

Access to nature in Vancouver

What does it mean, and can we map it?



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Table of Contents

Acknowledgements.....	i
Tables	iv
Figures.....	iv
Introduction.....	0
Executive Summary.....	1
Introduction.....	2
Project purpose and scope	2
Policy context.....	2
Project methods.....	4
Limitations	4
Literature review	7
What the research says.....	8
Benefits of access to nature	8
But what is “nature”, to whom, and why does it matter?	9
Defining and measuring access to nature	11
Policy scan	14
Learning from Peer Leaders	15
Boulder, CO, USA’s “Growing Up Boulder”	15
Oregon Metro, OR, USA’s “Connect with Nature”	17
London, United Kingdom’s Biodiversity Action Plan.....	19
Toronto, ON, Canada’s “Heat Vulnerability” and “Wellbeing” Maps.....	20
Wellington, New Zealand’s “Nature in the City” Map.....	21
Fort Collins, CO, USA’s “Nature in the City” Plan	22
Melbourne, Australia’s “Nature in the City” Strategy	24
Edmonton, AB, Canada’s “Breathe” Open Space Provisioning Maps.....	25
Scotland’s “Outdoor Access Plans”	27
Portland, OR, USA’s “Citywide Tree Planting Strategy”	28
Trust for Public Lands’ “ParkServe”	29
Learning from Peer Leaders: Summary Points	30
Equity, justice and vulnerability.....	31
Meeting ecological and social needs.....	31
Local knowledge and experience.....	32

Proximity, size, and connectivity of spaces	32
Demand and Stressors.....	33
Public engagement	34
Public Engagement: What We Heard.....	35
What we did	35
Who we heard from	36
What makes parks feel safe and accessible?.....	37
What stops people from accessing nature?	39
What makes people feel connected with nature?.....	42
More connected	42
Most visited and favourite parks.....	43
Less connected.....	44
Middle ground.....	46
What features feel more or less like nature?.....	48
What do people imagine for Vancouver’s future?	49
How do people want access, and to where?.....	49
Visions for access to nature.....	51
Summary of public engagement findings.....	53
Results	54
A definition for Vancouver	55
Can we map access to nature?	56
Applications and Next Steps	60
Summary	63
Summary	64
Appendices	65
Appendices	66
Appendix A: Bar graph – image sorting exercise	66
Appendix A Continued: Data table – Image sorting exercise	67
Appendix B: Complete data – Feature sorting exercise	68
Appendix C: Alternative table: How do people want access, and to where?	69
Appendix D: Alternative vision statements.....	70
Appendix E: Other qualitative feedback.....	71
Appendix F: Example checklists	73

Tables

Table 1: London, UK's Public Open Space Categorizations.....	19
Table 2: Steps to creating an Outdoor Access Plan.....	27
Table 3: Perceptions of accessibility and safety	38
Table 4: Most visited and favourite parks compared.....	44
Table 5: Top 10 things that made people feel more or less connected with nature	48
Table 6: Potential data sources for Restorative Natural Area Index.....	58

Figures

Figure 1: Clipping from Engagement Report for Boulder's Urban Forest Strategic Plan	16
Figure 2: Fort Collins' Social-Ecological Spectrum for open spaces.....	23
Figure 3: "Breathe" Open Space Provision map.	26
Figure 4: Example chart outputs of a ParkServe report card	29
Figure 5: Essential considerations for defining, measuring, and planning for access to nature .	31
Figure 6: Where respondents are from	36
Figure 7: Respondent gender identities	36
Figure 8: Respondent ages.....	36
Figure 9: Respondent ancestries.....	37
Figure 10: Enablers to accessing nature	39
Figure 11: Barriers to accessing nature.....	40
Figure 12: Word clouds: More connected with nature.....	43
Figure 13: Word clouds: Less connected with nature	45
Figure 14: Preferred nature destinations and transportation mode	50
Figure 15: Which visions resonate most with you?	51
Figure 16: Conceptual diagram of proposed mapping index.....	56
Figure 17: Toronto's Heat Vulnerability Map ³³	57
Figure 18: Conceptual illustration of RNA Index layer added to VanPlay Equity Initiative Zone mapping	61

Introduction



Executive Summary

Access to nature is nearly universally valued, but it is a subjective experience that is difficult to plan for and measure. The goal of this project is to develop an understanding of what access to nature really means for Vancouverites: is it an inherently qualitative and subjective experience, or can it be mapped and quantified?

This report summarizes the findings of a public engagement survey, interviews, literature review, and a policy scan which were conducted in May and June of 2020. Based on the synthesized findings, definition and mapping criteria for measuring access to nature are proposed. The outputs of this project support meeting Access to Nature targets outlined most notably in the Greenest City Action Plan and VanPlay, but also delivers on targets and guiding principles of other strategic plans like the Healthy City Strategy, and the forthcoming Climate Emergency Action Plan and Vancouver Plan.

Guiding question:

What does “access to nature” mean for Vancouverites, and can we map it?

Main deliverables:

A definition and corresponding indicators to measure and plan for access to nature

Methods used:

Public consultation (survey and interviews), Literature review, Jurisdictional policy scan



Introduction

Project purpose and scope

Both “access” and “nature” are loaded terms that people experience subjectively. What one person considers very accessible might be completely prohibitive to another person. What one person sees as having fun spending time in nature might be seen by another user of the same space as being destructive. One person might see a manicured garden as a novel ecosystem full of life, while another person laments the lack of native plants that perhaps used to populate that space.

Naturally, then, it is challenging for a City government to plan for access to nature that meets the needs of every unique person and place. Through the Greenest City Action Plan (2010-2020) and other strategies (described in Policy Context below) the City of Vancouver strives to provide residents with affordable and accessible nature.

The goal of this project is to build an understanding of the kinds of spaces, landscapes and activities that allow people to experience fulfilling access to nature. The main deliverable for this project is a definition and corresponding set of indicators to map and measure access to nature in Vancouver.

Policy context

The findings from this project support several strategic planning initiatives in Vancouver.

The need for this project in the first place was prompted from the Greenest City Action Plan 2010-2020 (GCAP). Access to Nature is one of the goals articulated in the GCAP. The main target articulated in GCAP was that every Vancouver resident should live within a 5 minute walk of nature. Efforts by the Board of Parks and Recreation to analyze and meet this target have shed light on what is missed by this target and underscored the need for a more precise definition and criteria for monitoring and evaluation of progress on this goal. Moving forward, as Vancouver transitions out of the GCAP era and into the scope of the forthcoming Climate Emergency Action Plan as the prevailing sustainability agenda for the City, Access to Nature will continue to be an important outcome for resident wellbeing as well as resilience to climate related stresses such as extreme heat.

In the Healthy City Strategy, improving access to nature contributes to the goals “Active living and getting outside” and “Environments to thrive in”. These goals refer explicitly to the evidence that having access to outdoor spaces and nature can be restorative, improving emotional and mental health. We are often drawn to these types of spaces to fulfil physical exercise needs as well, making access to nature a crucial part of overall wellbeing.

Last but not least, VanPlay is the in-progress Parks and Recreation Services Master Plan for the city. This suite of reports guides the work of the Park Board and sets the agenda for park, recreation, and nature provision for the City. The issue of access to nature intersects with all of VanPlay's Strategic Bold Moves: Equity, Asset Needs, and Connectivity. The Bold Moves represent desired outcomes and guiding principles of park and recreation planning for the City.

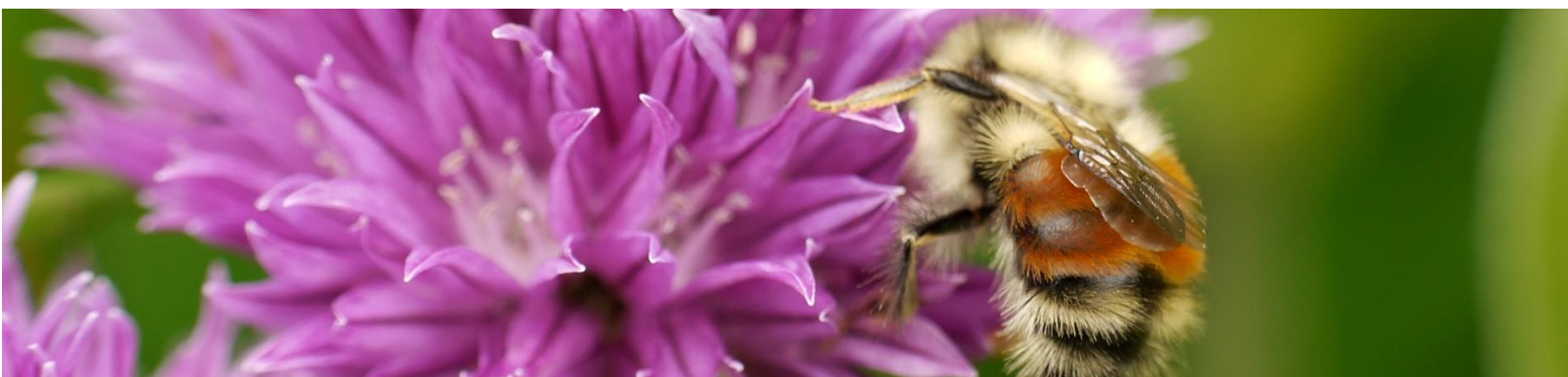
The "Equity" goal focuses on improving access to recreation and open space for traditionally underserved communities, as well as questioning and reflecting on colonial structures. These are crucial considerations when planning for nature access, since people of colour, socioeconomically disadvantaged, and queer-identifying residents have different experiences of safety and accessibility in parks and nature. Furthermore, the concept of "nature" at all (as something that is separate from us, that we "go to") can be interpreted as a colonial construct, since many Coast Salish worldviews see humans as inseparable from the natural world.

"Asset needs" refers to reducing barriers to access of parks and natural spaces and also grapples with the appropriate provision of services and amenities. Specifically, VanPlay aims to increase the proportion of naturalised areas and variety of ecosystems in parks, as well as to improve ecological connectivity and improve access to nature. To this end, VanPlay sets targets to restore and enhance 1-3 hectares of natural area per year, add at least five projects for bird and pollinator habitat per year, and grow environmental stewardship by 25% by 2040. As will be discussed throughout this document, providing access to nature (as an asset) is a balancing act between infrastructure provision on the one hand, and natural element provision on the other.

Of course, "Connectivity" is a key consideration in planning for nature access. For people, connectivity in transportation networks and our capabilities to use them are a large part of how we decide which nature to access, where, and when. For plants and animals, having more connected landscapes helps to improve ecological resilience and biodiversity.

In an interview for this project, a planner who worked on Fort Collins, Colorado's "Nature in the City" plan remarked that the foraging range for native bees roughly overlapped with the range that people are willing and able to walk to access natural areas.

Lastly, at the time of writing, the City of Vancouver has started the process of developing its first city-wide master plan, the Vancouver Plan. The Vancouver Plan has the potential to spatialize these commitments to nature accessibility (among other goals). A clear, quantifiable definition of what access to nature can look like will help to guide future strategic planning throughout the city.



Project methods

This project used three main methods of gathering and processing information: scholarly literature review, jurisdictional policy scanning, and public engagement.

The scholarly literature review contained in this document summarizes the main benefits of nature access, and explains the different ways and reasons that people value nature. It describes some of the main ways that scholars have attempted to map and quantify nature access.

The jurisdictional policy scan covers a variety of efforts from governments and nonprofits that have attempted to quantify and map access to nature. This section showcases some of the tried-and-true methods from leading cities globally for quantifying and planning for improved access to nature.

Lastly, public engagement was conducted to understand how Vancouverites understand their own needs and desires surrounding access to nature. An interactive survey was distributed to the general public asking questions about what kinds of spaces made them feel connected with nature, and what their main barriers (and enablers) for accessing nature are, in their experience. Several interviews were also conducted with City staff, environmental and community leaders from various nonprofits, and local university researchers, allowing for a deeper dive into the meaning of access to nature for Vancouverites. Informal interviews were also conducted with contacts from some cities from the jurisdictional scan, in order to learn from experience implementing and evaluating these strategies.

Limitations

This project took place during the COVID-19 pandemic, in May and June of 2020. During this time, the City had several restrictions on public engagement with the intention of prioritizing crisis response and protecting public health. In particular, these restrictions, as well as the overall short timeline of this project, have meant that there are several important stakeholder groups that were not explicitly consulted for this project. Because access to nature is such a subjective experience, and one that is deeply connected to experiences of identity and oppression, it is strongly recommended that more targeted public engagement be conducted before moving forward with the proposed definitions and criteria.

In particular, there are several equity-seeking groups that warrant explicit invitation to participate in co-creating this definition.

First Nations: The City of Vancouver sits on the traditional, ancestral, unceded and occupied territory of the Musqueam, Squamish, and Tsleil-Waututh people. Findings from the Board of Parks and Recreation Colonial Audit reveal that the organization has a history of prioritizing

non-Indigenous voices and ways of knowing. This has to change, if the Park Board takes seriously its commitments to UNDRIP and decolonization more broadly.

As previously mentioned, First Nations residents are likely to have a unique perspective on the importance of access to natural elements – for example, for traditional foraging or ceremonial purposes. However, the very idea of planning for access to nature comes from a settler perspective that sees “nature” as separate, something that can be “accessed” rather than something that we are all a part of. This view is at odds with Coast Salish cosmologies. In light of this, further relationship building (more robust than consultation alone) is needed in order to understand how the Park Board can plan for access to nature for all residents in a way that is anti-colonial and anti-racist.

Immigrants and People of Colour: As expressed in the literature review, parks often have unique importance for immigrant communities, and can support acculturation and integration for recent immigrants. The differing family structure of some immigrant families may mean that they have different needs for park space than Canadian-born residents. Additionally, like First Nations, people from other parts of the world may have different attitudes about what nature is, and our relationship to it. Regardless of immigrant status, racialized people across North America experience oppression and violence (structural and explicit) that affects their ability to exist and feel safe in parks and natural areas. One case study in the policy scan, Oregon Metro’s “Connect with Nature”, highlights some of the ways that residents of colour have different preferences for park design based on these experiences with oppression.

Low-income residents: Existing research from Vancouver and beyond clearly demonstrates that low-income residents experience tend to live in areas with less green space than more affluent residents. This can actually reinforce the cycle of poverty because access to nature is essential for childhood development, so children from poorer households with less nature access may be more likely to experience challenges like attention disorders which impact their performance in school and work. Low-income neighbourhoods like Vancouver’s Downtown East Side are at greater risk of extreme heat events, partly because they are deprived of green spaces and especially trees, which have a cooling effect and can provide much-needed shade.

Unhoused and precariously housed residents: Unhoused residents face extreme material deprivation and stigma. As public spaces, parks are often the places that unhoused people sleep, eat, and live their lives. Furthermore, unhoused people also often have intersectional identities and may also identify as any or all of the other equity-seeking groups listed in this section. For example, a 2018 Aboriginal Homeless Count in Vancouver found that Indigenous people are over-represented among people who sleep rough; 40% of surveyed people identified as Indigenous in their sample (even though only 2.2% of Vancouver’s population are Indigenous) and 88% of Indigenous unhoused people had at least one health condition.¹

¹ <http://infocusconsulting.ca/wp-content/uploads/ABORIGINAL-HOMELESSNESS-Aug-2018-Final.pdf>

While many of the privileged residents that took part in the survey for this project remarked that the presence of unhoused residents made them feel unsafe, it is also true that unhoused residents themselves have many reasons to feel unsafe in parks and natural areas. In fact, unhoused residents are often the real victims of the violent and petty crimes that many affluent residents fear or imagine when visiting parks alone at night. If we are committed to advancing equity in our parks and natural areas, we cannot ignore the rights of the people who are existentially reliant on these spaces.

LGBTQTS+: Gay and queer people have a history of being persecuted in public spaces by lawful and unlawful means alike. Parks, in particular, have historically been sites of heightened surveillance where gay people are persecuted and arrested, sometimes as a result of entrapment.² They are also often the sites of homophobic violent crime.³ People who are visibly queer and people with nonbinary gender identities may have different perceptions and experiences of safety and comfort in natural areas informed by histories and experiences with hate crime and surveillance. Since access to nature might look different for these folks, targeted consultation is warranted.

People with disabilities: The built form of our parks and transportation networks preclude some people from enjoying them in obvious ways. Decisions to build improvements for accessibility (for example, paved pathways) often have direct trade-offs with peoples' ability to feel connected with nature. Although many of our survey respondents called for restricting car access to parks, having interior roads, parking lots, and hard surfaces can greatly improve accessibility of parks for physically impaired people. We heard from some disabled residents in our survey, but more direct consultation is warranted to understand how people with disabilities perceive nature and their ability to access it.

