9	1	1	
Masumi Mitsui	Moberly Park	Community	Adjacent	East-West	1	0	1	17	1	2	
Masumi Mitsui	Ross Park	Neighbourhood	Adjacent	East-West	0	10	0	12	1	0	
Masumi Mitsui	Humm Park	Neighbourhood	Adjacent	East-West	0	0	0	2	0	0	
Masumi Mitsui	Rosemont Park	Local	Adjacent	East-West	0	0	0	0	0	0	
Masumi Mitsui	Captain Cook Park	Neighbourhood	Through	East-West	0	0	0	2	0	0	
Masumi Mitsui	Sparwood Park	Neighbourhood	Through	East-West	0	0	0	3	0	0	
Masumi Mitsui	Riverview Park	Neighbourhood	Adjacent	East-West	0	0	0	5	0	0	
Masumi Mitsui	Fraser River Park	Neighbourhood	Adjacent	East-West	2	9	0	26	1	0	0
Total = 10					4	28	2	91	5	6	1
Comox-Helmcken	Nelson Park	Community	Adjacent	Downtown	0	1	1	30	1	1	
Comox-Helmcken	Emery Barnes Park	Neighbourhood	Adjacent	Downtown	0	8	5	34	0	2	
Comox-Helmcken	Helmcken Park	Urban Plaza	Adjacent	Downtown	0	0	0	10	0	0	
Comox-Helmcken	West End Minipark - Cardero St @ Comox St	Local	Adjacent	Downtown	0	2	3	2	0	0	
Comox-Helmcken	West End Minipark - Chilco St @ Comox St	Local	Adjacent	Downtown	0	2	0	2	0	1	
Comox-Helmcken	Stanley Park	Destination	Through	Downtown	59	62	47	37	16	18	
Total = 6					59	75	56	115	17	22	0
Carrall	Andy Livingstone Park	Community	Through	Downtown	0	3	7	64	1	1	
Carrall	Sun-Yat-sen Gardens Park	Local	Adjacent	Downtown	0	5	0	1	0	0	
Carrall	Pioneer Place (Pigeon Park)	Urban Plaza	Adjacent	Downtown	0	0	0	4	0	1	
Total = 3					0	8	7	69	1	2	
Granville	Sutcliffe Park	Community	Through	Downtown	0	1	4	22	0	1	
Total = 1					0	1	4	22	0	1	0