Metro Vancouver Regional Parks

Parkland Supply Standards Research

December 2015

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Executive Summary

Introduction

Today, Metro Vancouver operates a Regional Park system that protects approximately 14,500 ha on behalf of 22 municipalities, one electoral area and one treaty First Nation (Metro Vancouver, 2015).

The Regional Growth Strategy for Metro Vancouver, *Metro Vancouver 2040: Shaping Our Future,* predicts growth of one million people in the Metro Vancouver region over next 25 years. Recognizing this growth will affect the availability of land and create additional pressure on existing Regional Parks, Metro Vancouver is preparing to develop a Regional Parks Land Acquisition Strategy. The strategy will provide a framework for Regional Parkland acquisition for the long-term, subject to review and updates in the short- to medium-term.

The purpose of the **Parkland Supply Standards Research** Report is to provide guidance to the Land Acquisition Strategy by reviewing current research, practices, and trends related to parkland acquisition to help respond to the questions:

- **How much Regional Parkland needs to be acquired?**
- **How much Regional Parkland is enough?**

A primary objective for this research has been to determine if there is a basis for setting a measurable standard or target to be used in the Land Acquisition Strategy. A secondary objective has been to investigate other potential land acquisition models that may be applicable in the Metro Vancouver context.

Study Methods

To understand the range of potential acquisition models and background behind how and why models have been developed, a literature review of relevant parks and scientific resources was conducted. The literature review included compilation of information from research, scholarly articles, and reports in the fields of parks and recreation planning, landscape ecology, biodiversity, community planning, climate change, and related subject areas, with a focus on the research questions.

To ground the findings of the literature review in current practice and support comparison of acquisition models, a concurrent parks agency review was completed. In this review, nine other Regional Parks agencies were selected for study. Information was gathered through review of each agency's relevant planning documents and phone interviews with agency staff. This scan of agency information focused on summarizing each agency's approach to Regional Parkland Acquisition and how the agency compares with Metro Vancouver.

Acquisition Models

Over time, there has been development and implementation of numerous parkland acquisition models throughout the world. While no single authoritative guideline has emerged, there is opportunity to learn from various models that may align with the context and needs of Metro Vancouver.

For this research, three potential models are discussed as shown in **Figure 1**. Some models include multiple approaches or "lenses" for considering Regional Parkland Acquisition, along with "focal points" that could be considered as part of the approach. Each potential model, approach and focal point are discussed in **Section 3** of this document.

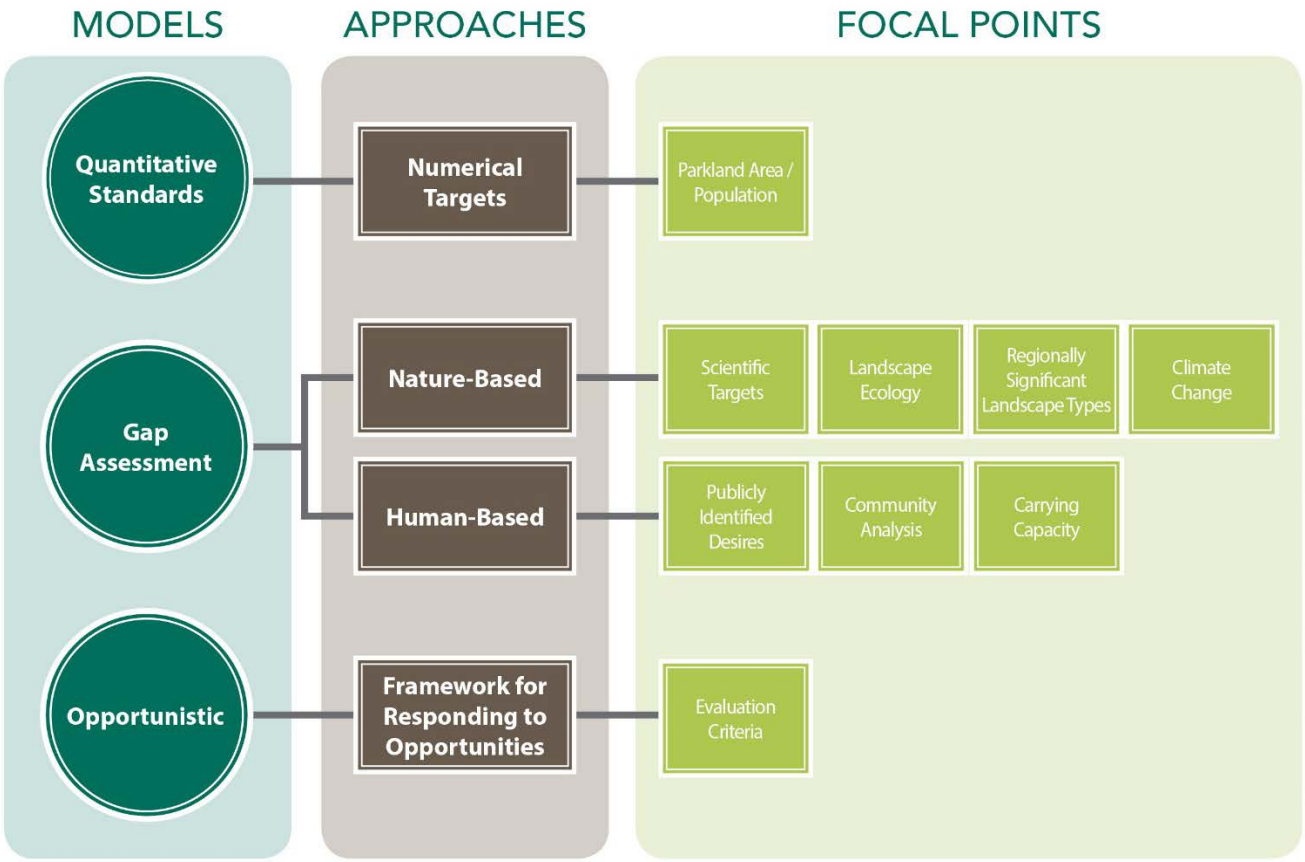

Figure 1: Parkland Acquisition Models

Conclusions

A set numerical metric that responds to the questions, "How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?" was not identified through the literature nor was it commonly identified as being used during a review of Regional Parks agencies. Rather, most agencies interviewed noted they do not set a numerical target for how much land should be acquired in their land acquisition strategies.

Feedback suggested that it is not necessarily possible nor desirable to say with exact certainty how much is needed – there are many factors that are part of a holistic account.

The models selected by Metro Vancouver for a Land Acquisition Strategy should clearly support the two goals for Regional Parks:

- Protection of natural areas; and
- Provision of opportunities for people to connect with, enjoy, be active, and learn about the environment.