There are many barriers to accessing and participating traditional public engagement opportunities. Residents belonging to the equity-seeking groups above have been historically oppressed by government, and may have low levels of trust in government and in public consultation specifically as a result of past broken promises and manipulation. This means that mass public consultation efforts often leave out marginalized voices. Meaningful public engagement with these communities means putting time and money into consultation efforts. Best practices for overcoming barriers and improving broken trust can include co-designing the public engagement process alongside marginalized residents, offering explicit and invited invitation to marginalized groups, oversampling traditionally underserved neighbourhoods, outsourcing public consultation to trusted community leaders, and paying residents for the time and effort they contribute as community consultants.⁴

² <https://torontoist.com/2017/03/cruising-history-policing-gay-sex-toronto-parks/>

³ <https://muse.jhu.edu/article/723966>

⁴ Fitzgibbons, J. (2019). Building Inclusive Resilience: Exploring justice and social equity in urban resilience planning. Retrieved from: <https://uwspace.uwaterloo.ca/handle/10012/14884>



Literature review

What the research says

Benefits of access to nature

The benefits of having access to nature are numerous and well-documented. In healthcare settings, a wealth of research has emerged to demonstrate the restorative capacity of nature views since Ulrich demonstrated in 1984 that surgical patients with a window view of nature recover faster than patients who don't.⁵ Hartig & Fransson were able to demonstrate that Dutch residents who had access to "leisure homes" (e.g. vacation cabins or cottages) were less likely to retire early due to health problems.⁶ Here in Vancouver, Frank et al. demonstrated that residents living nearby (within 300m of) greenways are half as likely to be sedentary, and twice as likely to meet recommended daily physical activity. The impacts wane with distance from the greenway.⁷ Similarly, Sallis et al. demonstrated that the number of parks and park proximity in a geographic unit were determining factor of peoples' likelihood of meeting minimum recommended activity levels, and areas with more parks had reduced prevalence of obesity.⁸

Among children, playing in nature has been shown to improve cognitive development, promoting memory, stress regulation, improved attention, and enhanced social skills.⁹ Conversely, children who spend less time in nature experience problems ranging from depression, learning disabilities, attention disorders, obesity, diabetes and even hypertension.¹⁰ These effects are becoming more prevalent as children become increasingly estranged from nature and spend more time indoors on screens.^{ibid}

⁵ Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224(4647), 420–421. <https://doi.org/10.1126/science.6143402>

⁶ Hartig, T., & Fransson, U. (2009). Leisure home ownership, access to nature, and health: A longitudinal study of urban residents in Sweden. *Environment and Planning A*, 41(1), 82–96. <https://doi.org/10.1068/a401>

⁷ Frank, L. D., Hong, A., & Ngo, V. D. (2019). Causal evaluation of urban greenway retrofit: A longitudinal study on physical activity and sedentary behavior. *Preventive Medicine*, 123, 109–116. <https://doi.org/10.1016/j.ypmed.2019.01.011>

⁸ Sallis, J. F., Cerin, E., Kerr, J., Adams, M. A., Sugiyama, T., Christiansen, L. B., ... Owen, N. (2020). Built Environment, Physical Activity, and Obesity: Findings from the International Physical Activity and Environment Network (IPEN) Adult Study. *Annual Review of Public Health*, 41(1), 119–139. <https://doi.org/10.1146/annurev-publhealth-040218-043657>

⁹ McCormick, R. (2017). Does Access to Green Space Impact the Mental Well-being of Children: A Systematic Review. *Journal of Pediatric Nursing*, 37, 3–7. <https://doi.org/10.1016/j.pedn.2017.08.027>

¹⁰ Strife, S., & Downey, L. (2009). Childhood Development and Access to Nature. *Organization & Environment*, 22(1), 99–122. <https://doi.org/10.1177/1086026609333340>

In children and adults alike, nature is known to attenuate stress^{9,11,12,13}. Many of us associate natural landscapes or being in nature with feelings of tranquility and reflection. In our survey, for example, when asked what words came to mind associated with “nature”, many respondents used words like “peaceful” or “relaxation”. Psychologists have demonstrated that spending time in nature has restorative effects for mental and physical health, and hypothesize that this is because of a reduction in brain and nervous system activity that occurs when we witness nature¹², or what Kaplan & Kaplan call “soft fascination”, a state of effortless interest or curiosity^{11,12}. A restorative environment usually has four main elements: soft fascination; a sense of being away or ‘escaped’ from the usual setting; a setting that is satisfying to the individual’s intent or purpose in being there (people feel that they can get what they went there for); and, a sense of perspective or being a part of a “larger whole”.¹²

Understanding the psychology behind the restorative power of nature helps us to make sense of why our survey respondents tended to prefer large, quiet environments that felt removed from urban life. If restoration happens because of a calming in brain activity, then each of the many things that interrupt that and trigger alertness – such as blaring car horns, loud music, or exhaust fumes – chip away at the restorative potential of the space. That is, the restorative potential of a given nature space is proportionate to the number of distractions the space contains. Pocket parks and street trees hence serve many important purposes, but it is also essential to provide access to more quiet, contemplative and immersive natural spaces for residents to access the restorative benefits of nature.

But what is “nature”, to whom, and why does it matter?

What exactly “nature” is, and how to measure or improve access to it, are the subject of considerable debate in governance and scholarship alike. Maller et al., who conducted some of the above research on its benefits, define nature as “an organic environment where the majority of ecosystem processes are present”, including a “spectrum of habitats from wilderness areas to farms and gardens”, and the individual components (e.g. plants, animals, soil, and water) of those systems.¹² However, as is repeatedly mentioned throughout this report, different people have different ideas about what nature is and the things they value

¹¹ Kaplan, R., & Kaplan, S. (1989). The experience of nature: a psychological perspective. *The Experience of Nature: A Psychological Perspective*. <https://doi.org/10.1097/00005053-199111000-00012>

¹² Maller, C., Townsend, M., Pryor, A., Brown, P., & St Leger, L. (2006). Healthy nature healthy people: “contact with nature” as an upstream health promotion intervention for populations. *Health Promotion International*, 21(1), 45–54.

¹³ van den Berg, A. E., Hartig, T., & Staats, H. (2007). Preference for nature in urbanized societies: Stress, restoration, and the pursuit of sustainability. *Journal of Social Issues*, 63(1), 79–96. <https://doi.org/10.1111/j.1540-4560.2007.00497.x>

about it. Our sense of place and values for nature and natural spaces are shaped by several factors, including our culture, upbringing, and personal preferences.

We may value a particular patch of forest for the services it provides to us: a place to get our exercise, clear our mind on a hike, or maybe forage for wild foods. Or, in financial and policy terms, we might quantify how much money is saved in healthcare costs by providing communities with access to nature, since these spaces allow people to exercise and to relieve stress, reducing the incidence of expensive, preventable diseases like hypertension or obesity.¹⁰ In these examples, whether in financial or personal terms, we value nature because it provides us with things that help us live a good life. These are our *instrumental values* for nature.^{14,15, 16,17,18}

We may also believe that nature is important to protect for its own sake – not because it provides for us, but because it has a right to exist, and it is something to be treasured. These are *intrinsic values* for nature.^{14,18,19}

Of course, some of our most strongly held values for nature are shaped by our interactions in, with, and about it. For example, you may have a different sense of value for the park you went camping in often as a child, or for the birds that made a nest on your balcony, compared to another person who did not have those experiences. Our sense of place is impacted as much by our direct interactions with that place as it is impacted by the interactions and relationships we have with other people in and about that place. Coming together to watch fireworks with your family in the park, meeting your neighbours at a community garden, or participating in a ceremony at the water's edge are all examples of interactions with others that can change the way you feel about nature in place. These are our *relational values* for nature.^{14,15,17,20}

¹⁴ Arias-Arévalo, P., Martín-López, B., & Gómez-Baggethun, E. (2017). Exploring intrinsic, instrumental, and relational values for sustainable management of social-ecological systems. *Ecology and Society*, 22(4). <https://doi.org/10.5751/ES-09812-220443>

¹⁵ Chan, K. M. A., Gould, R. K., & Pascual, U. (2018). Editorial overview: Relational values: what are they, and what's the fuss about? *Current Opinion in Environmental Sustainability*, 35(December), A1–A7. <https://doi.org/10.1016/j.cosust.2018.11.003>

¹⁶ Ludwig, D. (2000). Limitations of economic valuation of ecosystems. *Ecosystems*, 3(1), 31–35. <https://doi.org/10.1007/s100210000007>

¹⁷ Ono, A. (2020). The Canadian Outdoors from the Perspective of Recent Immigrants in Vancouver : Nature Nurtures Newcomers, (April).

¹⁸ Rea, A. W., & Munns, W. R. (2017). The value of nature: Economic, intrinsic, or both? *Integrated Environmental Assessment and Management*, 13(5), 953–955. <https://doi.org/10.1002/ieam.1924>

¹⁹ Callicott, J. B. (1984). Non-anthropocentric value theory and environmental ethics. *American Philosophical Quarterly*, 21(4), 299–309. Retrieved from <http://www.jstor.org/stable/20014060> <http://www.jstor.org/stable/20014060>

²⁰ Chan, K. M. A., Balvanera, P., Benessaiah, K., Chapman, M., Díaz, S., Gómez-Baggethun, E., ... Turner, N. (2016). Opinion: Why protect nature? Rethinking values and the environment. *Proceedings of the National Academy of Sciences*, 113(6), 1462–1465. <https://doi.org/10.1073/pnas.1525002113>



Defining and measuring access to nature

All of this explains why people think differently about what nature is or why it is important. Other scholarly efforts attempt to characterize what, exactly, “nature” is in more explicit and quantifiable terms.

More quantitative and spatial research have simplified “nature” into a series of parameters to be measured. The recommendation for park access identified by the World Health Organization (WHO) is that residents should live within a 300m walk of a park that is one hectare or larger in size.²¹ The one hectare recommendation is based in the hypothesis that this is the minimum size of park where we might expect people to be able to meaningfully engage in health-promoting behaviours in that space, such as physical activity or socialization. The 300m metric is based in the same logic as Vancouver’s five minute walk and is a conservative estimate which considers the diverse physical needs of residents – for example, a young fit individual can cover more ground in five minutes than a senior with impaired mobility.

For example, Jarvis et al. at the University of British Columbia studied the state of access to nature in Metro Vancouver.²² In their definition, only public green space was measured. Postal codes were considered to have adequate access if there was an area of public vegetation greater than or equal to one hectare within 300m of the postal code in question. Nature

²¹ World Health Organization. (2016). Urban green spaces and health. Copenhagen.

²² Jarvis, I., Gergel, S., Koehoorn, M., & van den Bosch, M. (2020). Greenspace access does not correspond to nature exposure: Measures of urban natural space with implications for health research. *Landscape and Urban Planning*, 194(June 2019), 103686. <https://doi.org/10.1016/j.landurbplan.2019.103686>

exposure, in their paper (rather than access) considered all vegetation including that on private property. Jarvis et al. found that marginalization (according to the Canadian Marginalization Index) predicts both access and exposure; that is, equity-seeking groups and other traditionally underserved populations have poorer access and exposure to nature in Metro Vancouver. In an interview conducted for this project, Ingrid Jarvis (author of the above paper) remarked that socioeconomic factors such as family structure, income, renter vs. owner status, and employment status were most strongly correlated with nature access.

Jarvis also noted that distance can be measured using either linear or network analysis. Linear (“as the crow flies”) analysis is a quick and easy way to get a high-level understanding of access, but network analysis is more accurate and can be tailored to consider factors like entrances and walkability. Vancouver’s 2018 Park Provision Study²³ used network analysis to map access to parks, considering factors like delays at intersections and large hills on the route. Additionally, when mapping access to public park space, there are effectively two main approaches that can be taken: drawing a buffer around the park and seeing how many people fall within it, or drawing a buffer around a residence and seeing how much park space falls within it.

These and other distance-or-area-based metrics do not consider other dimensions of access such as how culture or experiences with oppression might affect the ways or the likelihood that marginalized residents can access those spaces and feel safe in them. Without feeling safe, it is unlikely that these users will benefit from the restorative potential of the space because increased, anxious brain activity would impede “soft fascination”. In simpler terms, a person cannot “clear their mind” if they feel persecuted, unsafe, or unwelcome in their surroundings.

Jay et al.²⁴ review several European studies and policy documents which demonstrate that ethnic minorities not only have less spatial access to green space, but that they also visit green space less often. Minority residents are also more likely to visit urban green spaces rather than traveling to “destination parks”, compared to White residents. However, these studies found few differences in the ways that these groups value or appreciate nature; instead, the differences were a result of perceived exclusion, racism and other social factors relating to identity.²⁴ Additionally, varying ethnic groups will interpret nature through varying religious and cultural lenses, and have different uses for the space.^{17,24}

The previously discussed benefits of nature access (and consequences of deficient nature access) underscore the importance of having equitable nature access. When racialized and low-income neighbourhoods experience deficient access to nature, children from those neighbourhoods may be more likely to experience health impacts, poor performance in school,

²³ Vancouver Board of Parks and Recreation. (2018). Vancouver Park Provision Study. Retrieved from: <https://vancouver.ca/files/cov/park-provision-study.pdf>

²⁴ Jay, M., Peters, K., Buijs, A. E., Gentin, S., Kloek, M. E., & O'Brien, L. (2012). Towards access for all? Policy and research on access of ethnic minority groups to natural areas in four European countries. *Forest Policy and Economics*, 19, 4–11. <https://doi.org/10.1016/j.forpol.2011.12.008>

and worse social skills compared to their counterparts in privileged, nature-rich neighbourhoods.¹⁰ Additionally, access to nature demonstrably enhances social cohesion in communities, reduces prejudices, enhances sense of belonging, and can be part of the acculturation and integration process for new immigrants.^{12,17}

In other words, this is one of many ways that marginalized children and communities are set up to fail in many facets of life as a result of the way we have historically planned our cities. We have a responsibility to address this by planning for park and nature access with an equity lens; for example, by focusing our urban greening efforts in deficient areas, while also being mindful of the risks of green gentrification.^{25,26}

Lastly, for all the benefits that we know nature brings, there is evidence that community interventions that seek to bring people to nature can actually increase stress among some participants. Thompson et al. studied a community intervention to connect participants with natural sites, questioning whether such programming could help deliver the restorative benefits of nature to communities that had none nearby.²⁷ Actually, what they found was that residents who lived further from the natural study sites (more than 500m) experienced increased stress. This finding is likely due to an increased burden of travel and, with it, time consumed. On the other hand, participants in this study that lived closer to natural sites experienced comparatively less stress, which underscores the importance of having access to restorative nature experiences in every neighbourhood.^{ibid}



²⁵ Pearsall, H., & Anguelovski, I. (2016). Contesting and resisting environmental gentrification: Responses to new paradoxes and challenges for urban environmental justice. *Sociological Research Online*, 21(3), 1–7.

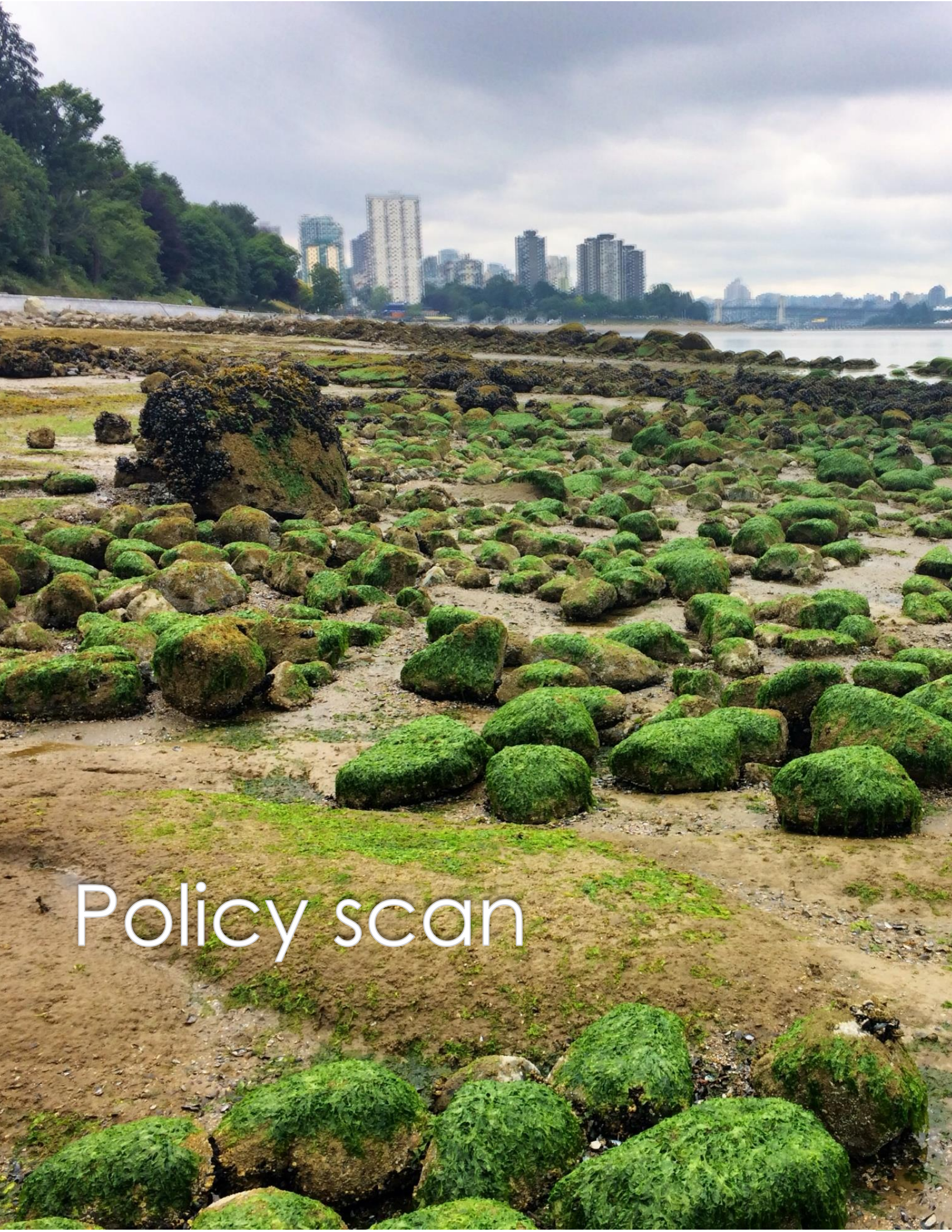
<https://doi.org/10.5153/sro.3979>

²⁶ Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities “just green enough.” *Landscape and Urban Planning*, 125, 234–244.

<https://doi.org/10.1016/j.landurbplan.2014.01.017>

²⁷ Thompson, C. W., Elizalde, A., Cummins, S., Leyland, A. H., Botha, W., Briggs, A., ... Mitchell, R. (2019). Enhancing health through access to nature: How effective are interventions in woodlands in deprived urban communities? A quasi-experimental study in Scotland, UK. *Sustainability (Switzerland)*, 11(12).