When considered in this context, a combined model for Metro Vancouver's Land Acquisition Strategy should consider:

- **Nature-based Gap Assessment** that studies the natural context of the Lower Mainland. Decisions will need to be made about focal points for this gap assessment – regional science-based targets that already exist or are in development, landscape ecology principles where feasible, and definition of regionally significant landscape types all have merit as nature-based gap assessment focal points. The Land Acquisition Strategy should also advance the role of Regional Parks in climate change adaptation.
- **Human-based Gap Assessment** that considers information gained from public input, alongside selection and analysis of key human-based criteria to inform a community analysis. Care should be taken when identifying human-based criteria so that selected criteria are not overly onerous to apply and reflect the values of the community.
- **Carrying Capacity** should be a consideration within park acquisition planning to recognize the need for Regional Parks to provide nature-based recreation opportunities, while recognizing their role in natural area protection. Early analysis of how much of each of these elements a potential park could provide and the risks of user overcrowding will help identify a park's potential role in the Regional Parks System.
- The value of maintaining flexibility as described in the **Opportunistic Model** will help the Regional Parks Land Acquisition Strategy adapt over time.
- While a Quantitative Standards Model is not recommended for Regional Parks, consideration for **benchmarking** against similar communities warrants deliberation as a way of understanding how Metro Vancouver compares with what others have achieved.

While not outlined in the models, another significant factor that will influence the implementation of a Land Acquisition Strategy is available budget. It is likely that when scientific needs and community needs are considered, the desired acquisition targets will be higher than what can be realistically afforded. Land acquisition is inherently tied to available funding, especially in the context of the Lower Mainland's high land prices. Through a supported acquisition plan, there may be opportunity to increase funding to some degree, but likely not to a point where "enough" land has been acquired. A key consideration in the Land Acquisition Strategy will be finding a balance between the desired acquisitions and a realistic timeline for implementation.

Next Steps

As Metro Vancouver embarks on its Land Acquisition Strategy it will be important for those involved to recognize the complexity of the topic. Effective planning will consider a broad assessment that looks at the unique criteria and characteristics that are important in the Lower Mainland to develop a strategy that is visionary, yet achievable.

The conclusions contained in this report are anticipated to provide guidance on models a Land Acquisition Study may consider. In addition to information about potential models and approaches, a benefit from this work has been establishing connections with other Regional Districts tackling similar challenges and questions as Metro Vancouver. Continued exchange of information with these sources may help identify additional information to be considered in the Land Acquisition Strategy.

1 | Introduction

1.1 Project Purpose

Today, Metro Vancouver operates a Regional Park system that protects approximately 14,500 ha on behalf of 22 municipalities, one electoral area and one treaty First Nation (Metro Vancouver, 2015).

The Regional Growth Strategy for Metro Vancouver, *Metro Vancouver 2040: Shaping Our Future,* predicts growth of one million people in the Metro Vancouver region over next 25 years. Recognizing this growth will affect the availability of land and create additional pressure on existing Regional Parks, Metro Vancouver is preparing to develop a Regional Parks Land Acquisition Strategy. The strategy will provide a framework for Regional Parkland acquisition for the long-term, subject to review and updates in the short- to medium-term.

In 2014, Metro Vancouver completed a Regional Parks Service Review to examine the long-term Regional Parks function, the relevance of the parks function in the future, and how the growth of the function will be managed. The Service Review identifies a priority to increase understanding about the need to grow the Regional Parks system and to develop a clear, well-supported approach to acquisition. This improvement could help increase funding allocated to for parkland acquisition. The Service Review recommends development of a formal, long-term Land Acquisition Strategy to help the Service articulate, communicate, and build support for its acquisition efforts (Neilson-Welch, 2014).

The purpose of the **Parkland Supply Standards Research** Report is to provide guidance to the Land Acquisition Strategy by reviewing current research, practices, and trends related to parkland acquisition to help respond to the questions:

- **How much Regional Parkland needs to be acquired?**
- **How much Regional Parkland is enough?**

A primary objective for this research has been to determine if there is a basis for setting a measurable standard or target to be used in the Land Acquisition Strategy. A secondary objective has been to investigate other potential land acquisition models that may be applicable in the Metro Vancouver context.

The outcomes of the Parkland Supply Standards Research are conclusions for consideration in the Land Acquisition Strategy.

1.2 Document Organization

This document is organized in four sections. In addition, appendices compile data documented through the research that may be informative for future planning.

- **1 | Introduction**: This section introduces the purpose of the research, the focal questions behind the research, and terminology used throughout the document.
- **2 | Methods**: The second section provides an overview of how the research was conducted.
- **3 | Acquisition Models**: Section three identifies a number of potential models used in planning acquisition for Regional Parks. For each model, the Report includes a summary of **findings**, a **discussion** about the strengths and challenges of the model, and **conclusions** that may be applicable for future land acquisition planning.

- **4.0 | Conclusions Summary**: The fourth section summarizes conclusions on the acquisition models and identifies potential next steps in applying the conclusions.
- **Appendices**: The appendices compile data including:
  - **A: Compilation Summary of Acquisition Models:** A compiled summary of acquisition models described in **Section 3**.
  - **B: Overview of Agencies Studied:** A brief introduction to the ten Parks Agencies studied in this research.
  - **C: Agency Database:** A summary table of key data findings for each agency studied in the research.
  - **D: Summary of Discussions with Park Agency Representatives:** Meeting notes from interviews with park agency representatives regarding approaches to Regional Parkland acquisition.
  - **E: Background Research on Models:** Background research completed to inform the acquisition models identified in the Report.
  - **F**: **Overview of Agency Practices:** Summary of different practices to parkland acquisition, sorted by topic, that park agencies have been using.

1.3 Terminology

The following key terms and abbreviations are used throughout the document. Definitions are provided for terms that are used in the context of this Report.

Common Terms

Term	Definition
Acquisition Model	A process employed in planning for Regional Park acquisition.
Approach	A sub-process used to further define an acquisition model.
Biodiversity	The variety of life in a particular habitat or ecosystem.
Carrying Capacity	The number of people that a Regional Park can support without environmental or experiential degradation.
Landscape Ecology	The science of studying and improving relationships between ecological processes in the environment through spatial patterns and linkages.

Term	Definition
Natural Areas	A predominantly vegetated or open area of unique scenic, historic, geologic or ecological value of sufficient size and character to allow its maintenance in a natural condition without direct human intervention.
Regionally Significant Landscape Types	Distinct landscape typologies that represent the natural environment of the region (same as Representative Landscapes).
Representative Landscapes	Distinct landscape typologies that represent the natural environment of the region (same as Regionally Significant Landscape Types).

Abbreviations

Acronym	Definition
ACR	Auckland Council Regional Parks
ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
BCPOS	Boulder County Parks and Open Space
CRD	Capital Regional District
DCC	Development Cost Charges
EBRPD	East Bay Regional Parks District
GVRD	Greater Vancouver Regional District (Metro Vancouver)
Metro	Oregon Metro (Portland Metropolitan Area)
MidPen	Midpeninsula Regional Open Space District
MV	Metro Vancouver
RDCO	Regional District of Central Okanagan
RDN	Regional District of Nanaimo
York Region	Regional Municipality of York

2 | Methods

This section provides an overview of methods used to conduct the Parkland Supply Standards Research to consider how the primary research questions are addressed in literature and current practice.