<https://doi.org/10.3390/su10023317>



Policy scan

Learning from Peer Leaders

Boulder, CO, USA's "Growing Up Boulder"²⁸

- Growing Up Boulder (GUB) is a targeted engagement initiative that connects children and youth to local government decision-making processes
- In public engagements related to parks, kids emphasized the importance of having natural features that enriched creative play, like fallen leaves and trees to climb.

Growing Up Boulder (GUB) is an initiative forged through a partnership with the University of Colorado, the City of Boulder, the Boulder Valley School District, local non-profits, businesses and politicians, and children and youth from the city. The program works to connect children and youth to local government decision-making processes, ensuring that their voices are heard in major planning decisions. Growing Up Boulder has connected kids in the city to several planning initiatives on a range of topics including housing, transit and resilience planning.

One of the most common topics that GUB engages with is the planning of parks and public spaces; their website lists 15 different projects on the topic where GUB has facilitated engagement of children and youth in these planning processes. In so doing, GUP has also facilitated relationships between kids and nature, potentially fostering a sense of ownership and responsibility for the city's natural spaces.

Growing Up Boulder is one example of how different groups of people may want different experiences out of a natural area, and the importance of doing intentional, targeted consultation with the diverse people that access natural areas, including children and youth.



²⁸ Link for Growing Up Boulder's website:
<http://www.growingupboulder.org/>

Children and youth were consulted through GUB for Boulder’s Urban Forest Strategic Plan. Kids gave their perspectives on the kinds of nature they preferred and wanted access to.

Figure 1: Clipping from Engagement Report for Boulder's Urban Forest Strategic Plan



Our children prefer trees that:

- **Provide shade**
- **Have berries, seed pods, and acorns to squish and use for imaginative play**
- **Encourage wildlife (squirrels and chipmunks)**
- **Are deciduous, so they can play in the leaves**
- **Bear fruit, because they can eat the fruit and climb these trees more easily**

LOCAL FEATURE

Here in Vancouver there are several organizations that work to connect kids with nature experiences in the City, such as Fresh Air Learning, Woods and Waves, Stanley Park Ecology Society, Muddy Boot Prints, and more. These organizations have a unique perspective on access to nature through the lens of connecting children with nature.

In an engagement interview conducted for this report, a representative from Fresh Air Learning shared that there are several different types of nature that are important for kids, ranging from groomed “neighbourhood nature” to more wild spaces. Some of the simple things that we can do to make natural spaces more interesting and enriching for kids is to find the right maintenance balance: unsafe objects and trash needs to be swept up, but piles of leaves and sticks can be fulfilling places to explore.

While some residents feel strongly that nature should be protected from, for example, destructive “squishing” behaviour as highlighted above, people who work with children see that these experiences help to build strong environmental values which will help kids grow into responsible adults that understand and connect with their natural world.

Oregon Metro, OR, USA's "Connect with Nature"²⁹

- Oregon Metro's "Connect with Nature" applies an equity lens to planning for nature access
- The outputs of the process include a series of recommendations for inclusive park design, and for engaging respectfully with communities of colour

Oregon Metro is a regional municipality consisting of most of the city of Portland and 23 other communities. Their "Connect with Nature" initiative was one that stood out in this jurisdictional scanning process for its willingness to grapple with the "messy" dimensions of access beyond simple proximity indicators. "Connect with Nature" was a collaborative effort between Oregon Metro and communities of colour to co-create a document that describes the diverse values and preferences for nature held by people of colour, with the goal of designing better, more accessible and inclusive parks and public spaces.

"The project instead focused on relationship building, compensating people for their time, and attentive listening. The project gave control to community partners, empowering them to lead rather than just offering them a seat at the table. Metro park planners approached the Connect with Nature project with a willingness to relinquish control and allow the outcome of the project to evolve, shift and change based on feedback and guidance of community partners."²⁹

Connect with Nature also built on the findings of a research study from Oregon State University (OSU). Among other key findings, the OSU study found that traditionally underserved communities were more interested in stewardship opportunities and caring for nature than historically well-served (privileged) communities. The study also identified several important barriers that made people of colour feel less welcome, safe, or secure in parks, including, lack of diversity of park staff and rangers, unclear and excessive rules about how the space can be used, spaces being difficult to access for people with disabilities, and others. On the other hand, Connect with Nature found that the solutions were simple: more representative staff, clearly communicated rules (in multiple languages and unambiguous terms), and cleanliness were some of the things people of colour identified as making spaces more safe and welcoming.

Connect with Nature catalogues a rich inventory of design criteria for more inclusive parks in pages 27 through 49. The criteria (of which there are too many to summarize here) cover several topics ranging from native plant beds to park staff uniforms.³⁰ In addition to specific

²⁹ Link for Oregon Metro's "Connect with Nature":

<https://www.oregonmetro.gov/sites/default/files/2019/10/08/Connect-with-Nature-Report.pdf>

³⁰ Connect with Nature found that some workshop participants felt that park staff were intimidating or unapproachable because their uniforms resembled those of police and other authority figures. Many communities of colour have experienced violence and oppression from police, so uniforms that were less authoritative seemed more welcoming and safe.

design criteria, Connect with Nature set a new precedent for how the municipality can engage with marginalized residents for parks planning. Pages 49 through 55 of the report contain valuable information about how to engage respectfully with communities of colour, based on lessons learned and feedback from workshop participants. A more expanded discussion of the importance of co-planning with marginalized communities can be found in Oregon Metro Parks and Nature's Racial Equity, Diversity and Inclusion (REDI) Action Plan which establishes a new vision for the division grounded in environmental justice.

"Environmental Justice (EJ) operates at the intersection of economic, racial and social justice. EJ is a movement led by communities of color and low income experiencing environmental injustices: polluted air, soil and water; unsafe housing, roadways, sidewalks, and bus stops; inequitable investments in housing, green spaces, active transit and mass transit; and disproportionate impacts due to climate change. Many of these problems arise because our communities are not participants in the decision making process that produces these results." ³¹

LOCAL FEATURE

Some of Oregon Metro's efforts to integrate equity and justice into parks decision making have mirror images in Vancouver. In 2016 the Vancouver Board of Parks and Recreation undertook a series of actions surrounding reconciliation and decolonization, including developing a mission and value statement about reconciliation, and eleven reconciliation strategies based on the Truth and Reconciliation Commission of Canada report. The Park Board also published a "Truth Telling Report" and a colonial audit, both of which detail and acknowledge the colonial oppression that the Musqueam, Squamish and Tsleil-Waututh people experienced at the hands of the Park Board.

The Truth Telling Report, based on consultation with Indigenous people, describes several dimensions of accessibility that are relevant for access to nature, such as the fact that traditional arts granting schemes and artist-in-residency programs prioritize some cultural practices that are viewed as "art" (e.g. sculpting) at the expense of others that are viewed as "craft" (e.g. weaving). Additionally, the power dimensions inherent in granting schemes (i.e. that a non-Indigenous institution decides who gets funded, and for what) "puts Indigenous artists in the uncomfortable position of asking to place their own art on their own lands." (pg. 31)

This process began in 2016, but is ongoing work. Seeking truth and reconciliation has been identified as a goal in VanPlay, meaning that the Park Board is committed to building reciprocal relationships with the Musqueam, Squamish and Tsleil-Waututh nations, who we acknowledge as rights holders on public parks and lands.

³¹ Quote from page 12, Oregon Metro Parks and Nature's Racial Equity, Diversity and Inclusion (REDI) Action Plan: <https://www.oregonmetro.gov/sites/default/files/2019/03/13/Parks-and-Nature-Racial-Equity-Diversity-and-Inclusion-Action-Plan.pdf>

London, United Kingdom's Biodiversity Action Plan³²

- London uses park size and proximity to/from a residence or site to determine that residence's level of accessibility.
- Residents who have to walk more than 1km to reach a site of conservation importance are considered to have low access to nature.

London has specific criteria to categorize sites that are important for nature conservation, and has a number of categories for the types of parks that exist in London based mostly on the size of the park.

People living further than 400m away from public open spaces are considered to have deficient access to open space; who have to walk more than 1km to reach a "Site of Importance for Nature Conservation" (SINC)³³ are considered to have deficient access to nature. This is a spatial definition that considers proximity to natural features, but doesn't consider accessibility barriers, the quality of experience in the space, or how experience and perception of nature varies with identity.

Table 1: London, UK's Public Open Space Categorizations.

Open Space Categorization	Size Guidelines	Distance from Homes
<i>Regional parks</i>	400 hectares	3.2 to 8 kilometres
<i>Metropolitan parks</i>	60 hectares	3.2 kilometres
<i>District parks</i>	20 hectares	1.2 kilometres
<i>Local Parks and Open Spaces</i>	2 hectares	400 metres
<i>Small Open Spaces</i>	Under 2 hectares	Less than 400 metres
<i>Pocket Parks</i>	Under 0.4 hectares	Less than 400 metres
<i>Linear Open Spaces</i>	Variable	Wherever feasible

Retrieved from source document (verbatim).

³² Links for London's Biodiversity Action Plan:

<https://www.cityoflondon.gov.uk/things-to-do/green-spaces/city-gardens/wildlife-and-nature/Documents/city-of-london-biodiversity-action-plan-2016-2020.pdf>

³³ SINC is a designation in the UK identifying a space as being important for wildlife and/or for people to experience nature, decided upon by local authorities and advisory panels.

Toronto, ON, Canada’s “Heat Vulnerability” and “Wellbeing” Maps³⁴

- Toronto’s maps consider socioeconomic factors such as age and income. The Heat Vulnerability Maps compare these against parameters like park proximity to create a metric for a complex and multi-faceted issue (vulnerability to heat).
- Two mapping tools from Toronto that have similar counterparts in Vancouver provide some ideas about how the City’s mapping tools can be combined to better understand access to nature.

The City of Toronto, Canada has two main mapping initiatives that intersect with access to nature: the Heat Vulnerability Index/Maps, and the Wellbeing Interactive Map.

Access to nature (and lack thereof) features as a variable contributing to risk in the Heat Vulnerability Map. Trees and foliage help to mitigate extreme heat through shade and evapotranspiration, and parks that contain interactive water features provide additional opportunities for residents to cool off. Distance from public green space boundaries was the parameter used to assess access to nature in this map, alongside other parameters which come together in an index to provide a “risk value” for the neighbourhood in the form of a choropleth map indicating where risk is most concentrated (literally, a heat map of heat risk).

LOCAL FEATURE

The Heat Vulnerability Maps provide a snapshot of how certain neighbourhoods fare in relation to a specific issue (extreme heat). Vancouver started out measuring park access using simple “as the crow flies” metrics, but in the 2018 Park Provision study, began to use multi-variate network analysis to get a more nuanced view of what a 5-minute walk might really look like given terrain and accessibility considerations.

Now, the VanPlay Equity Initiative Zones and associated maps are beginning to add additional detail by considering equity variables, such as income and demand for low-barrier recreation. The resultant Composite Maps for VanPlay are similar to Toronto’s maps in that they consider several intersecting variables to get a more complete picture of how this issue affects neighbourhoods and people differently across the city.

Another mapping initiative by the City of Toronto is the “Wellbeing Toronto” interactive map which has more options to filter data according to demographics, income and other factors.

³⁴ Links for Toronto’s Heat Vulnerability Maps:

<http://ral.ucar.edu/csap/events/heat-health-decision-making/presentations/1-3-Rinner.pdf>

https://map.toronto.ca/maps/map.jsp?app=TPH_HVMAP (Interactive version)

Link for Toronto’s Wellbeing Interactive Map:

<https://www.toronto.ca/city-government/data-research-maps/neighbourhoods-communities/wellbeing-toronto/>

Vancouver's "VanMap" platform can be used similarly to spatially convey much of the City's open access data. By adding a metric like "heat vulnerability" or "park proximity" to an interactive map that could also display the Initiative Zones and other metrics, both staff and the public could filter and explore the map to gain a better understanding of how these metrics vary across demographics, income, neighbourhood and other factors. Additionally, a map that can be filtered and modified in this way can make itself useful for many projects.

Wellington, New Zealand's "Nature in the City" Map³⁵

- Wellington's "Nature in the City" is a story map of landmarks and nature experiences throughout the city
- The project is unique in its consideration of nature interactions (e.g. non visual nature, sensory stimuli) alongside more traditional data like parks and shorelines

The City of Wellington, New Zealand (NZ) partnered with the Victoria University of Wellington's School of Architecture to develop an interactive map of nature in the city that considers complex social and ecological dimensions of urban nature. It provides a good example of the types of features that might be included of a map of access to nature that thinks about more than just distance from park boundaries.

For example, the map has several parameters that Vancouver and other cities frequently map for planning purposes, such as tree canopy, habitat provision, community gardens, water features, and green roofs. However, it also features markers for the more qualitative and subjective experiences that people have in nature such as "sensory stimuli", and tries to express the types of nature people might expect to encounter through categories like "wild nature" and "non visual nature" (e.g. birdsong). It also features pins for activities ranging from ecological restoration programs, the headquarters' of local environmental non-profits, and even barbeques. These features are important considerations since a person's interaction with and memories in a place are likely to affect the degree to which they feel meaningfully connected to it. By mapping these features, the Nature in the City map not only points out where nature can be found, but also some of the ways people might choose to interact with it, which can help to foster senses of place, belonging, and stewardship.

³⁵ Links for Wellington's "Nature in the City" maps:

<https://wellington.govt.nz/recreation/enjoy-the-outdoors/wellington-nature-map>

<https://www.arcgis.com/apps/MapJournal/index.html?appid=2d50a148a59748a99de1830a3122d950>

PLANNING IDEAS

The City could replicate this method and produce a similar interactive map using a combination of existing data from the VanMap interactive tool, and new data that would need to be collected and catalogued. There may be opportunities for continued community engagement through crowdsourcing data about nature experiences in the city.

Additionally, this map could be compared against (or combined with) the forthcoming Initiative Zones from VanPlay to gain a better understanding of how opportunities to access nature vary across the city's demographics, neighbourhoods, and income levels. This would be one way of determining how the quality of nature experiences vary across neighbourhoods: for example, a community in Grandview Woodland may have access to park space and community gardens, but a map like this would show us how far those residents may need to travel to have a tranquil, restorative moment by a babbling brook.

Fort Collins, CO, USA's "Nature in the City" Plan³⁶

- A holistic plan considering both human and ecological metrics for urban nature
- Natural spaces exist on a matrix from "more ecological" to "more social", and access to them is considered sufficient if sites are within a 10 minute walk from work or home.

Fort Collins' "Nature in the City" program is perhaps the best example of a clearly articulated, collaborative, and well-researched vision of "access to nature" that meets the unique needs of residents in their city. Fort Collins strives to have "a connected open space network accessible to the entire community that provides a variety of experiences and functional habitat for people, plants and wildlife"; this is their definition of what a future with great access to nature would look like.

The project began with an extensive public engagement process (11 months) which focused on understanding the "environmental, social, and economic values and impacts surrounding nature in Fort Collins". Nature in the City deployed a range of data collection methods ranging from visioning workshops with citizens, assessing the economic value of nature in the City, and ecological monitoring of bird, butterfly and plant species.

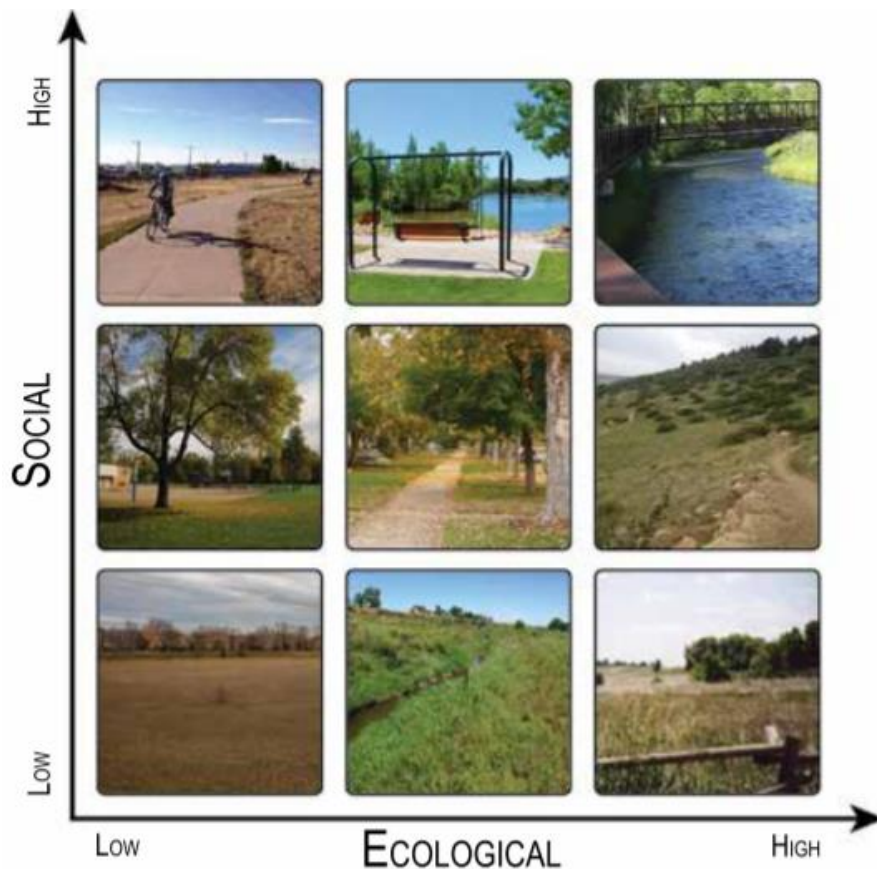
Nature in the City has been internationally recognized as a success story by the Ash Center for Democratic Governance and Innovation (Harvard University) and the International Union for the Conservation of Nature's (IUCN) "Nature For All" website.

³⁶ Link for Fort Collins' "Nature in the City" Strategic Plan:
https://www.fcgov.com/natureinthecity/pdf/ststrategic_plan_small.pdf?1557334349

At the highest level, “access to nature” is defined in this plan as “ensuring every resident is within a 10-minute walk to nature from their home or workspace”; this is one of the main three goals articulated in the plan. In fact, the document cites Vancouver’s 5-minute walk goal as being one of the practices it referred to in developing this metric.