- **How much Regional Parkland needs to be acquired?**
- **How much Regional Parkland is enough?**

2.1 Literature Review

To understand the range of potential acquisition models and background behind how and why models have been developed, a literature review of relevant parks and scientific resources was conducted. The literature review included compilation of information from research, scholarly articles, and reports in the fields of parks and recreation planning, landscape ecology, biodiversity, community planning, climate change, and related subject areas, with a focus on the research questions.

Refer to **Appendix E** for a background paper that helped inform the acquisition models explored in **Section 3** of this document.

2.2 Park Agency Review

To ground the findings of the literature review in current practice and support comparison of **acquisition models**, a concurrent parks agency review was completed. In this review, several Regional Parks agencies were selected for study. Key elements considered when selecting agencies included:

- Active or ongoing land acquisition
- Population growth
- Similar Regional Parks mandate or function to Metro Vancouver

Based on input from Metro Vancouver staff and initial screening of the agencies, the following ten Regional Parks agencies were identified for review in this study. Refer to **Appendix B** for an overview of each of the agencies listed.

Table 1: Regional Parks Agencies Reviewed

Local/Regional	» Metro Vancouver (MV) » Capital Regional District (CRD) » Regional District of Nanaimo (RDN) » Regional District of Central Okanagan (RDCO)
North America	» Regional Municipality of York, ON (York Region) » East Bay Regional Park District, CA (EBRPD) » Midpeninsula Regional Open Space District, CA (MidPen) » Metro Oregon or Metropolitan Portland Area, OR (Metro) » Boulder County Parks and Open Space, CO (BCPOS)
International	» Auckland Council Regional Parks, NZ (ACR)

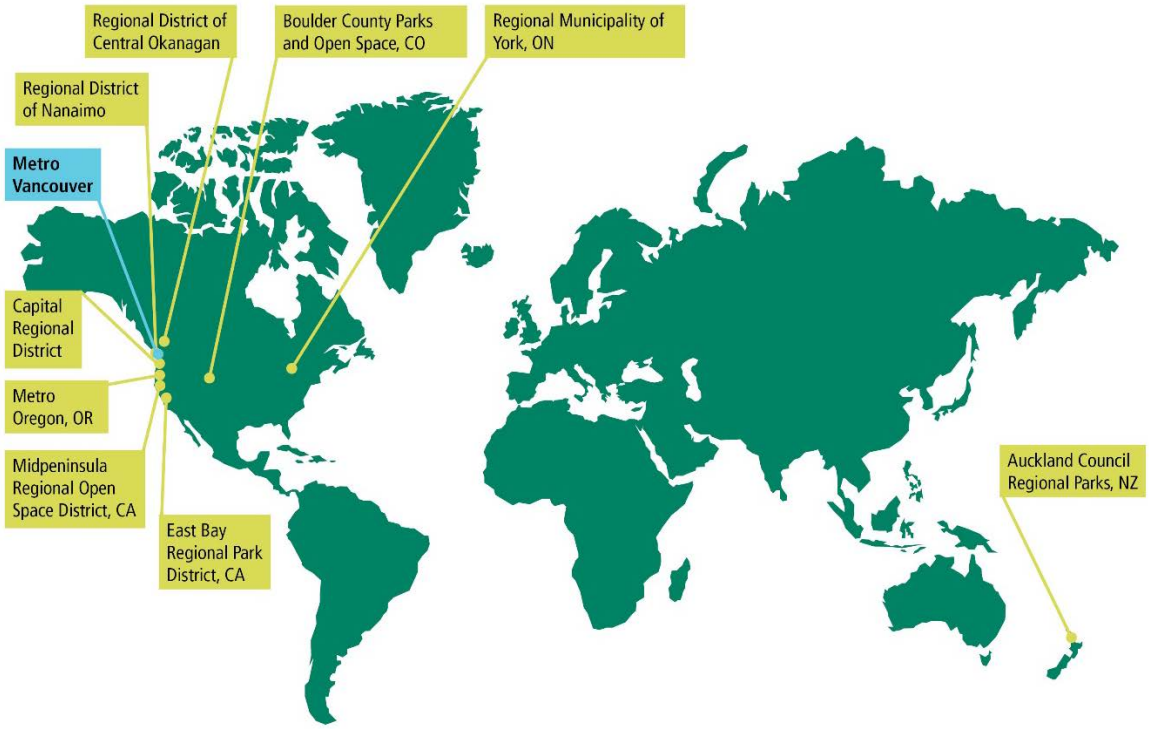

Figure 2: Map of Regional Parks Agencies Reviewed

Information Compiled

The scan of agency information focused on summarizing the agency's approach to Regional Parkland Acquisition and how the agency compares with Metro Vancouver. An Agency Database was developed to capture available information and sources. The database is provided in **Appendix C**. **Table 2** outlines the information included in the database, where available from sources.

Table 2: Agency Database Information Overview

Data Title	Description
Park Agency	Name and abbreviation of park agency
General	
Population (year)	Region's current population estimate
Growth Rate	Recent growth rate estimate of the region
Anticipated Growth Rate	Anticipated future growth rate, as available
Geographical Area (sq.km.)	Size of region's land base
Initiation of the Regional Parks Service	Year the Regional Parks Service was started
Number of Regional Parks	Current quantity of Regional Parks / Trails
Total Area of Regional Parks (ha)	How much land is dedicated as Regional Park

Data Title	Description
Smallest Park Size (ha)	Size of smallest park in the system (excl. greenways and regional trails)
Largest Park Size (ha)	Size of largest park in the system
Average Park Size (ha)	Average park size in the system
Parkland Supply Metrics[1]	
% of Region's Land Base that is Regional Park	Calculation of how much of the region's land base is dedicated as Regional Park (Area of Regional Parks / Geographical Area)
% of Region's Land Base that is Protected Green Space (incl. Regional Parks)	Calculation of how much of the region's land base is protected as green space including National Parks, Provincial / State Parks, Regional Parks, Municipal Parks, non-profit ownership, etc.
Regional Parkland (ha) / 1,000 population	Calculation of Regional Park provision by 1,000 population measure (Total Area of Regional Parks / [Population/1,000])
Strategic Planning	
Regional Parks Mandate / Purpose / Service Definition	Description of Regional Parks mandate / purpose / service definition
Land Acquisition Strategy	Identification of the region's current Land Acquisition Strategy for Regional Parks
Principles / Policies / Approach to Acquisition	How the region approaches parkland acquisition and determination of "How much Regional Parkland needs to be acquired?"
Rate of Acquisition	General indication of the speed of growth of the Regional Parks Service
Evaluation Criteria for Assessing Potential Regional Parks	Set of criteria used in decision-making for Regional Parks
Evaluation Criteria for Assessing Potential Regional Trails	Set of criteria used in decision-making for Regional Trails
Parkland Classification	Parkland classification system for Regional Parks
Current or Target Amount of each Park Class	Indication of how much of the region's parkland base is dedicated to each class of Regional Park
Estimate of Publicly Accessible Land	Indication of how much Regional Parkland has public access versus area protected without public access
Funding	
Annual Budget	Annual budget for the agency, including amount assigned to acquisition as available
Sources of Funding	Sources of funding for Regional Parks
Partnerships	Summary of partnerships or arrangements that support parks delivery in the region

[1] Parkland supply metric calculations are developed for high level comparisons and are based on information from various available sources. Metrics may not reflect the most current information and should not be relied upon as current numbers.