Another important policy and issue area that is related to this access metric is “connectivity”. Importantly, Nature in the City recognizes the value of connectivity not only for people, but also for habitats and the species that use them. Natural spaces in Fort Collins are understood to exist on a spectrum or matrix ranging from social to ecological; that is, some spaces are highly resilient and functional ecosystems that cannot be accessed by people, while other spaces are very beneficial and valuable for people but not for native flora and fauna. Many spaces fall somewhere in the middle, or accomplish much of both. VanPlay mirrors this emphasis on connectivity through illustrative examples considering a “day in the life” of several features, such as a rain drop, or a bird.

Figure 2: Fort Collins' Social-Ecological Spectrum for open spaces



Retrieved (verbatim) from the linked source document.

Melbourne, Australia’s “Nature in the City” Strategy³⁷

- This strategy aims to transform Melbourne into a biophilic city
- Uses community feedback to measure progress on access to nature targets

Melbourne’s Nature in the City shares much in common with its counterpart of the same name in Fort Collins, Colorado. The dual-purpose plan aims to transform Melbourne into a biophilic city which improves ecosystem health and biodiversity while also connecting people to nature sites and experiences that can improve their wellbeing, health, and sense of place. To this end, priorities and targets in the plan are divided under three overarching themes: “Create a more diverse, connected and resilient natural environment”; “Connect people to nature”; and “Demonstrate leadership in urban ecology and conservation of biodiversity”.

Under the “Connect people to nature” goal, several key targets are listed which shed light on how Melbourne conceptualizes and tracks access to nature:

“By 2027, more residents, workers, and visitors encounter, value, and understand nature in the city more than they did in 2017”.

For this target, Melbourne’s main metric for success is community feedback. To monitor progress, Melbourne “will evaluate the extent to which the community feels connected to nature and if possible, the degree to which social resilience, health and wellbeing has changed over time”. The strategy also acknowledges the complexity of these metrics, noting that they will partner with global experts to support monitoring efforts. Some of the ways they aim to build opportunities for nature contact are through art and urban nature projects, citizen science, and wildlife gardening (Actions 4.12-4.14).

“By 2027, the City of Melbourne will, in collaboration with the Traditional Owners and the local Aboriginal community, have integrated, celebrated, and promoted ‘Caring for Country’ approaches.”

The second target under “Connect people to nature” focuses on building and maintaining strong and mutually respectful relationships with local Aboriginal people – efforts that are similarly underway in Vancouver as the Park Board works to own up to its history and decolonize its current practices.

There are several actions in the strategy that aim to address current deficiencies in the City’s ability to plan for nature, such as lacking a baseline of ecological data. Establishing a comprehensive baseline of species, vegetation and habitat is hence the first action articulated in the plan (Action 1.1); some subsequent actions, such as increasing understorey habitat (Actions 1.3 and 1.4) or improving ecological connectivity through biodiversity corridors

³⁷ Link for Melbourne’s “Nature in the City Strategy”:
<https://www.melbourne.vic.gov.au/community/greening-the-city/urban-nature/Pages/nature-in-the-city-strategy.aspx>

(Action 2.7) depend on having this data in order to measure success. Vancouver, too, can consider enhancing its library of ecological data: understanding what and where nature is in the city, and where there are “nature deserts”, is essential in order to plan for more access to it. Other initiatives, such as reducing the City’s reliance on chemicals (Action 1.5) and developing guidelines to enhance ecosystem health (Action 1.6) could be taken immediately in order to improve the quality and resilience of the nature patches we already know about.

Edmonton, AB, Canada’s “Breathe” Open Space Provisioning Maps³⁸

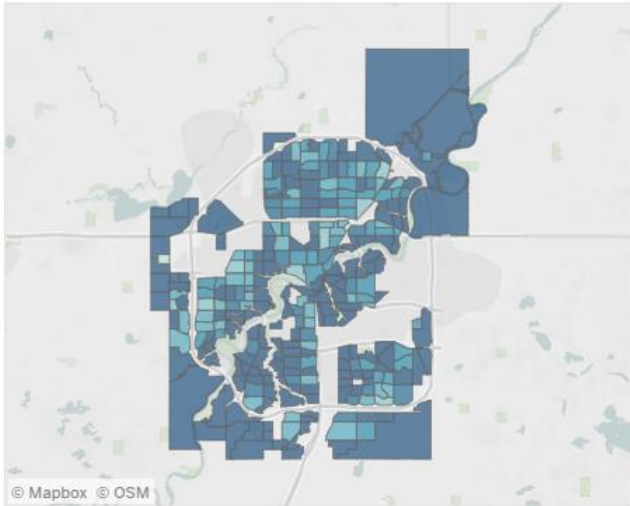
- Considers nature provision on a per-capita basis.
- Choropleth maps of current and future nature provision (based on development projections and city plans) are the main output.

Edmonton’s “Breathe” project maps the current level of nature provision for neighbourhoods in the City. The mapping output is a choropleth map indicating which neighbourhoods are well-stocked with open spaces versus which ones are deficient. There are maps for open space provision as well as municipal park provision. Additionally, for each, there is a future projection considering the loss of open spaces and parks due to anticipated development of these lands.

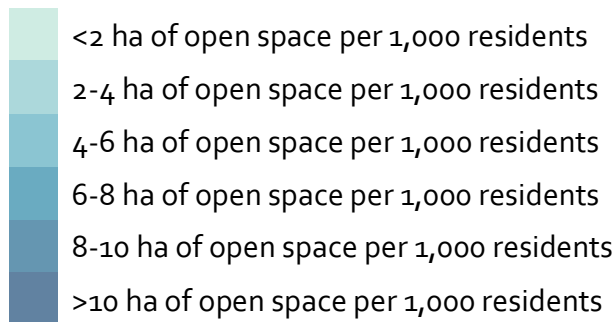
“Breathe” is unique in that it measures nature provision on a per-capita basis, which addresses some of Vancouver’s challenges: we have a fairly even spatial distribution of parks, but some areas are much more populated and hence place more demand on the parks that are there. Adding a per-capita value to the provision of park space helps to understand where demand exceeds available green space.

³⁸ Link to Edmonton’s “Breathe” Nature Provisioning interactive maps:
<https://public.tableau.com/profile/ncityplanningedm#!/vizhome/BreatheProvision-Website/BREATHECityWideProvisioning>

Figure 3: "Breathe" Open Space Provision map.



Retrieved from linked source page.



PLANNING IDEA

A mapping tool like Edmonton's "Breathe" could be used in conjunction with policy instruments like Scotland's "Outdoor Access Plans" (below) to understand where our existing opportunities for nature access are threatened, and help us plan to mitigate these losses.



Scotland's "Outdoor Access Plans"³⁹

- A good example of a policy instrument that can help prevent access to nature from degrading as Vancouver grows and develops.
- Outdoor Access Plans provide a baseline of current access levels, and anticipate the impacts of future growth and development.

Outdoor Access Plans are legislatively recommended (under the Scottish Planning Policy, 2010) planning documents associated with outdoor, open spaces, and inland water in Scotland. They are intended to be created when a proposed development might impact demand or access to a given outdoor/natural area. They provide a baseline of current levels of accessibility and demand, and project the impact that proposed development may have on these factors. The scale and detail of the Outdoor Access Plan is, in most cases, proportionate to the scale of the development. In Canada, we might consider comparisons to Environmental Assessments (EAs) that are sometimes triggered under similar circumstances; but, while EAs consider mainly the potential environmental impact on affected natural areas, Scotland's Outdoor Access Plans consider how peoples' access to outdoor space and recreation may be impacted by developments. The use of both together can potentially be important policy instruments for protecting and providing access to valued natural spaces.

Outdoor Access Plans are a useful tool that can prevent access to nature from being impeded by development – a common complaint that residents lamented in our survey – but they can also help to identify new opportunities to improve nature access, and how developers might contribute to improving outdoor access. Having an outdoor access plan with baseline accessibility levels for given park spaces can also be a useful resource for communities and businesses to understand and promote access to nature in their locale.

Table 2: Steps to creating an Outdoor Access Plan.

Step 1	Identify the Purpose, Aims & Objectives of the Outdoor Access Plan
Step 2	Establish the Outdoor Access Baseline affected by the development proposal
Step 3	Identify predicted development impacts and potential enhancements on the Outdoor Access Baseline
Step 4	Mitigate the predicted development impacts, and design potential enhancements
Step 5	Manage & Monitor the implementation of the OAP

Copied verbatim from the linked source document, which provides detailed information about the purpose and creation process of Outdoor Access Plans, as well as several examples.

³⁹ Link to a guidance document for Scotland's Outdoor Access Plans:
<https://www.nature.scot/sites/default/files/2017-06/B639282%20-%20A%20Brief%20Guide%20to%20Preparing%20Outdoor%20Access%20Plans%20-%20Feb%202010.pdf>

Portland, OR, USA's "Citywide Tree Planting Strategy"⁴⁰

- Ties income and equity analysis to assessments of urban forest.
- Access to nature is measured by considering tree canopy as well as distance to parks or natural areas. These metrics are then compared against equity indicators (like income) to prioritize planting and park provision.

One metric that the City of Portland uses to measure and plan for access to nature is tree canopy coverage. In their citywide tree planting strategy, Portland identifies that trees are distributed unevenly across the city, with low-income areas in the East having only 21% tree canopy while higher-income areas in the West average 56% canopy. This report also found that marginalized residents (communities of colour, refugees, low-income and immigrant communities) face several barriers to increasing tree canopy: for example, low income people are more likely to rent rather than own a home, and hence do not own property to plant trees on. This is tied to the history of "redlining" in the USA (the racist practice of preventing people of colour from accessing mortgages) and is a good illustration of how access to nature is affected by structural oppression and racism.

Jenn Cairo, Portland's City Forester, explains that this data is used to plan for more equitable access to nature in the City, and to understand what the barriers are for improving tree canopy. The City focuses its tree-planting efforts in lower-income, nature-deprived areas of the City, which helps to improve exposure to nature for residents who do not own private property on which to plant trees of their own. Here in Vancouver, similarly, tree canopy is a consideration in the VanPlay Equity Initiative Zone mapping. Other metrics that the City uses to assess access to nature, she says, include walking distance from parks (which are more developed for recreation and amenities) and natural areas (which are less-developed spaces intended mainly for nature preservation).

While parks might not always be natural areas, many of Portland's parks are being improved through the installation of "nature patches"⁴¹, which are small naturalized areas enriched with native plantings, nesting boxes, and other habitat provisions intended to make the spaces more appealing for both people and animals. Again, nature patches are being prioritized for parts of the city with less access to green space.

⁴⁰ Link to Portland's Citywide Tree Planting Strategy:
<https://www.portlandoregon.gov/parks/article/705823>

⁴¹ Link to information about Portland's "Nature Patches":
<https://www.portlandoregon.gov/parks/article/664411>

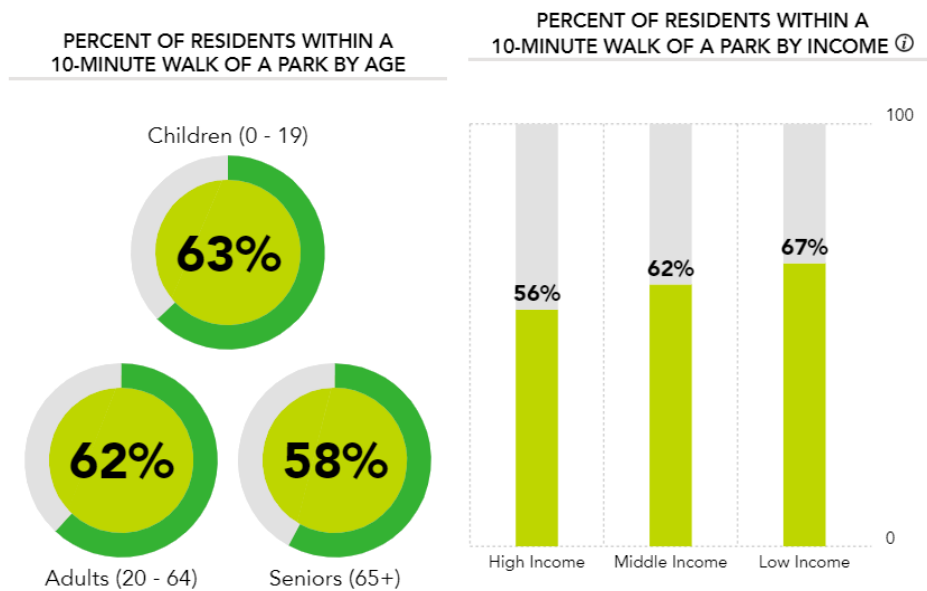
Trust for Public Lands’ “ParkServe”⁴²

- A tried-and-true tool for spatially and quantitatively analyzing access to parks
- Highlights areas of acute need based on multi-variate analysis that considers equity

Trust for Public Land is a US-based non-profit organization that works to build and conserve park spaces. They support American cities to meet park planning and conservation goals through analysis, funding, technical assistance, research, public engagement, and other activities.

One of the Trust’s recent efforts is the “10 minute walk” campaign, which aims to ensure that every person in the USA can walk to a quality park within 10 minutes of their home. However, the analyses conducted to assess access to nature under this campaign is actually more sophisticated than a distance-based walk metric alone. Park need is also calculated based on population density, proportion of children in the area (because nature access is especially important for young people), and density of low-income households. Each parameter in the analysis is given a “weighting” to determine its importance. Only public or publicly accessible green spaces are considered in their analyses.

Figure 4: Example chart outputs of a ParkServe report card⁴³



⁴² Link to Trust for Public Lands’ “ParkServe” information page:
<https://www.tpl.org/parkserve/about>

⁴³ Link to an example ParkServe report on Los Angeles, California, USA:
<https://www.tpl.org/city/los-angeles-california>

The scores and data can be expressed both spatially and graphically. The initiative features an interactive mapping tool called ParkEvaluator⁴⁴ which offers perspective about where park need is highest based on the intersection of physical park deprivation, risk of urban heat island effects, and equity factors like age, race, and income. Based on its multi-variate analysis, the ParkEvaluator tool provides recommended locations for new parks in areas of acute need. The mapping tool can even be used to brainstorm future potential park areas and analyze how these would impact park access, considering equity.

Overall, ParkServe and the associated ParkScores and ParkEvaluator are well-established methodologies using quantitative data that consider identity and equity.

Learning from Peer Leaders: Summary Points

It is worth noting that none of the above case studies have a clearly articulated, official definition of “access to nature”, which may be intentional. Most use a series of metrics to understand and try to plan for it – whatever “it” is - in a way that is more fair.

In interviews, many representatives who worked on these case studies cautioned that experiences with and perceptions of nature are unique and subjective. There can be no “one size fits all” definition. While it is crucial to understand and respect the qualitative nature of this problem, several interviewees from the case study cities also lamented that a lack of official, measurable definition made it challenging to plan and track success. The ambiguity of the idea of “access to nature” is a double-edged sword: on one hand, it allows us to be flexible and tailor plans to local realities. On the other hand, it makes it very difficult to plan for, since any metric will always miss a part of the picture.

The best definition of access to nature is hence one that considers its many moving parts. All of these case studies provide a piece of the puzzle that brings us closer to assessing and mapping access to nature in Vancouver.

The following key inspirations have been taken from the case studies discussed above. Under each header, we describe the key lessons learned from jurisdictional review, and how they might shape Vancouver’s attempts to define and map access to nature.

⁴⁴ Link to an example ParkEvaluator interactive map on Los Angeles, California, USA: <https://parkserve.tpl.org/mapping/index.html?CityID=0644000#reportTop>

Figure 5: Essential considerations for defining, measuring, and planning for access to nature



Equity, justice and vulnerability

Inspiration: Oregon Metro’s “Connect with Nature”, Toronto’s “Heat Vulnerability” & “Wellness” Maps, Portland’s “Citywide Tree Planting Strategy”, Trust for Public Lands’ “ParkServe”

Vancouver’s understanding of access to nature will consider how peoples’ experiences with and perceptions of nature differ across culture, gender, age, race, and income. Maps will consider the intersectionality of these with needs for and experiences with nature. Additionally, Oregon Metro’s “Connect with Nature” initiative demonstrated that having a great definition of access to nature is no substitute for conducting place-based engagement with residents about green space in their own neighbourhood.

Meeting ecological and social needs

Inspiration: Fort Collins’ “Nature in the City”

Vancouver’s definition of access to nature will consider that great urban nature can exist on a spectrum, with some spaces being self-sustaining habitats for plants and animals, and others more intended for human enrichment and recreation. Some parks can be a good middle ground, but we should not expect all of our parks to meet all of these needs.

When presented with a series of potential visions for access to nature for Vancouver, most respondents to our survey identified with visions that respected and enriched local ecosystems, even when it meant not being able to access all of those spaces. Our parks and open spaces can be understood on a spectrum according to how they contribute to filling a variety of social and ecological needs. We can develop baseline knowledge of how our parks serve people and nature by using a social-ecological categorization tool like the one used in Fort Collins.

Local knowledge and experience

Inspiration: Wellington's "Nature in the City", Oregon Metro's "Connect with Nature"; Boulder's "Growing Up Boulder"

These case studies demonstrate the importance of local perspectives and inputs for planning great access to nature. Since different people want different things, it's usually best to simply ask! Having an interactive mapping tool that is populated with a diversity of potential nature experience can be a valuable tool for guiding these conversations, in addition to being analytically useful.

Vancouver's efforts to map access to nature will consider the quality of experience and types of nature people can expect to find, and how people might interact with and build relationships to nature. Through public engagement, Vancouver might choose to develop a library of user experiences with nature that can become criteria and indicators for an interactive map, making for a tool that was developed in partnership with Vancouverites and that reflects our unique, varied experiences with nature.

Proximity, size, and connectivity of spaces

Inspiration: London's "Biodiversity Action Plan", Fort Collins' "Nature in the City"

Mapping access to nature has a lot to do with how we measure and categorize parcels of land. The above examples use metrics ranging for parcel size to habitat features to make sense of which parks serve which purposes. Most articulate "access to nature" (and lack thereof) according to distance or time between "home" and "nature". Vancouver, too, has planned in this way since 1928; our most recent metric for assessing access to nature has been to plan for every resident to live within a 5 minute walk from a park. But some of the above examples, like London's "Biodiversity Action Plan", provide an additional level of detail which considers how size and distance might interact to provide a better spatial metric for access. Accordingly, Vancouver's definition of access to nature will continue to consider proximity and walkability metrics, and will explore how park access needs vary with the size and quality of the park.

Demand and Stressors

Inspiration: Edmonton's "Breathe", Scotland's "Outdoor Access Plans", Trust for Public Lands' "ParkServe"

In public engagements conducted for VanPlay, this project, and other initiatives, residents repeatedly express the concern that they feel their access to nature is slipping a way – despite the fact that Vancouver has (compared to other North American cities) a robust tree canopy, access to the ocean, and fairly evenly distributed municipal parks throughout the city. Urban development places stress on existing natural spaces and can either help or hinder our access to them. Tools like Edmonton's "Breathe" and Scotland's "Outdoor Access Plans" can be used to help us develop a baseline of what current provision of and access to urban natural areas looks like today, so that we can monitor and mitigate potential losses of it tomorrow.





Public engagement

Public Engagement: What We Heard

What we did

We launched an interactive survey using Qualtrics software. The survey was distributed mainly through social media and “snowballing” (across respondents’ personal and professional networks). A limitation to this approach is that, since people tend to associate with like-minded people, some responses may be biased in favour of particular issues; however, use of the City’s usual public engagement e-mail distribution lists were restricted during the COVID-19 pandemic. The survey is replicable and, if desired, can be repeated with a larger sample of the population at a later date to validate results and/or track how perceptions may have changed.

The survey included a variety of questions ranging from multiple choice and ranking tasks to drag-and-drop image sorting exercises. Overall, feedback on the survey methodology was positive, but some respondents remarked that the drag-and-drop questions are difficult to complete on a mobile phone.

We asked a variety of questions about what people value in a nature experience, how people perceive their current levels of access to nature, and what barriers people experience to either accessing or enjoying nature. The following pages summarize the responses to this survey.



Who we heard from

About half of our respondents identified as being from Vancouver⁴⁵. We received more female respondents than any other gender.

Figure 6: Where respondents are from

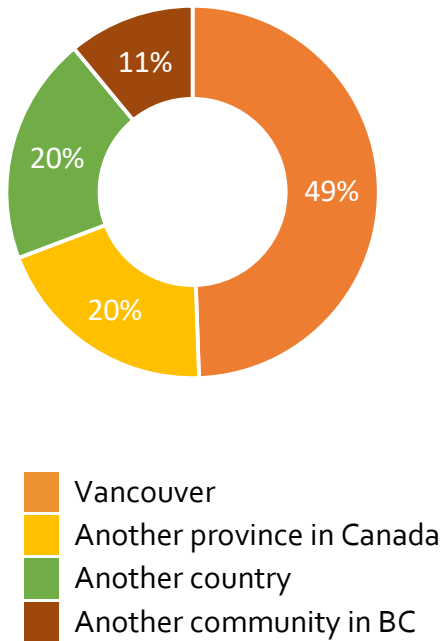


Figure 7: Respondent gender identities

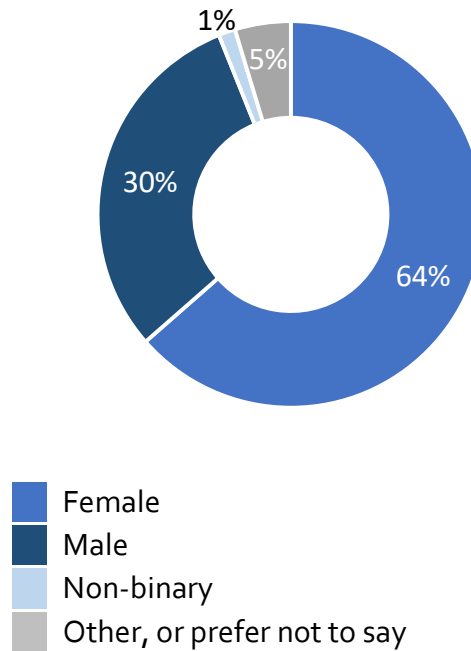
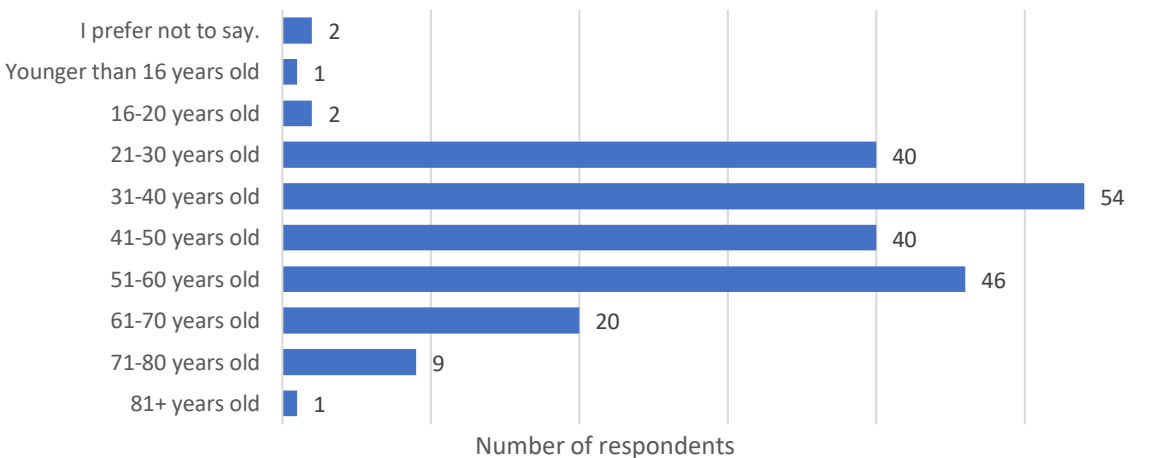


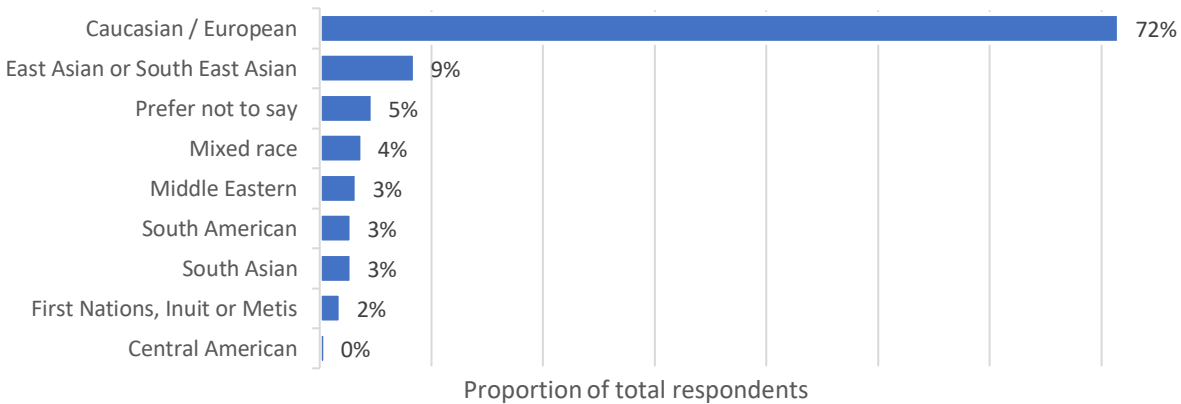
Figure 8: Respondent ages



⁴⁵ Respondents were asked “Where are you from? (ie. the place you grew up, or the place you spent the majority of your life)”.

We received responses from a range of age groups. The largest share of respondents were between 21 and 60 years old. The overall distribution of responses across age groups is fairly well aligned with Vancouver's population age distribution curve (according to the 2016 National Census), except that 31-40 year old persons and 51-60 year old persons are somewhat over-represented. Persons older than 71 years old and persons younger than 20 years old are somewhat under-represented.

Figure 9: Respondent ancestries



The vast majority of our respondents were White, Caucasian or of European descent. Between 50 and 60 respondents (about 28%) were of different ancestries. According to the 2016 National Census data for Vancouver, 49% of the population are visible minorities⁴⁶. This means that visible minorities are dramatically under-represented in our sample, which underscores the importance of conducting targeted outreach efforts to gain perspective from marginalized residents.

What makes parks feel safe and accessible?

We asked respondents to reflect first on their most visited park in the city, and then next, on their favourite park in the city. We asked residents to consider what features made these parks feel safe and/or accessible, and if there was anything about the park that caused it to feel unsafe or inaccessible.

We chose this phrasing intentionally to prompt respondents to consider the relationship between safety and accessibility (that is, some residents who feel unsafe in parks may regard those parks as inaccessible to them). We received a few comments cautioning that these two

⁴⁶ The Census uses the Employment Equity Act definition of visible minority, which is "persons other than Aboriginal peoples who are non-Caucasian in race or non-white in colour." Additionally, there was one Central American respondent although this chart indicates 0% due to rounding.

concepts should not be conflated; however, the majority of respondents simply chose to comment on either safety, accessibility, or both – whichever they had strong feelings about – which was the intent of the question.

There were no major differences between what made parks feel safe and/or accessible between *favourite* versus *most visited* parks. One exception is that proximity to home was less likely to be mentioned for favourite parks; instead, people usually expressed that good transit or cycling access helped the park feel accessible.

The table below summarizes the most common characteristics that people said caused parks to feel safe/unsafe and accessible/inaccessible.

Table 3: Perceptions of accessibility and safety

Makes this park feel safe or accessible	Makes this park feel unsafe or inaccessible
Close to home; can cycle, walk, or take transit there. Proximity was the most frequent response.	Cyclists going fast on shared walkways, or unclear boundaries between cycling and walking paths.
"Eyes on the park": neighbours, residents and families are often there using the park and/or festivities take place there that make it feel like a community space.	Traffic, car exhaust and road noise.
Good sightlines, views, and wide open spaces; room to spread out and to see people coming.	Drug use, smoking, alcohol, and evidence thereof (e.g. finding needles or other litter).
Internally, the park is easy to navigate on foot, bicycle, or mobility device; the paths, stairways, and ramps are in good shaped, spacious, and well marked.	Unhoused residents sleeping or living in the park.
Separation of cars from other road users, and minimal or no traffic inside the park.	Crowding, too many people.
The park is relatively quiet and not crowded.	Lack of lighting in the evenings.
It's clean, well-maintained, and has washrooms available.	Off-leash, excitable and/or aggressive dogs.
The park is well lit in the evenings.	Designated uses (e.g. sports on sport fields) prevent other uses, such as picnics.
Residents who identified as disabled were grateful for on-site parking and car access.	Not enough parking, or paid parking.
	The memory of violent and/or petty crimes that took place in the park.
	Poorly maintained paths and/or rugged terrain, including steep slopes. Difficult for people with strollers or mobility devices.
	Spraying of chemical pesticides.

Respondents commented that the presence of other people could either contribute to or take away from the overall accessibility of the park. Some park users (e.g. children and families) were associated with feelings of safety while other park users (e.g. unhoused residents, drug users) were associated with feeling unsafe.

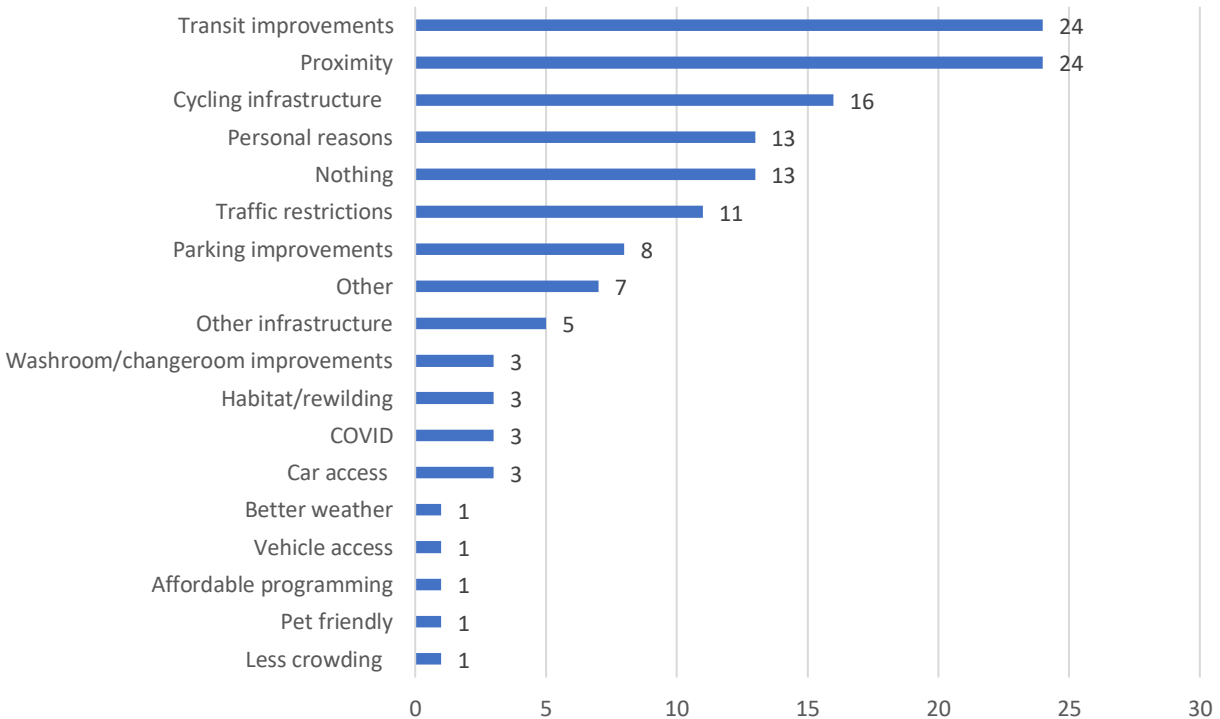
A large number of respondents remarked that fast-moving cyclists made them feel unsafe on shared pathways. Many also remarked that poorly marked pathways (either in forested areas, e.g. unclear hiking trails, or on concrete, e.g. bike lanes) elicited feelings of unsafety.

In most ways, the findings from these questions are unsurprising. However, it is worth noting that several of the characteristics that people associate positively with safety and accessibility also cause people to feel less connected with nature, as demonstrated in the following sections. Worded differently, there is some tension between what feels “safe” or “accessible” and what feels like “nature”.

What stops people from accessing nature?

We asked several questions about peoples’ current barriers to accessing nature. First, when asked to consider their favourite park or natural space in the city, we asked respondents: **“What would help you access this space more often?”**

Figure 10: Enablers to accessing nature



There were two main responses to this question. For many who responded to this question, the main thing preventing them from accessing their favourite park was living far away from it and not being able to get there efficiently on their preferred mode of transportation. To this end, many people mentioned transportation improvements as something that might entice them to visit their favourite park more often.

For another group, it was largely personal or individual reasons preventing them from accessing their favourite park, ranging from not enough time, to being in poor physical health, to having specific infrastructure or terrain barriers impeding their path.

We asked: **“What are the top three most important things that make it difficult for you to access nature as often as you’d like?”**

Figure 11: Barriers to accessing nature



The most common response was “Other priorities restrict my time to access nature (eg. work, picking up the kids, etc.)”. Happily, however, the next most common response was “I am satisfied with my current level of access to nature”. Other responses were varied, but commonly referred to the desire to access nature that is currently not accessible without use of a private automobile.

Respondents were offered the option of entering a text response if they did not see their concern reflected in the list. Many responses discussed crowding, and the fact that their preferred natural spaces (with fewer people) were a good distance outside of Vancouver and hence time consuming, expensive, or impossible to get to.

Several responses in this field also expressed the feeling that off-leash dogs ruin their nature experiences by destroying habitats and/or scaring wildlife, and some commented on parking (both “too much of it” and “too little of it” responses emerged).

Finally, we asked residents to **express one thing they wished the City of Vancouver could understand about how to provide them with better access to nature**. No clear trends emerged from this rich and diverse feedback, and most responses reflect perspectives conveyed throughout other sections of this report. A point-form summary of the main themes and some sample quotes can be found in Appendix E.



What makes people feel connected with nature?

More connected



We had respondents conduct an image sorting exercise where they dragged and dropped images from a set into a box that reflected whether the scene in the image made them feel “Very connected to nature”, “A little bit connected to nature”, or “Almost no connection to nature”. The complete dataset for this exercise is available in Appendix A.

The images in the set on the previous page depict forested areas and wildlife. These images elicited nearly-unanimous feelings of being “very connected with nature”.

Two images in this set – the one depicting a picnic table and shelter, and the one depicting a community food garden – were somewhat polarized. Almost an equal number of respondents indicated that these images made them feel “a little bit connected with nature” versus “very connected with nature”.

The word clouds below represent the most frequently used terms in two qualitative questions that asked: **“What, if anything, about your [favourite] / [most frequented] park or natural space makes you feel connected with nature?”**

Figure 12: Word clouds: More connected with nature



These word clouds provide a snapshot of the kinds of features that people tended to bring up. Trees were by far the most common response, but people also nearly universally valued ocean access and views of the mountains. Many people expressed feelings of solitude and quiet nature sounds such as bird songs and running water; people felt more connected with nature when they could not hear busy streets or other urban noise.

Most visited and favourite parks

Stanley Park was both the most visited and most preferred park among respondents. Vancouver’s various beach parks (particularly Jericho, Kitsilano, Spanish Banks) were also very popular, as was the Pacific Spirit Regional Park.