Data Title	Description
Delivery	
Governance / Management Structure	Summary of how the agency is overseen
Public Participation	Indication of public participation in planning for future land acquisition
Volunteers	Number of volunteers annually contributing to Regional Parks
Performance Measures	Approaches to measuring achievements for Regional Parks
Other	
Primary Current Documents	List of current planning documents being used by agency
Contact	Key contact
Notes	General notes / useful information

3 | Acquisition Models

This section summarizes different acquisition models identified using the methods outlined in **Section 2**.

3.1 Introduction to Potential Models

For decades, parks agencies have been seeking answers to the questions:

- **How much Regional Parkland needs to be acquired?**
- **How much Regional Parkland is enough?**

The result has been the development and implementation of numerous parkland acquisition models throughout the world. While no single authoritative guideline has emerged, there is opportunity to learn from various models that may align with the context and needs of Metro Vancouver.

For this research, three potential models are discussed as shown in **Figure 3**. Some models include multiple approaches or "lenses" for considering Regional Parkland Acquisition, along with "focal points" that could be considered as part of the approach.

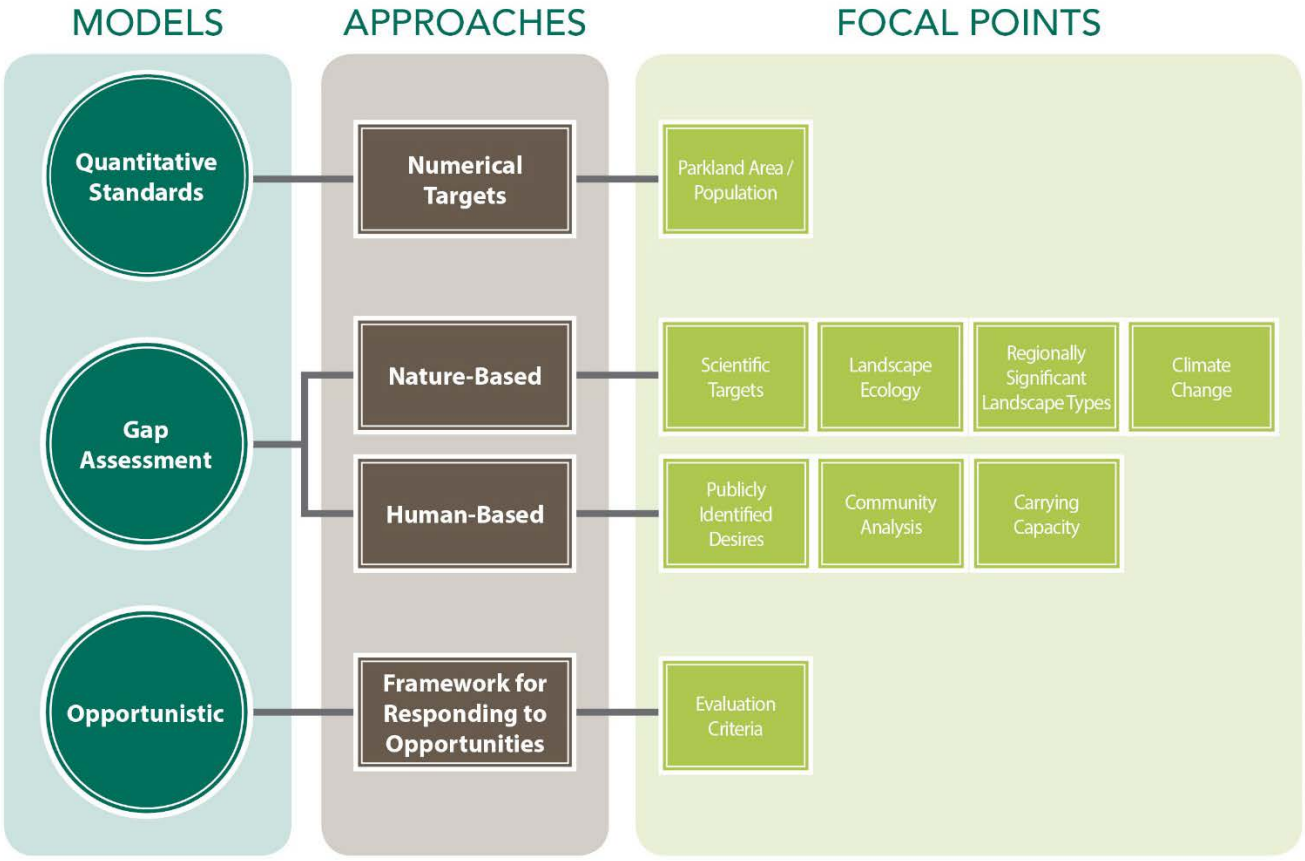

Figure 3: Parkland Acquisition Models

For each model, approach, or potential focal point, the Report includes:

- A summary of **findings** that documents how this model has been applied in parkland acquisition planning;
- A **discussion** about the strengths and challenges of the model; and
- **Conclusions**, drawn from the research, that may be applicable for future land acquisition planning for Metro Vancouver.

Within the discussion, the Report also reflects on how the models could support the goals Metro Vancouver has for Regional Parks:

- **Goal 1:** Protect important natural areas to contribute to regional livability and to enhance connections.
- **Goal 2:** Within the context of natural area protection, provide opportunities for people to connect with, enjoy, be active, and learn about the environment (Metro Vancouver, 2015).

Metro Vancouver's Regional Parks goals demonstrate an emphasis on natural area protection, connection with, and enjoyment of these areas.

3.2 Quantitative Standards Model

Findings

Quantitative standards are an alluring prospect to policy makers and citizens alike. These standards, or targets, provide a concrete goal that is easily understood and against which progress may be measured, providing clarity of purpose and motivation (Tear, et al., 2005).

In previous decades, quantitative standards have commonly been applied within almost all levels of park planning – ranging from local to provincial levels.[2] The most commonly applied approach to a quantitative standards model has been a **Numerical Target** focused on **Parkland Area / Population** – matching open space with a respective user population (Maruani, 2007). Because quantitative space standards consider only quantitative data and not more complex social or ecological systems, they are easy to implement and measure (Maruani, 2007).

An example of a quantitative standards model can be seen in the *Vancouver-Fraser Park's District 1966 Regional Parks Plan*. In this plan, a 1966 "standard" for total protected parkland in the Lower Mainland was set at 65 acres (26.3 ha) / 1,000 population. Of this amount, 13.0 acres (5.3 ha) / 1,000 population was recommended to be Regional Park (20%), with the balance provided by other levels of parks including provincial and local parks (80%). The 1966 Plan goes on to recommend a "future standard" of 94 acres (38.0 ha) / 1,000 for all parkland and 20 acres (8.1 ha) / 1,000 population of Regional Parks for 2001 (Vancouver-Fraser Park District, 1966). This number was based on the assumption that in 2001, residents would have increased leisure time[3] and greater social and economic resources, thereby increasing demand for leisure and placing more pressure on parks (Vancouver-Fraser Park District, 1966).

[2] The 1966 Regional Parks Plan suggests that National Parks have not typically used a quantitative standards model due to a focus on protection of nationally significant landscapes.
[3] Due to an estimated decrease in the average work week to 29 hours.

The 1985 *Greater Vancouver Regional Parks: System Plan & Policies* supported similar parkland supply metrics and through the 1990s and early 2000s, there was an unofficial target which suggested a range of between 6 to 7 ha / 1,000 population.[4] In 2014, the Regional Parks System operated by Metro Vancouver had a calculated ratio of 5.5 ha / 1,000 residents.[5]

Of the Regional Parks agencies studied, the only agency identified as currently using a quantitative standards model is the RDCO which has set a target of 12.0 ha / 1,000 population (Regional District of Central Okanagan, 2007; Regional District of Central Okanagan, 2000). Anecdotal input from RDCO staff suggests this standard was set through a review of similar parks agencies during creation of the 2000 Regional Parks Plan (Darlington, 2015). Since the target was set, RDCO has identified challenges in achieving the targeted amount of parkland through Regional Parkland acquisition alone, but staff feedback suggests the standard has provided useful direction for communicating a visible goal and for linking parkland and population growth. Through future planning, the RDCO anticipates reviewing the number to confirm it remains an appropriate target (Darlington, 2015).

Anecdotal input from Auckland Council parks staff indicates an intentional decision to cease using a quantitative area target for Regional Parks. Past experience demonstrated challenges to achieving set targets; current practice is to follow a broad regional vision that outlines types of desired parkland and identifies opportunities to meet this vision with available resources (Beer, 2015).

The National Recreation and Park Association (NRPA) identifies that former tools like the previously published *Recreation, Park and Open Space Standards and Guidelines* are no longer considered best practice for parks planning, recognizing that a "one size fits all" approach does not consider the varied needs and circumstances of parks and recreations systems (National Recreation and Park Association, 2015).

While it appears that most Regional Parks agencies are not currently relying on quantitative standards for determining future parkland acquisition, nearly all agencies are reporting quantitatively on parkland provision in their Regional Parks Plans. To compile reporting on parks, the NRPA has started a program called PRORAGIS (Parks and Recreation Operating Ratio and Online Geographic Information System), which is an online database and management tool that compiles hundreds of metrics related to parks and recreation delivery among all levels of public parks, including regional.

[4] Anecdotal information from Metro Vancouver Staff, 2015.

[5] In 2014, Metro Vancouver's Regional Parkland base was 14,443 ha serving a population of 2,616,137. Metro Vancouver's Regional Parks function includes the City of Abbotsford which is outside the Metro Vancouver regional boundary, but included within the Regional Parks function.

Participating agencies are invited to self-report a wide range of information about their department's operations, planning, and practices and compare how their agency matches against others they identify as similar to themselves (National Recreation and Park Association, 2015).

Discussion

A limitation observed in *Vancouver-Fraser Park's District 1966 Regional Parks Plan* is lack of clarity on how the "current standard" for parks provision was set at that time. The report outlines recommended standards for various park types that comprise a "Complete Park System," but does not indicate a basis for these assumptions. So while 13.0 acres (5.3 ha) / 1,000 population was identified as Regional Parks "standard" in 1966, the report fails to articulate why this number was selected, except to say an adequate parks system must serve all age groups and social levels, provide for a full range of recreation, provide variety of landscape, and provide for different lengths of use without conflict (Vancouver-Fraser Park District, 1966). In the absence of this information, the standard, and the calculations used to set future standards, may be viewed as arbitrary.

Table 3: Strengths and Challenges of a Quantitative Standards Model

Strengths	Challenges
» **Easy to apply and measure.** A simple mathematical calculation based on known numbers. » **Provides an easily communicated goal.** A numerical target is easy for all people involved in Regional Parks planning – Board members, staff, and members of the public to understand and work towards.	» **Risk of arbitrary targets.** As seen in the *Vancouver-Fraser Park's District 1966 Regional Parks Plan*, often quantitative targets appear to be arbitrary, based on little to no scientific or community-based evidence on why this amount of parkland is the appropriate amount. Natural areas are complex, dynamic systems that may require consideration beyond quantitative assessment. » **Narrow focus.** With numerical targets, there is a risk that the primary focus becomes achieving a land area target without sufficient consideration of the ecological or recreational values of lands being acquired. Scudder (2003) observed this challenge in his study of coincidence between biodiversity rarity and richness hotspots with current protected areas in British Columbia. He summarized that while the target of BC's Protected Areas Strategy (PAS) (British Columbia, 1993) had been achieved with over 12% of the province now as protected land, major ecological regions in BC lack a proportional representation of these lands (Scudder, 2003). So while the set target has been achieved, the intent behind the target – protection of ecologically-significant lands – falls short.

Strengths	Challenges
	» **Inability to evolve.** If a target is set to be achievable, there is an innate expectation that once that target is reached, the work is complete. This may limit further will to invest in parks, even if current demand, need, or opportunity warrants consideration. » **Unattainability**. At the opposite end of the spectrum, ambitious or aspirational targets may be set; however, failure to achieve these targets or interpretation that these aspirations are unreachable, can undermine confidence and support for future investment.

Conclusions

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

While a Quantitative Standards Model could provide a numerical response to the research questions – there is no universally-accepted number for Regional Parkland provision. Instead, agencies are forgoing numerical targets in favour of models that take into consideration the unique context and needs of a region.

The challenges listed in **Table 3** have contributed to quantitative standards falling out of favour as a model for Regional Parks Land Acquisition planning.

This is not to say that quantitative measures, including the measure of Parkland Area / Population, do not have value in Regional Parks planning and management. There is merit in understanding how much similar agencies have acquired as part of their acquisition strategies. Quantitative benchmarking provides a frame of reference for performance, and perhaps impetus for aligning more closely with what others have been able to achieve.

In some cases, short-term targets may also have a purpose; not in setting a final target, but rather helping move from point A to point B as part of a long-term journey.