These choices reflect some of the common things that people valued most about natural spaces, as they expressed in other parts of the survey: forested areas, beautiful views, and ocean access. Additionally, these selections are fairly large parks with limited car access to the

interiors of the parks: many people commented that their favourite parks helped them to feel “away” from the city, and hence, rejuvenated (as discussed in the literature review).

Table 4: Most visited and favourite parks compared

Most visited	Number of responses	Favourite	Number of responses
Stanley Park	66	Stanley Park	43
Kitsilano Beach	25	Pacific Spirit	19
Jericho Beach	24	Jericho Beach	18
Pacific Spirit	22	Spanish Banks	14
Trout Lake	15	Queen Elizabeth	10
Queen Elizabeth	13	Kitsilano	7
Seawall	12	Seawall	5

Interestingly, some of the most heavily trafficked urban beaches like Kitsilano or English Bay were not commonly cited as peoples’ favourite parks in this survey. Jericho Beach and Spanish Banks, however, were very popular. When asked what about Jericho Beach helped people feel connected with nature, respondents mentioned that there was more space for people to spread out so it felt less crowded, and it was comparatively less manicured than other parks, with more “wild” feeling trails and forested areas.

By comparison, when presented with an image of people playing volleyball at Kitsilano Beach (see below), most people (73%) indicated that the image made them feel “almost no connection to nature”. Taken in conjunction with other evidence from this survey and from scholarly literature, this suggests that parks with more people and amenities have less restorative potential compared to more natural and quieter parks.

For nearly ¾ of respondents, the park that they visited most often was also their favourite park in the city.

Less connected

The word clouds below represent the most common terms that came up in written, qualitative responses to two questions that asked: “**What, if anything, about your [favourite] / [most frequented] parks makes you feel *less* connected with nature?**”

Figure 13: Word clouds: Less connected with nature



Respondents indicated that the two images below made them feel almost no connection with nature. Only two images fell into this category: a sports field in a suburban neighbourhood, and the second being an image of people at a beach with volleyball nets. Several respondents indicated that the beach image made them feel “a little bit” connected with nature.



We asked respondents to identify some of the features about their favourite and most visited parks that made them feel less connected with nature. Vehicle traffic and crowding were the most common responses by far.

Many people also mentioned a generally “manicured” feel – for example, neatly trimmed turf – as being something that spoiled their connection with nature.

Some other common responses had to do with off-leash dogs, partying and loud music, litter or garbage, and second-hand smoke. Occasionally people mentioned the presence of wide, paved trails as feeling less like nature, but most of these respondents also reflected that these are important for accessibility and hence expressed that they would not want them changed⁴⁷.

⁴⁷ For example, here are quotes from two separate respondents:

“Paved paths (probably better for people with impaired mobility though?), views of development.”

“I guess the double-wide trails. But this really helps accessibility so I wouldn't want it changed.”

Middle ground



Respondents indicated that the above images made them feel a little bit connected to nature. For the most part, scenes that depicted highly managed or groomed green spaces fell into this category; most images contain trimmed turf, clearly delineated flower beds, or hard walking trails. Arguably, these images represent the types of landscapes we expect to find in most city or neighbourhood parks.

Several images in this set were polarized. Images of the green roof (bottom left) and right-of-way rain garden (bottom right) had several respondents indicating that these images made them feel “almost no connection to nature”, perhaps due to the obvious presence of other urban infrastructure in both images.

The image of the fox was perhaps the most polarized image in this exercise. More respondents assigned this to the “a little bit connected with nature” category, but many also felt that it made them feel “very connected with nature” or “almost no connection with nature”. This may be due to a number of factors. For example, that the fox appears to be on a fence in an urban or suburban setting, rather than in its “natural” habitat (such as the falcon or bumble bee which appear in more natural settings and were more readily associated with feeling connected with nature). Some respondents may associate the fox as being a predator animal of their pets, garbage scavenger, or otherwise a “pest” animal, while other respondents might have felt happy or excited at the prospect of seeing wildlife in unexpected places. In any case, the polarized responses to this image are a great example of how feeling connected with nature is a highly subjective and personal experience.

The complete results of this sorting exercise can be found in Appendix A.



What features feel more or less like nature?

We asked people to consider the features that they saw in these images, or that they might find in such places, and indicate whether those features made them feel more connected with nature, less connected with nature, or whether they made no difference. The following table conveys (in order) the top 10 features for each category.

Table 5: Top 10 things that made people feel more or less connected with nature

More connected	No difference	Less connected
1. Big trees	1. Feels close to home	1. Built amenities to play or recreate
2. Fresh air	2. Feels far from home	2. Trimmed grass and plants
3. Water features not intended for swimming	3. I can grow or harvest food there	3. Feels maintained
4. Native plants	4. Being with other people	4. Paved pathways or boardwalks
5. Feels wild	5. Space to sit or eat	5. Shelters and structures
6. Local animals and insects	6. Easy to navigate by bicycle or with my mobility device	6. Being with other people
7. Not very many people around	7. Shelters and structures	7. Easy to navigate by bicycle or with my mobility device
8. Dense vegetation	8. Easy to navigate on foot	8. Water for aquatic activities like kayaking, fishing, swimming, etc.
9. Unpaved or rugged pathways.	9. Water for aquatic activities like kayaking, fishing, swimming, etc.	9. Space to sit or eat
10. Long, wild looking grass and plants	10. Getting my hands dirty	10. I can grow or harvest food there

This exercise presented several notable findings. First, and perhaps most promising for city park planning, is that people did not seem to mind one way or another whether the natural space they were visiting felt near or far from home. This means that city parks can work to provide great and fulfilling opportunities to access nature in places that are accessible on foot or by transit, and hence align with other strategic planning goals like reducing the need for car ownership in the city.

Second, many of the features that appear on the “no difference” list also appear on the “less connected” list. This suggests that many respondents may have felt ambivalent about these features. To use the previous example again, accessible walkways may make respondents feel less connected with nature, but also provide value in other ways that make them worth the trade-off in most peoples’ view.

Lastly, the features that made people feel most connected with nature are also well aligned with the kinds of features that we know are necessary to support biodiversity and habitat restoration in the city, such as the presence of native plants, and water features not intended for swimming. This, too, means that we can work to provide access to nature that is fulfilling for people and also aligned with our broader sustainability and biodiversity goals.

What do people imagine for Vancouver's future?

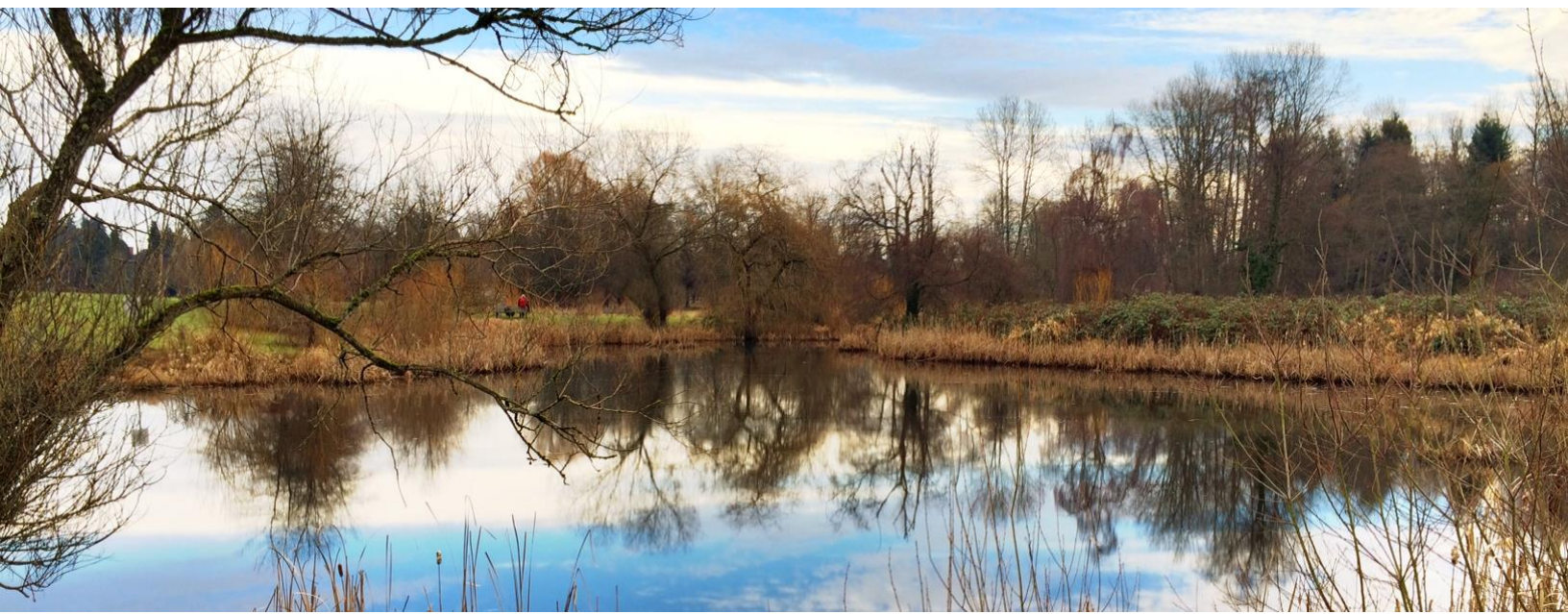
How do people want access, and to where?

Respondents of our survey were presented with the following statements and asked to order them from "most" to "least" important. The table on the next page presents the complete results. An alternative to this table (using text instead of icons) is available in Appendix C.

A ranking of 1 is considered "most important" and a ranking of 7 is considered "least important". The numbers in the cells represent how many people assigned that ranking for the given statement, and the shading correlates to this as well.















These results indicate a preference for local, nearby nature that is accessible by active transportation. "I would rather access local nature in my own neighbourhood rather than travel for it" was the most popular ranking by far; it was ranked #1 most important twice as often as "accessing City parks by bicycle", which was the next most popular option.

It is worth noting that this survey was distributed during the COVID-19 pandemic. Most respondents completed the survey during a time when the Provincial government was disadvising all unnecessary travel, including to other communities within the province. Additionally, most Provincial and National parks were closed as a safety precaution during this period. By contrast, local City parks were experiencing increased use and crowding. It is quite likely that these events and restrictions have affected the way that respondents answered the survey, particularly with respect to this question, as these circumstances may have caused respondents to re-assess how they value local versus distant nature. It is also likely, however, that respondents already had a preference for local nature and may be more invested in changes to nearby, neighbourhood green spaces since they offer a more immediate impact on everyday life.









Example: 100 people indicated that accessing local, neighbourhood nature on-foot was the #1 most preferred option for them personally. By contrast, only 7 people indicated that accessing City/neighbourhood nature by car was their #1 most preferred option.

Figure 14: Preferred nature destinations and transportation mode

Destination	Transport mode	More desired					Less desired	
		1	2	3	4	5	6	7
		100	20	29	20	23	3	33
		52	69	33	35	16	13	10
		24	32	29	27	48	28	40
		23	22	19	29	24	51	60
		12	33	43	38	40	42	20
		10	32	48	55	43	29	11
		7	20	27	24	34	62	54

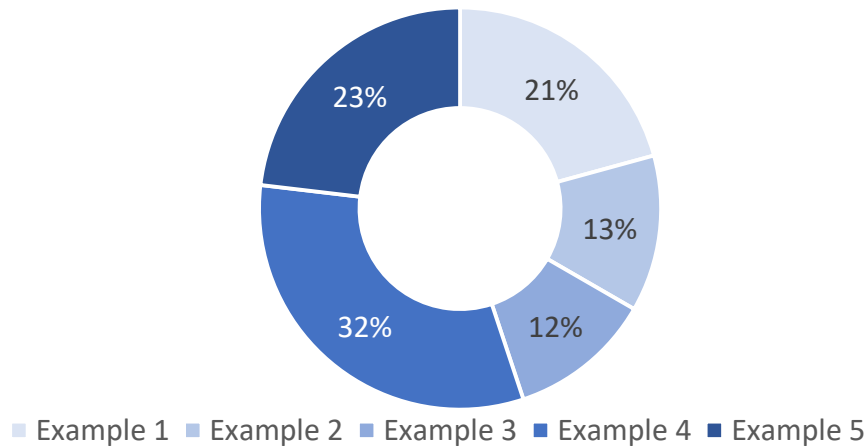
Legend

	I would like to be able to access City parks and neighbourhood nature
	I would like to be able to access Regional, Provincial or National parks outside of Vancouver
	On foot/mobility device, or in my own neighbourhood
	By bicycle or active transportation
	By bus, skytrain, or public transportation
	By private vehicle / car

Visions for access to nature

Respondents to our survey were presented with five example visions or definitions of access to nature. People had the option to highlight sections of the examples that they agreed strongly with. Those most highlighted sections for each definition are presented in the table below (the lighter grey shadings are statements that were highlighted often, and darker grey are those that were highlighted the most).

Figure 15: Which visions resonate most with you?



Example 1	All residents can easily and safely travel to, navigate, and interact with natural or naturally managed landscapes throughout the city. People can enjoy public green and blue spaces for the fresh air, scenery, and amenities they provide. Natural areas are easy to get to by walking, rolling or transit.
Example 2	All residents have an opportunity to witness and interact safely and respectfully with indigenous plants and animals close to their home. People have opportunities to get their hands dirty, learn about nature, take care of the environment, and build relationships with plants and wildlife in their community.
Example 3	Extra supports enable equity and allow residents from all walks of life to safely and comfortably access natural or naturally managed spaces. Marginalized residents feel safe in parks, and they help to shape local parks to meet needs like food security, culture, or ceremony.
Example 4 (Most popular)	The City has a network of well-connected natural areas and habitats. Parks and natural areas are functional habitats that house self-sustaining ecosystems. Some spaces need to be more wild in order to support plants and wildlife. It's important to have access to nature, but it's also important to have some nature that can't be accessed.
Example 5 (Next most popular)	People can easily leave the City to access nature in the province or region. Large, wild-feeling parks within the city make you feel like you're transported somewhere else, away from the hustle-and-bustle. Accessing nature means feeling far away from noisy streets, buildings and crowds.

When asked about which vision resonated with them the most, the two most popular were Examples 4 and 5. Example 4, the most popular, was the most ecological in focus and the only one that mentioned the need for *inaccessible* natural spaces in the city (eg. for conservation purposes). In fact, the statement about the importance of wild, inaccessible places in that example was the most highlighted section across all examples. The second most popular example (Example 5) reiterates previous points about the importance of quiet, forested spaces with minimal or no vehicle access and plenty of room to minimize crowding.

Interestingly, although this project is focused on improving access to nature, the most commonly highlighted segment of text across all examples was “it’s important to have some nature that can’t be accessed”. This may suggest that the respondents to our survey value conservation and are aware of the impact that increased visitation can have on wildlife and natural spaces.

Respondents also had the option to submit a written text vision of access to nature of none of the visions provided were aligned with their perspective. These written responses are provided in Appendix D.



Summary of public engagement findings

- The landscapes and features that make people feel more connected with nature overlap considerably with the kinds of landscapes and features that support urban wildlife habitats and biodiversity.
- There is some tension between the features that make parks feel accessible, and the features that make people feel connected with nature. However, respondents (without being asked) expressed contentedness with compromise on this matter, e.g. by having hard walkways for people with mobility devices even though “hard infrastructure” detracts from nature experiences.
- Overall, respondents emphasized the importance of having a variety of natural spaces in the city; some ought to be accessible while others are more preserved, for example, and some can be more manicured while others are left more wild.
- In general, when it comes to feeling *connected with nature*, people prefer landscapes that feel less manicured and more forested, with few people around. When it comes to feeling *safe and accessible*, people tend to prefer more managed and gently populated spaces.
- Residents feel most connected with nature in landscapes that are free from road noise and crowding. Too many built amenities (such as picnic tables, shelters, or sport infrastructure) can cause people to feel less connected with nature.
- Similarly, small green space such as green roofs, pocket parks, or right-of-way gardens are valued community assets, but may not contribute to feeling “connected with nature” as much as larger parks that allow people to escape from roads, crowds, and urban noise.
- Some of the parks in Vancouver that exemplify these preferences are Stanley Park, Pacific Spirit Regional Park, and Jericho Beach Park.
- Most residents want to see a diversity of spaces in the city, and value the ability of parks to function as habitats and ecosystems. To this end, most respondents strongly support having “wild” spaces in parks that are not accessible to people, as well as more human-dominated parks and sports fields.



Results

A definition for Vancouver

Based on the combined results of public engagement, scholarly literature review, and the jurisdictional scan, we can draw some conclusions about what “access to nature” means for Vancouverites and how we might go about planning for it.

Excellent access to nature means being able to walk (within 300m) to *a restorative natural area* in your home neighbourhood.

Reasonable access to nature means being able to walk, roll, or take transit to *a restorative natural area* within 30 minutes or less.

Low access to nature means being more than 30 minutes away from *a restorative natural area* or needing to use a private vehicle to access that space.

A Restorative Natural Area (RNA) is a natural or naturalized area that is, as much as possible, removed from road noise, traffic, and other interventions. It is relatively quiet with minimal crowding, and contain natural elements like native plants and water features to elicit “soft fascination”. Parks like Stanley Park, Pacific Spirit Regional Park, and Jericho Beach Park have plenty of restorative natural spaces. The addition of large trees or dense hedges are design features that can help to cushion existing parks from the “outside world”, improving their restorative potential. Of course, any design choice comes with trade-offs; our survey respondents identified that wide-open spaces feel more safe and accessible, but feel less like nature. Similarly, the addition of large trees and/or understory foliage will feel more like nature, but may feel less safe for some people, especially at night.

With possible exceptions, because of the distracting effects of streets and other urban stimuli, a Restorative Natural Area is not likely to be a pocket park, green roof, sports field, playground, or crowded public space. However, these other types of green space are nonetheless important and provide value to our communities in other ways. For example, they can be valuable “stepping stones” to improve ecological connectivity.