Summary of Conclusions for a Quantitative Standards Model:

- It is no longer considered best practice for Regional Parks agencies to rely solely on a quantitative standards model for determining how much parkland needs to be acquired.
- Quantitative measures, including Parkland Area / Population, may be useful tools in benchmarking current parkland provision against other similar agencies for information when developing and reviewing a Land Acquisition Strategy.
- Quantitative targets may be useful tools for communicating short-term goals and measuring progress if used with consideration that these standards only provide guidance on quantity, not quality of parkland.

3.3 Gap Assessment Models

With various names and forms (e.g. needs assessment, nature-based, human-based, etc.), gap assessment models are commonly being used in some form by Regional Parks agencies to plan acquisition in response to ecological and/or community needs (Byrnes & Sipe, 2010).

A gap assessment model is more complex to implement than a quantitative standards model (Maruani, 2007). It recognizes that different geographies, landscapes, and populations have widely varied needs for green space protection and access.

For example, it is unlikely that the Regional Park needs for an urban, coastal, high growth community such as Metro Vancouver are identical to the needs of a small, inland, low growth community. Even regional-scale variations affect where parkland is most needed within a single Regional District. Gap assessment models support tailored acquisition plans that reflect the context of different communities.

From a Regional Parks perspective, a gap assessment model may be broken down into two main approaches described in **Table 4**. As noted in the table, these two approaches align closely with the two main goals outlined in Metro Vancouver's Draft 2015 vision.

Literature shows that within these approaches there are numerous "focal points" that Regional Districts use to guide decision-making on acquisitions, often including multiple focal points within their approach. Each of the approaches and focal points are described in further detail in this section.

Table 4: Overview of Approaches in a Gap Assessment Model

Approach	Relationship to Metro Vancouver's Regional Parks goals	Focal Points
Nature-Based	**Goal 1:** Protect important natural areas to contribute to regional livability and to enhance connections.	» Scientific Targets » Landscape Ecology » Representative Landscapes » Climate Change
Human-Based	**Goal 2:** Within the context of natural area protection, provide opportunities for people to connect with, enjoy, be active, and learn about the environment	» Publicly Identified Desires » Community Analysis » Carrying Capacity

3.3.1 Nature-Based Approaches

Nature-based approaches within the gap assessment model support acquisition priorities based on an assessment of the natural environment. There are various focal points for nature-based gap assessment that may be considered in Regional Park Acquisition planning.

Focal Point: Scientific Targets

Findings

Over the years, many have asked a related question about quantifying biodiversity needs:

» **How much protected natural land is needed to safeguard biodiversity?**

A broad range of numbers can be found in literature:

12% BC's Provincial Government Protected Areas Strategy[6] (BC Ministry of Environment, Lands and Parks, 1998).

17% Target 1 for terrestrial areas and inland water of Canada's 2020 Biodiversity Goals & Targets[7] (biodivcanada.ca, n.d.) and Target 11 of the Aichi Biodiversity Targets (Convention on Biological Diversity, 2010).[8]

10% Target 1 for coastal and marine areas of Canada's 2020 Biodiversity Goals & Targets (biodivcanada.ca, n.d.) and Target 11 of the Aichi Biodiversity Targets (Convention on Biological Diversity, 2010).

50% Nature Needs Half from WILD9, the 9th Word Wilderness Congress[9] (Martin, 2011).

This range suggests there is no single answer to the question of how much land is needed to protect biodiversity, mirroring the challenges identified in setting quantitative standards for parkland.

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[6] The *Protected Areas Strategy*, released in June 1993, set a commitment to "expanding a protected areas system that will protect 12% of the province by the year 2000." In April 2008, the current area protected in BC was approximately 13.95% (Prospectors & Developers Association of Canada, 2008).

[7] The 2020 Biodiversity Goals & Targets were developed by Canadian federal, provincial, and territorial governments as aspirational medium-term goals and targets to be achieved through collective efforts of public and private decision-makers.

[8] The Aichi Biodiversity Targets were developed by the Conference of the Parties to the Convention on Biological Diversity at their Tenth Meeting in Nagoya, Japan to take effective and urgent action to halt the loss of biodiversity.

[9] The World Wilderness Congress (WWC) launched the initiative called Nature Needs Half to be explored by scientific communities and experts as a call for a new relationship between humankind and nature as partners in supporting the needs of each other.

There are many variables that affect these numbers. In many cases, numerical targets for biodiversity focus on key indicators that affect their interpretation – perhaps 12% of land is sufficient to protect certain habitats, species, or ecosystems in one geographical setting; however, this target may be inadequate for another (Tear, et al., 2005).

Scientists recognize the challenges in setting numerical targets: "The sheer complexity of conserving biological diversity cannot be overestimated" (Tear, et al., 2005). Tear et al, (2005) also recognized the challenge of the research question "How much is enough?" This question leads to the assumption that there is a single, definitive answer. The emerging reality is that an adaptive and exploratory process that studies and tests assumptions within various contexts may be needed to better define the needs for biodiversity (Tear, et al., 2005).

While there is no single, confirmed target for biodiversity, and it appears unlikely that there will be agreement on one, there is alignment among scientists on one matter: there is currently not enough protection of biodiversity and without a collective effort to do more, the future of natural areas and sensitive species are at risk.

Discussion

The role of Regional Parks acquisition is not to scientifically determine a target for protection of biodiversity. Rather, the role of Regional Parks is to consider available research and regional goals, and plan acquisition that contributes to collective goals for natural area protection. Parkland acquisition strategies can look to larger regional, provincial, or national goals and targets, where developed, as a means of determining how Regional Parks can contribute to scientific goals and targets.

Regional Districts are far from alone in the mission to protect natural areas. All levels of parks – local, regional, provincial, and national – along with conservation agencies, private land owners, and regulators share responsibility for protecting natural areas and supporting biodiversity.

While public parks afford some of the best protection of sensitive ecosystems, it is unrealistic that all sensitive lands could be protected in this tenure. Regulation has been employed in Canada, BC, and Metro Vancouver to promote stewardship of biodiversity on private lands. This can be seen through the protection of watercourses and riparian areas under the *Water Act* and the *Riparian Area Regulation*, as well as tax incentives for voluntary stewardship. The Agricultural Land Commission (ALC), though not focused on ecological protection, protects agricultural land through the Agricultural Land Reserve (ALR). Consideration of other levels of land protection is often considered within a Land Acquisition Strategy.

How much public and private initiatives contribute to natural area protection and the effectiveness of protection varies greatly between locations and governance.

Table 5: Strengths and Challenges of a Focus on Scientific Targets

Strengths	Challenges
» **Thoughtful acquisition.** Looks to scientific information to identify lands with high natural values. » **Existing information.** Leverages existing knowledge, research, and planning, as available, to identify high value natural areas. » **Supports collective efforts.** Awareness and movement around natural area protection is growing, with a wide range of public and private entities contributing. Regional Parks can leverage the power of collective efforts to maximize benefits to the larger system.	» **No definitive target.** There is no single, definitive number set for natural area protection. » **Reliance on other research and planning.** Regional Parks must look to information developed by others to define goals for natural area protection. In the absence of a supported set of regional goals and targets, it may be more challenging to define targets for Regional Parks. » **Evolution.** Science around natural area protection is evolving and land acquisition planning should be updated concurrently to reflect current knowledge and best practices. » **Multiple players.** It may be challenging to determine the role of Regional Parks alongside other private and public entities playing roles in natural area protection.

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

The literature does not provide precise numbers about how much land must be protected to support biodiversity as there are complex variables that contribute to these needs. Often Regional Parks Land Acquisition Strategies look to existing data or regional targets for guidance on setting related priorities or short-term targets.

Conclusions

A Regional Parks Land Acquisition Strategy can look to key existing tools, scientific knowledge, and/or strategic plans that help define priorities for natural area protection in the region. It is important to recognize that scientific knowledge and regional, provincial, national and/or global targets, where existing, will evolve over time, so an adaptive approach to considering scientific targets in a Land Acquisition Strategy is important.

A Regional Parks gap assessment model may look carefully at unprotected lands and potential measures of protection for these lands and coordinate with other agencies to determine where the greatest benefit is gained by Regional Park acquisition. For example, Auckland Council considers the benefits and costs of public ownership when there are alternative methods available for protecting lands (e.g. through planning regulations or partnerships). This is a key deliberation when the primary purpose for acquiring Regional Parkland is to protect and restore Auckland's unique natural areas, without necessarily providing for human enjoyment of these lands (Auckland Council, 2013).

Summary of Conclusions for using Scientific Targets within a Nature-Based Gap Assessment model:

- Positioning Regional Parks within a larger collective effort of protecting natural areas in the Lower Mainland may provide guidance on how much Regional Parkland should be protected in support of larger, natural area targets or goals for the region.
- Current scientific resources, such as the Sensitive Ecosystems Inventory or Conservation Data Centre information, could support identification of lands with high natural value and guidance on the amount of land needed to protect these values.
- Consider how natural areas could be protected through alternate means such as planning regulations, partnerships, or other levels of protection, when determining if Regional Parkland acquisition is required.

Focal Point: Landscape Ecology

Findings

Landscape ecology encourages a linked system of habitat areas, including habitat reservoirs or "patches" large enough to be self-sustaining, with these and smaller patches linked by effective wildlife and aquatic corridors to allow for species diversity and genetic diversity (Smith, 1993) (Forman & Godron, 1986) (BC Ministry of Environment, Lands and Parks, 1998) (BC Ministry of Environment, 2014) (Lanarc Consultants, 1995). **Figure 4** shows a graphic illustration of landscape ecology and the basis for a connected network of habitat patches and corridors.

Many agencies target large areas for Regional Parks and follow a policy of prioritizing parkland acquisition adjacent to existing Regional Parks or other protected lands, reflecting the principles of landscape ecology. For example, Midpeninsula Regional Open Space District has focused their Regional Parks holdings into 26 open space areas with an average size of over 900 ha[10] to create large parks, or "patches," that support biodiversity objectives (Midpeninsula Regional Open Space District, 2011).

The corridors described in a landscape ecology focus are similar to shape-related models such as greenbelts or greenways. Greenbelts and greenways have often been used during periods of high growth as ways of conserving natural areas around urban development and maintaining separation between settlements – effectively creating an urban growth boundary (Maruani, 2007). These greenbelts or greenways form corridors that could facilitate movement of populations between patches.

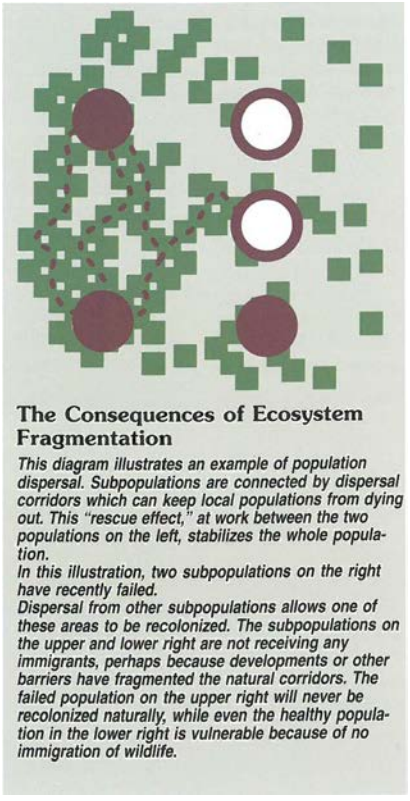

Figure 4: Illustration of Landscape Ecology

[10] The average Regional Park size in Metro Vancouver (excluding greenways) is 478 ha.

Discussion

A landscape ecology approach to parkland acquisition would include a linked structure that connects large and medium habitat patches with connecting habitat corridors. In landscape ecology, it is not only the quantity of natural areas that is important, but the connectedness among them that forms effective habitat linkages and supports the health of the network.

Anecdotal input from the RDCO reflects a landscape ecology approach to land acquisition through use of a zone gap analysis. The zone gap analysis identifies parcels that create corridor connections and is a primary consideration when identifying acquisition priorities (Darlington, 2015).

The size required for patches depends on a variety of site-specific factors including connection to other patches, ecological composition, existing diversity, stages of renewal, and more. This variability makes it difficult to set a numerical target for how much parkland is needed. A landscape ecology focus does, however, provide guidance on criteria to consider when reviewing parkland opportunities, emphasizing the need to acquire lands that connect and expand a linked network.

Table 6: Strengths and Challenges of a Focus on Landscape Ecology

Strengths	Challenges
» **Science-based.** Builds upon a well-defined, accepted approach to natural area protection. » **Geographic-based.** Focuses more on a geographical pattern of land acquisition, which potentially reduces need for intensive scientific review of potential lands. » **Builds upon other protected lands.** Can create linkages between other patches and corridors that have protection through multiple designations and jurisdictions. » **Incremental improvement.** Reconnection of fragmented ecosystems using a landscape ecology approach has potential to increase biodiversity and health of natural areas over time. » **Urban definition.** Connected natural corridors may help contain urban sprawl and limit merging of urban areas. » **Easy to understand.** When compared with the complexities of a scientific targets approach, landscape ecology is generally a simple concept to communicate.	» **Urban fragmentation.** Large patches and connections may be difficult to achieve in highly urbanized environments that have existing fragmentation. » **Size uncertainty.** A landscape ecology focus does not provide specific guidance on the amount of land that is needed. » **Multiple players.** It can be complex to determine the role of Regional Parks alongside other private and public entities playing roles in natural area protection.

Conclusions

Landscape ecology aligns well with the goals of Regional Parks by protecting large natural areas and connecting people with nature. However, a significant challenge for implementing an approach that focuses on landscape ecology is securing large areas and connected corridors within fragmented urban areas.