Since Vancouverites value conservation, there should be protections in place that allow people to enjoy Restorative Natural Areas without harming flora and fauna; for example, by having elevated boardwalks and railings that both improve accessibility and prevent people from trampling the landscape. Too much hard infrastructure, however, can impede soft fascination and feelings of connected with nature, so these should be used sparingly, prioritizing accessibility and conservation goals. It is also important to allow for some spaces where people (especially children) can get “hands-on” and interact directly with natural elements.

Since many people indicated that time and other commitments are their main barrier to accessing nature, it may be useful to create and restore natural spaces near workplaces and schools, so that people can enjoy them on their way home from work or during lunch breaks.

Can we map access to nature?

The first step in mapping and analyzing access to Restorative Natural Areas is to develop a Restorative Natural Area Index (RNA Index). A RNA Index would be used to understand the degree to which a given space balances restorative/natural and accessibility features. In the long term, the RNA index could be used for monitoring and evaluation – for example, to assess how the restorative potential of a given space has improved or declined as a result of development and improvements to the park. For example, since VanPlay sets asset targets for the creation of pollinator habitat, we might expect to see some mowed turf fields in the city transformed into wildflower meadows through landscape restoration. The RNA index could be used to assess how the restorative potential of that space has improved, hence quantifying how access to nature has improved while also delivering co-benefits for ecological and biodiversity targets set in the Biodiversity Strategy, Bird Strategy, VanPlay, and other plans.

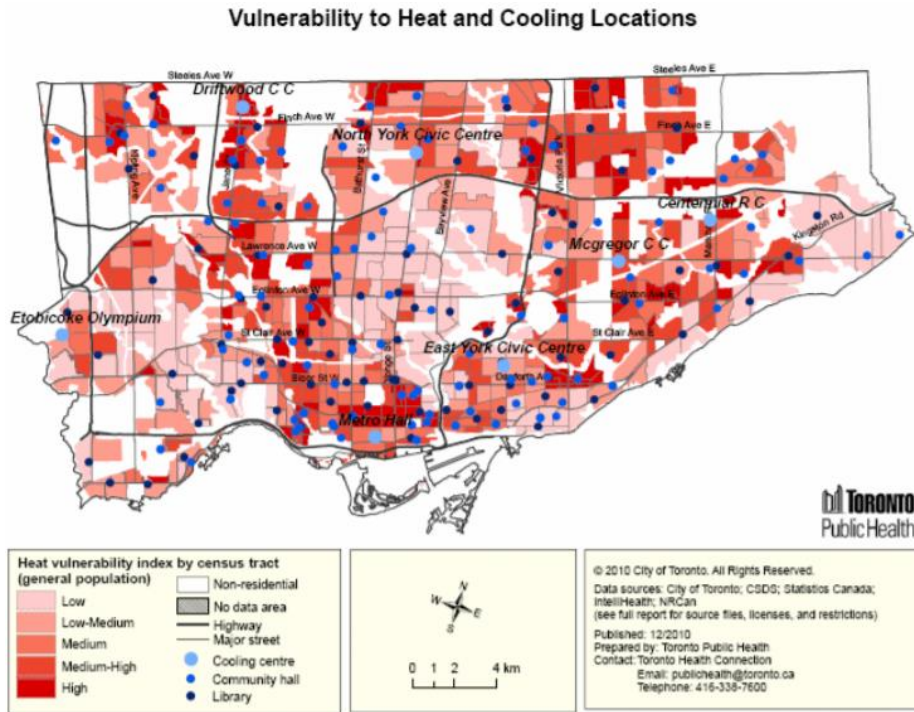
Figure 16: Conceptual diagram of proposed mapping index



Once the RNA Index is developed and used to categorize existing public space in Vancouver, it can be easily used to develop several different types of maps.

One option is to create a choropleth map which analyzes the proportion of Restorative Natural Area on a per-capita basis, similar to how Edmonton mapped open space provisioning through its “Breathe” maps, or how Toronto tracked heat vulnerability. This would effectively look like a “heat map” of areas in the city with rich access to nature.

Figure 17: Toronto's Heat Vulnerability Map³³



This map assigns a heat vulnerability index value to census tracts in Toronto, and compares this with the location of cooling centres. The method used to construct this choropleth map could be used to map neighbourhoods in Vancouver according to their RNA Index rating, and to locate RNA's throughout the city.

Another option might be for Vancouver to develop a bivariate choropleth map of all City parks; that is, a choropleth map with two main parameters. Following the conceptual spectrum indicated in Figure 16, we might expect to see off-limits conservation area appear in blue, whereas accessible restorative nature areas would appear in green. Other parks, such as those containing playgrounds or other amenities, would appear in yellow. The main benefit of this method is that it would allow planners to consider how multiple parks in the same jurisdiction might work together to meet broader community needs. A single park is unlikely to meet all ecological and social needs, unless it is a very large park, since there are direct trade-offs between infrastructure and restorative benefits. However, multiple parks in the same neighbourhoods can work together to provide for diverse needs.

The following table provides an initial list of some parameters that might go into such an index. Much of this data may already be collected and stored at the city. In other cases, there may be opportunities to partner with external organizations (for example, partnering with schools or organizations like Fresh Air Learning to identify opportunities for "nature for kids").

Table 6: Potential data sources for Restorative Natural Area Index

	Nature (+)	Infrastructure (-)	Other / Both
City-collected	Biodiversity hotspots	Activities permitted on-site	Bump-out & right-of-way gardens
	Meadows	All-gender accessible washrooms, changerooms	Community gardens
	Natural shoreline	Bicycle storage and parking	Env. Themed events
	Naturally managed sites	Bikeways & greenways	Golf course natural areas
	No-mow areas	Information kiosks and languages supported	Green infrastructure installations
	Pollinator sites	Lighting	Green walls & roofs
	Potential wildlife corridors	Park visits, demographics	Initiative zones
	Restoration / habitat sites	Parking	Private green space (eg. yards)
	Stewardship opportunities	Public boat launches	Shuttles to external parks (eg. Lynn Canyon bus)
	Street trees (species, DBH, condition)	Rapid transit network	Turf & horticulture beds
	Tree canopy, forested areas	Tables and seating	
	Vegetation mapping	Traffic data	
	Waterways, ponds, streams	Universal signage	
		VanConnect reports re: safety, infrastructure	
	Walking and cycling routes		
	Wheelchair accessible pathways		
Crowdsourced or Partners	Audible nature	Traffic data	Ceremonial and/or Gathering Places
	Hands-on nature	Multi-language services, tours etc.	Community gardens
	iNaturalist, eBird and/or Bumblebee Watch	Env. Themed events	Private nature (yard greenspace)
	Nature for Kids		Regional transportation options to external parks
	Salmon spawning areas		
	Smells of nature		
	Species audits (universities)		
	Stewardship opportunities		

Based on some potential data sources (Table 6) and the features we know people associate with nature (Table 5), the table on the next page conveys one possibility for a non-exhaustive and example checklist that might serve as a “first cut” for a Restorative Natural Area Index.

“More restorative” features earn the site a point, while infrastructure features that promote accessibility might deduct a point. Notably, one benefit to an index like this is that it might also be useful for evaluating the accessibility of a park or natural area. A score of close to zero

represent sites that have an even balance of restorative features and accessibility features. Or, formatted as a simplified mathematical equation:

$$(Natural\ elements) - (Infrastructure\ features) = Restorative\ Natural\ Area$$

$$(N) - (I) = RNA$$

Sample checklist

More restorative (+1 point each)	
	Big trees
	Water features
	Natural shoreline
	Native plants
	Wetland
	Local animals and insects
	Dense vegetation
	Unpaved or rugged pathways
	Long, wild looking grass and plants; no-mow areas
	Stewardship activities
	Audible nature (e.g. birdsongs, crashing waves)
	Habitat features (e.g. native pollinator garden)
	Understory vegetation
More accessible (-1 point each)	
	Buildings, gazebos or other structures
	Vehicle traffic
	Inaccessible or "hard" shoreline (e.g. seawall)
	Space to sit and eat (e.g. picnic tables)
	Managed or community gardens
	Public boat launches
	Parking lots
	Paved pathways or boardwalks
	Trimmed grass and plants
	Artificial lighting
	Washrooms and changing rooms
	Dogs off leash permitted
	Playgrounds, sport nets, or other recreational infrastructure
	TOTAL

Three examples providing sample scores to three sites in Vancouver (Lost Lagoon at Stanley Park; trails in the interior of Pacific Spirit Regional Park; and, Kitsilano Beach) are provided in Appendix F. These results from these example checklists approximate the feedback heard about these sites from the public engagement survey, which suggests that they may be a useful tool for approximating public perception of how much a given site feels like nature.

The Park Board might also choose to assign weights to parameters on the checklist in order to capture their relative importance. For example, we know from the public engagement survey that “Vehicle traffic” was a very important feature that made people feel less connected with nature. On the other hand, many people commented that “Paved pathways or boardwalks” made people feel somewhat less connected with nature, but were regarded as acceptable anyway because of their accessibility benefits. A more detailed RNA Index might accordingly choose to detract “-3” points for the presence of “Vehicle traffic”, but only “-1” point for the presence of a boardwalk. Similarly, we might consider the size of natural elements when assigning a weight to the “More restorative” parameters, such that a large patch of old-growth trees might translate to “+3” points for the space, whereas smaller street trees or shrubs might warrant “+1” points.

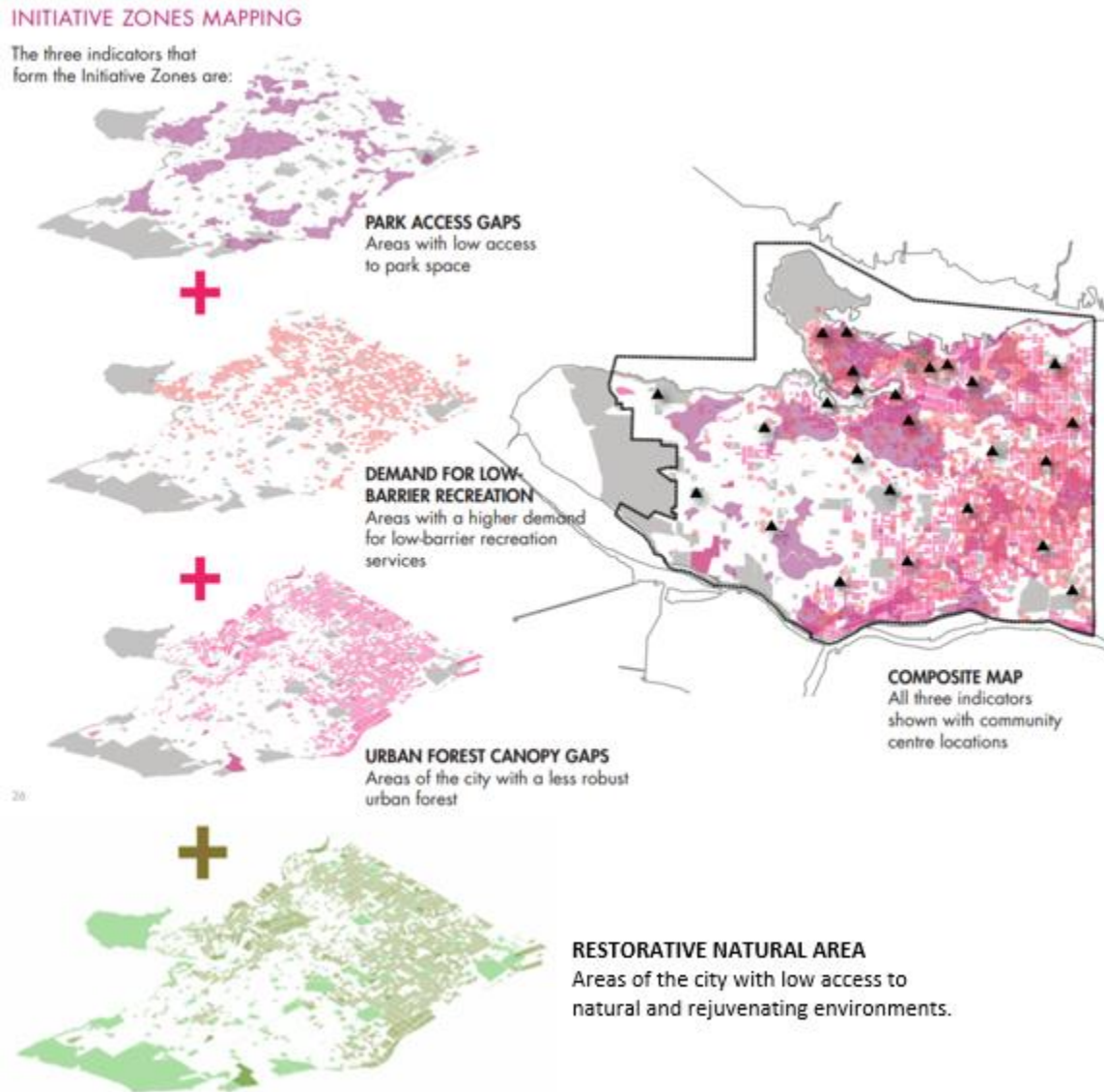
The proposed Restorative Natural Area Index does not capture all essential dimensions of access to nature. Instead, it provides one tool that can be used to assess how likely a given space may be to provide people with the restorative benefits of nature, considering the inherent elements of that space but not, for example, its normative importance given the surrounding community and their needs. Other factors, such as the cultural values of the ethnic-majority community surrounding the park, are qualitative in nature and would require case-by-case public consultation.

Applications and Next Steps

An RNA index like the one described inherently considers accessibility at the site level inasmuch as it factors design features and amenities that improve or impede accessibility and restorative potential. In addition to site-level analysis, however, an RNA index could be used to construct a GIS layer that expresses accessibility and restorative potential of areas at the City and Neighbourhood scales, too. In other words, the RNA index can be useful for both individual park design and site-specific park redevelopments, as well as useful for broader strategic planning of green space provision across the city.

A mapping index like this could also be factored into, or overlaid with, the VanPlay Equity Initiative Zones to identify priority areas for improving access to restorative natural areas.

Figure 18: Conceptual illustration of RNA Index layer added to VanPlay Equity Initiative Zone mapping



The resultant composite map could also indicate sites of RNAs.

To support the development of a Restorative Natural Area Index, the City might choose to conduct an audit of existing parks and natural areas throughout Vancouver in order to update existing data, and fill in gaps for data that may not yet be collected at the City level. This effort would provide an opportunity to partner with stewardship organizations and community groups, who are often already spending time in their respective spaces and observing or considering these issues.

Once Restorative Natural Areas are identified, access to them can be mapped by drawing buffers around them. At their simplest, these buffers can look like concentric rings with "as the

crow flies” distance measured to estimate walkability. However, a more accurate way to assess access would be to draw the buffers based on a street network analysis that considers infrastructure, terrain, and traffic, as was done with Vancouver’s 2018 Park Provision Study. This walkability data could inform the creation of a GIS layer as depicted in Figure 18 for use in VanPlay and other strategic planning implementation efforts.

Lastly, but most importantly, the Park Board should undertake targeted consultation with equity-seeking groups. This report has pointed to several examples of how equity-seeking groups have different experiences of and with public space, and their perspectives were not sufficiently captured in the public engagement survey conducted for this project. Moving forward, one suggestion is that engagement with equity-seeking groups for this project could focus on co-creating the Restorative Natural Area index (for example, collaboratively deciding on which indicators and data it ought to include). Future consultation might also unearth alternative methods to conceptualizing and measuring Restorative Natural Areas in the city. However, consultation with equity-seeking groups should always emphasize building long-term and reciprocal relationships with the relevant communities, and should not start or stop with defining and measuring Restorative Natural Areas. To this end, the best advice is to allow equity-seeking groups to define their own goals and terms of engagement for a given body of work, and to provide fair compensation where it is requested or warranted.

One case study of a consultation process that was co-created, fairly compensated, and collaboratively implemented with equity-seeking groups and community partners is the Resilient Conversations project, which took place as part of the engagement process for developing the City of Toronto’s Resilience Strategy.⁴

Resilient Conversations was co-developed through a three-way partnership between the City of Toronto, non-profit Centre for Connected Communities, and Local Champions. Local Champions is a capacity-building program for grassroots leaders in Toronto’s Neighbourhood Improvement Areas.⁴⁸

Through this partnership, the Resilient Conversations toolkit⁴⁹ was co-created by ResilientTO staff and paid Local Champions to guide local conversations about neighbourhood resilience, shocks, stresses, and needs. Local Champions facilitated Resilient Conversations with their own communities, and worked with the City to ensure their communities’ needs were reflected in the Resilience Strategy.

⁴⁸ Link for the Centre for Connected Communities information page on Local Champions:
<https://connectedcommunities.ca/local-champions/>

⁴⁹ Link for the Resilient Conversations Toolkit:
<https://www.resilienttoronto.ca/5774/documents/11917#:~:text=The%20Resilient%20Conversations%20Tools%20helps,rich%20and%20in%20depth%20dialogue.>

Summary



Summary

This report explores the meaning of access to nature from academic, policy, and public perspectives. It proposes a set of criteria that could be used to inform a mapping tool to assess access to nature. This tool should be used in conjunction with (or as a part of) the VanPlay Initiative Zone mapping in order to prioritize equity in planning for access to nature.

The criteria outlined represent a snapshot of public perception, but more public engagement with equity-seeking groups is needed. There are opportunities for collaboration with community partners and leaders from equity-seeking groups, especially with respect to deciding on what parameters to include in a checklist or mapping tool, and for understanding the limits of this initiative in terms of capturing Indigenous and immigrant worldviews, which may differ from those implied by this project. There may also be ongoing opportunities to include equity-seeking groups in the actual process of assessing the quality of parks and natural areas, per the decided parameters.

The jurisdictional scan unearthed several other opportunities for assessing and promoting access to nature beyond mapping and quantitative analysis. Although new policy instruments were not the focus of this project, efforts such as Scotland's Outdoor Access Plans may be a positive addition to our current policy toolkit, and may help support the implementation side of this work.

The definition of "access to nature" proposed in this report emphasizes access to *Restorative Natural Areas*. This term has been coined based on a synthesis of scholarly and consultative evidence. *Restorative Natural Areas* are the spaces where we might expect residents to experience the mind-clearing mental health benefits associated with undisturbed moments of soft fascination. A Restorative Natural Area Index (RNA Index) has been proposed to map and quantify access to such spaces throughout Vancouver.

However, it is important to note that other natural spaces throughout the city will deliver many other types of benefits that may be of equal value. In other words, a Restorative Natural Area is not necessarily superior to a highly accessible or serviced park, but it is more likely to provide the kinds of benefits that people are looking for when they express a desire for "access to nature". To underscore this point, many survey respondents emphasized that their ideal "future Vancouver" would have a variety of public spaces to choose from – some restorative, and others fulfilling different purposes.

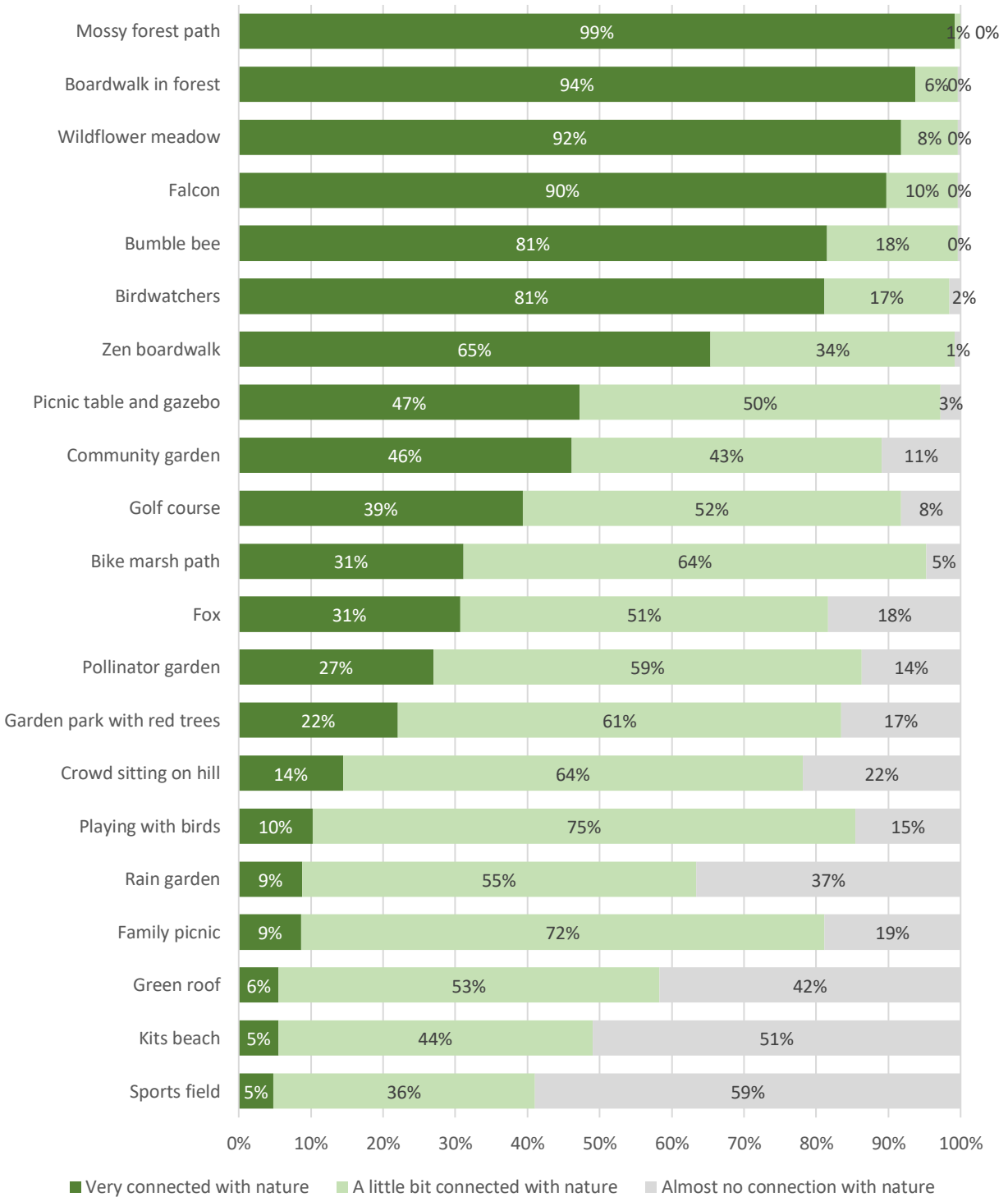
The proposed Restorative Natural Area index provides a framework for assessing the restorative potential of natural spaces can be used to inform future strategic planning for access to nature, and support Vancouver's efforts to become the world's Greenest City.



Appendices

Appendices

Appendix A: Bar graph – image sorting exercise



Appendix A Continued: Data table – Image sorting exercise

The “#” columns in the chart below depict the absolute number of people that assigned the image to that category. The “%” column represents that number as a proportion of all responses to the question.

	Very - %	Very - #	A little - %	A little - #	Almost no - #	Almost no - #
Mossy forest path	99%	253	1%	2	0%	0
Boardwalk in forest	94%	238	6%	15	0%	1
Wildflower meadow	92%	233	8%	20	0%	1
Falcon	90%	227	10%	25	0%	1
Bumble bee	81%	207	18%	46	0%	1
Birdwatchers	81%	206	17%	44	2%	4
Zen boardwalk	65%	164	34%	85	1%	2
Picnic table and gazebo	47%	120	50%	127	3%	7
Community garden	46%	118	43%	110	11%	28
Golf course	39%	100	52%	133	8%	21
Bike marsh path	31%	79	64%	163	5%	12
Fox	31%	77	51%	128	18%	46
Pollinator garden	27%	69	59%	152	14%	35
Garden park with red trees	22%	56	61%	156	17%	42
Crowd sitting on hill	14%	37	64%	163	22%	56
Playing with birds	10%	26	75%	191	15%	37
Rain garden	9%	22	55%	137	37%	92
Family picnic	9%	22	72%	184	19%	48
Green roof	6%	14	53%	134	42%	106
Kits beach	5%	14	44%	111	51%	130
Sports field	5%	12	36%	91	59%	148

Appendix B: Complete data – Feature sorting exercise

	More connected	No difference / Unsure	Less connected
Big trees	231	1	0
Fresh air	226	3	3
Rivers, ponds, creeks or shorelines (not for swimming)	222	5	6
Native plants	215	14	3
Feels wild	214	11	0
Local animals and insects	212	13	6
Not very many people around	210	14	5
Dense vegetation	201	19	6
Unpaved or rugged pathways	198	24	8
Long, wild looking grass and plants	191	31	7
Learning about or paying close attention to plants and animals	179	30	17
Natural spaces to play or recreate (eg. beaches to swim, trees to climb)	157	30	38
Opportunities to care for nature / stewardship	142	61	20
Getting my hands dirty	137	70	10
Wide open spaces	125	53	48
Easy to navigate on foot	110	76	32
Feels far from home	100	103	17
Water for aquatic activities like kayaking, fishing, swimming, windsurfing, etc.	90	73	65
I can grow or harvest food there	78	95	53
Space to sit or eat	63	88	64
Easy to navigate by bicycle or with my mobility device	54	87	75
Feels close to home	50	116	51
Paved pathways or boardwalks	28	48	142
Feels maintained	22	58	145
Trimmed grass and plants	17	49	155
Shelters and structures	17	86	115
Being with other people	16	94	111
Built amenities to play or recreate (eg. volleyball nets, picnic tables)	14	45	164

Appendix C: Alternative table: How do people want access, and to where?

Rankings	1	2	3	4	5	6	7
I would rather access local nature in my own neighbourhood than travel for it.	100	20	29	20	23	3	33
I would like to be able to access City parks outside of my own neighbourhood more often by bicycle .	52	69	33	35	16	13	10
I would like to be able to access Regional, Provincial or National Parks outside of Vancouver more often by bus or public transit .	24	32	29	27	48	28	40
I would like to be able to access Regional, Provincial or National Parks outside of Vancouver more often by car .	23	22	19	29	24	51	60
I would like to be able to access Regional, Provincial or National Parks outside of Vancouver more often by bicycle .	12	33	43	38	40	42	20
I would like to be able to access City parks outside of my own neighbourhood more often by bus or public transit .	10	32	48	55	43	29	11
I would like to be able to access City parks outside of my own neighbourhood more often by car .	7	20	27	24	34	62	54

Appendix D: Alternative vision statements

Some respondents selected “I have another vision of what access to nature means”, and opted to contribute an original, typed response. The following responses were submitted (verbatim).

- *“Something about recognizing the diversity of nature in our city (eg. beaches, forests, etc.) but also diversity of needs (eg. culturally-appropriate forms of spaces - eg. Sun Yat Sen, Cherry Blossoms. Indigenous plants do not make for an Indigenous experience - how could a space be designed to be culturally relevant and reflective of the history of this place and its people?”*
- *“Not acknowledging at all that all parks are on Indigenous territory. This seems like erasure.”*
- *“That natural spaces Provide safe accesability for all forms of active transportation.”*
- *“NO CARS IN PARKS”*
- *“Maintain the Designated “Quiet Beaches!” at Locarn & Spanish Banks East & West with no alcohol or amplified music.”*
- *“The distribution of the parks isn't the same depending where you live in the city”*
- *“Access to nature also means that if I live in a highrise or multi-family complex, that I will have access to nature within a 5 minute walk or less and have that the nature is visible from inside my condo or townhouse or apartment”*
- *“I like example one but I want to make sure the word “rolling” is not defined to bicycles. Parks in the City of Vancouver MUST be accessible to ALL, not accessible by bike only.”*
- *“Well connected animal habitats that people have to leave alone, but also places where kids can pick wildflowers and touch bugs and bees, and feed birds. Outdoor spaces with antural features so kids can climb and make forts, and where people can see fruit bearing trees so they know where food comes from. Also, playgrounds, sports amenities, and signs in areas so people can learn about the nature theyre seeing.”*
- *“People should have the ability to easily access nature, more specifically through sustainable means like biking, walking, or incentives for electric vehicles such as charging stations at parks. But most importantly, citizens should be educated on the imminent threats of climate change and about the personal changes they can make to better serve their community, as well as the opportunities to make a difference.”*

Appendix E: Other qualitative feedback

We asked survey respondents, **“What is one thing you would like the City of Vancouver to understand about how they can provide you with more access to nature?”**

There is far too great a diversity of responses to this question to effectively summarize them all here. For the most part, the written responses provided in this section echo the findings already covered in the rest of this consultation report.

Below, we present some of the main themes that came up often, with sample quotes from respondents.

- Perhaps more than any other comment, respondents emphasized that they valued having a diversity of experiences available. While some parks are great to visit for the restorative power of a forested nature path, it is also important to have spaces to recreate, have fun, and be a bit rowdy.
 - *“Variety is key; “access to nature” doesn’t have to mean totally wild or totally cultivated. A variety is best so that people can choose what they want, when they want it.”*
- Many respondents expressed concern that urban development has already negatively impacted natural areas, and that it will continue to be destructive if left unchecked. Many pleaded that the City *“not let development creep in”*, and the feeling that
 - *“you cannot replace nature with new plants ... after a developer has mowed everything down”.*
 - *“Leave old treed neighbourhoods alone so we can walk out our doors and feel connected to nature.”*
 - *“Sometimes it is enough to be able to see nature without being in it, and when you can’t see it because of all the new development, you feel robbed of access to nature.”*
- Many respondents expressed a desire to see wilder, more connected, and more biodiverse green spaces throughout the city.
 - *“Less mown grass, more diversity of native plants/ nativars that support wild bees and food webs. More wetland edges, in the form of green infrastructure like bioswales ponds etc. More areas that are off-limits to dogs. More shrubs and trees.”*
 - *More green spaces and trees/indigenous plants that make you feel away from the city in higher traffic areas.”*
 - *“Provide landscape and trees that connect between parks, school grounds, streets and other green spaces and provide fun wayfinding between the green spaces.”*
- Similar to the above, many people requested that the City not “over-manage” or “manicure” parks. Some commented on how, during COVID-19, some turf areas such as boulevards and sport fields are no longer being mowed, and expressed that they enjoy the longer, wilder look of the grass and flowers.
 - *“Please don’t overly manicure and over develop our parks.”*

- *"I am really enjoying the unmown boulevards, with tall grasses and wildflowers amidst the bike paths and walking paths."*
- Many respondents expressed concerns about the physical accessibility of parks, ranging from poor transit connections to uneven or damaged pathways being hazardous to seniors and people with mobility impairments.
 - *"Some people can't walk or roll great distances and transit is not great for immune-compromised people."*
- Many respondents, in this and other questions, expressed a desire to see traffic restrictions (such as the temporary road closures in Stanley Park, which many respondents wanted to see made permanent).
 - *"We need to move away from cars being a mode of access for the majority to parks. They ruin nature and should only be used by those who truly need them to get there (ie for accessibility reasons) not as a free-for-all."*
- Several respondents raised concerns about crowding and over-stressed park space.
 - *"Control crowds better perhaps? (nothing to do with COVID, just in general - e.g. in summer the beaches and destination parks are SWARMED! which can make being in nature more stressful than relieving)"*
- Some respondents expressed the belief that East Vancouver has comparatively less access to nature than the Western parts of the city.
 - *"I feel like I already have a lot of access to nature because I live in south False Creek, but residents of east Vancouver need access to more natural areas."*
 - *"East Vancouver deserves as many parks and big trees as the west side has!"*
 - *"I live in the west end, and while it can sometimes be a bit crowded, I'd rather see a focus on greening areas in East and South Vancouver. This would make it more appealing to travel outside our neighbourhood for fun adventures and improve the lives of folks living in those areas."*
- Many people commented that they are overall satisfied with their current level of access to nature, and/or that they see this as being one of the main benefits of living in Vancouver.
 - *"They are doing well so far... better than most cities, but allow more parks to feel a bit more wild (naturally managed), and try to get as many in there as possible!"*
- Some respondents raised the issue of alcohol consumption in parks, though there were comments both for and against changing this law. Those that were against alcohol consumption in parks expressed concerns about noise, partying, and litter.
 - *"If we could share a drink or 2 with friends at the park that would keep us out of the bars after work."*
 - *"noise pollution in parks from cars, music, fireworks, special events, marathons, restaurants, parties with drugs and alcohol is an increasing problem. We need more quiet areas in the city. Parks are for nature, not for parties."*

Appendix F: Example checklists

Example 1: Lost Lagoon in Stanley Park.

More restorative (+1 point each)	
+1	Big trees
+1	Water features
0	Natural shoreline
+1	Native plants
+1	Wetland
+1	Local animals and insects
0	Dense vegetation
0	Unpaved or rugged pathways
+1	Long, wild looking grass and plants; no-mow areas
+1	Stewardship activities
+1	Audible nature (e.g. birdsongs, crashing waves)
+1	Habitat features (e.g. native pollinator garden)
0	Understory vegetation
More serviced (-1 point each)	
-1	Buildings, gazebos or other structures
-1	Vehicle traffic
-1	Inaccessible or "hard" shoreline (e.g. seawall)
0	Space to sit and eat (e.g. picnic tables)
0	Managed or community gardens
0	Public boat launches
-1	Parking lots
-1	Paved pathways or boardwalks
-1	Trimmed grass and plants
-1	Artificial lighting
-1	Washrooms and changing rooms
0	Dogs off leash permitted
0	Playgrounds, sport nets, or other recreational infrastructure
1	TOTAL (Medium)

Example 2: Trails in the interior of Pacific Spirit Regional Park

More restorative (+1 point each)	
+1	Big trees
+1	Water features
0	Natural shoreline
+1	Native plants
0	Wetland
+1	Local animals and insects
+1	Dense vegetation
+1	Unpaved or rugged pathways
+1	Long, wild looking grass and plants; no-mow areas
+1	Stewardship activities
+1	Audible nature (e.g. birdsongs, crashing waves)
+1	Habitat features (e.g. native pollinator garden)
+1	Understory vegetation
More serviced (-1 point each)	
0	Buildings, gazebos or other structures
0	Vehicle traffic
0	Inaccessible or "hard" shoreline (e.g. seawall)
0	Space to sit and eat (e.g. picnic tables)
0	Managed or community gardens
0	Public boat launches
0	Parking lots
0	Paved pathways or boardwalks
0	Trimmed grass and plants
0	Artificial lighting
0	Washrooms and changing rooms
0	Dogs off leash permitted
0	Playgrounds, sport nets, or other recreational infrastructure
11	TOTAL (Very restorative; Not very serviced)

Example 3: Kitsilano Beach

More restorative (+1 point each)	
0	Big trees
+1	Water features
+1	Natural shoreline
0	Native plants
0	Wetland
0	Local animals and insects
0	Dense vegetation
0	Unpaved or rugged pathways
0	Long, wild looking grass and plants; no-mow areas
0	Stewardship activities
+1	Audible nature (e.g. birdsongs, crashing waves)
0	Habitat features (e.g. native pollinator garden)
0	Understory vegetation
More serviced (-1 point each)	
-1	Buildings, gazebos or other structures
-1	Vehicle traffic
0	Inaccessible or "hard" shoreline (e.g. seawall)
-1	Space to sit and eat (e.g. picnic tables)
0	Managed or community gardens
0	Public boat launches
-1	Parking lots
-1	Paved pathways or boardwalks
-1	Trimmed grass and plants
-1	Artificial lighting
-1	Washrooms and changing rooms
0	Dogs off leash permitted
-1	Playgrounds, sport nets, or other recreational infrastructure
-6	TOTAL (Not very restorative; Very serviced)