Summary of Conclusions for using Landscape Ecology within a Nature-Based Gap Assessment model:

- Corridors, which are emphasized in a landscape ecology focus, have potential to increase the value and health of linked natural areas.
- A landscape ecology focus would require analysis of the overall geography of natural landscapes in the Lower Mainland to seek opportunities to build upon these areas through development of a linked system.

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

Literature on landscape ecology is typically quiet on how much land is needed, rather focusing on establishing the structure of patches and corridors that facilitates movement among natural areas. It is not only the quantity of natural areas that are protected, but the connectedness among them that determines success.

Focal Point: Regionally Significant Landscape Types

Findings

Protection of ***regionally significant landscape types*** (also known as ***representative landscapes***) is a focus for land acquisition in the Regional Parks context. Protecting different types of landscapes found naturally within a region as part of a Regional Parks system has benefits for supporting long-term biodiversity and potentially offering enduring human enjoyment of these different features.

Acquisition plans for the Capital Regional District, Regional District of Nanaimo, and Regional District of Central Okanagan include regionally significant landscape types or representative landscapes within their parkland acquisition strategies (Capital Regional District, 2015) (Regional District of Nanaimo, 2005) (Regional District of Central Okanagan, 2007).

Discussion

A challenge for defining regionally significant landscape types is determining what is considered "significant" in the Regional Parks context. Certain lands may have strong significance related to biodiversity and natural area protection, but at the same time may not have significance for human access and enjoyment. Land acquisition planning must define significant landscape types for Regional Parks before a determination can be made of how much of each may be needed.

In the 1966 Parks Plan, representative landscapes of the Lower Mainland were identified under the label "Feature Areas":

- The Ocean
- The Fraser River
- The Mountains
- The Valley Floor
- The Sunshine Belt

The plan went on to state: "It is imperative that in preparing the Major Parks Plan, care should be taken to include sites that will be representative of these unique features" (Vancouver-Fraser Park District, 1966, p. 32).

Once landscape types are defined, variables such as how much is currently protected, type of landscape, and level of protection will influence additional protection priorities. From a planning perspective, the question of "How much is needed?" may be strongly influenced by the question of "How much is available?" If the available amount of an identified regionally significant landscape type is perceived as small, or potentially under threat of loss, there may be motivation to protect all of it, or as much as possible.

Table 7: Strengths and Challenges of a Focus on Regionally Significant Landscape Types

Strengths	Challenges
» **Biodiversity benefits.** Protection of representative landscapes can help protect a variety natural areas, enhancing biodiversity. » **Human-based benefits.** In addition to biodiversity benefits, people often value the opportunity to experience a variety of landscape types that represent the region. » **Easy to understand.** When compared with the complexities of a scientific targets approach, regionally significant landscape types is generally a simple concept to communicate.	» **Parkland fragmentation.** A focus on representative landscapes may encourage more, smaller pieces of varied parkland to be acquired, rather than large contiguous or connected parcels that is the focus of landscape ecology. » **Size uncertainty.** A regionally significant landscape type focus does not provide specific guidance on how much land is needed. » **Definition of regionally significant landscape types.** If this focus is considered, an acquisition program must define what landscape types are considered to have regional significance. Opinions on these definitions may vary.

Conclusions

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

Using a regionally significant landscape type focus, there may be opportunities to identify how much of each type of landscape warrants protection within the system, once the landscape types are defined.

If the Land Acquisition Strategy includes identification and protection of regionally significant landscape types, a key component of the process will be determining what these landscape types should be. Once the landscape types are identified, there may be opportunities to better define how much of each landscape type should be protected to support the health of natural ecosystems and what an adequate amount of each representative landscape types would be.

Summary of Conclusions for using Regionally Significant Landscape Types within a Nature-Based Gap Assessment model:

» A regionally significant landscape types focus will require definition of the landscape types that have significance in the Regional Parks context. Identification of these landscape types may provide additional guidance on how much of each type is needed to support their health and longevity.

Focal Point: Climate Change

Findings

Planning for ongoing climate change is a relatively new lens for Regional Parks agencies. Reports by the Intergovernmental Panel on Climate Change (IPCC) are pointing to likely increases in temperature over the coming decades and centuries. Potential impacts of the temperature increase in the Lower Mainland include rising sea levels, increased periods of summer drought, as well as undefined risk of extreme weather events including wind and heavy rainfall (Bush, 2014). These changes may have consequences that include increased fire hazards, risks of river and coastal-based flooding, and risks of landslide related to saturated ground.

Four broad strategies have emerged in response to climate change planning:

- **Protect** – which is generally considered to include diking, but also can include beach nourishment (green shores) and soft-armouring;
- **Accommodate** – by adapting human activities or infrastructure to adapt to sea level rise or flooding. Examples might include retrofitting or designing a building to withstand occasional flooding of lower floors (e.g. non-habitable uses) and use of structural fill locally at buildings.
- **Retreat** – involves withdrawal or relocation of private or public assets that are at risk to flood inundation. The retreat can be gradual, avoiding locating new structures in areas at risk and eventually relocating or abandoning old structures as the risk increases over time.
- **Avoid** – means planning so urban development does not take place in areas subject to floods (Arlington Group, 2013).

Many Regional Districts are just starting to consider the potential roles Regional Parks systems will play in climate change adaptation, and conversely, how existing Regional Parks investments will be protected and managed as climate change alters the current landscape.

Oregon Metro considers the connection between acquisition of upland floodplain and habitats and protection of urban areas from potential risks of flash flooding (Brennan-Hunter, 2015). The Capital Regional District is starting to use the climate change lens as part of their acquisition evaluation process to reflect regional objectives related to sea level rise, climate change adaptation, and emergency preparedness (Wilson, 2015). Several agencies are recognizing the challenges related to potential for loss of shoreline parkland to predicted sea-level rise (Musbach, Nisbet, Tong, Graul, & Rasmussen, 2015; Beer, 2015).

Observations noted that even as climate change becomes a consideration for Regional Parks, it has not overshadowed the mandate of connecting people

with nature. Input from the East Bay Regional Parks District suggest it would be difficult to justify a high cost of acquiring land solely for climate change adaptation – some level of recreational access for Regional Parks remains a priority (Musbach, Nisbet, Tong, Graul, & Rasmussen, 2015).

In British Columbia, the Province is reviewing its policy guidelines for dikes in response to sea level rise and governments and diking authorities are undergoing phased reviews of their diking systems. In many cases, it is likely that existing dikes will need to be raised in the face of climate change and will need to meet seismic requirements, increasing their footprint.

Discussion

Climate change provides both potential threats and opportunities to Metro Vancouver Regional Parks. Several Metro Vancouver Regional Parks are located in lowlands, which may be at risk of inundation by coastal or river floods (e.g. Surrey Bend, Burns Bog). Parts of the Metro Vancouver Regional Parks System also include dikes (e.g. Colony Farm, Barnston Island). Flood events have potential to damage park infrastructure such as trails, parking areas, and parks buildings. However, the relative significance in cost, public danger, and property impacts of a flood event in a Regional Park is small compared to the impact of a similar event within an urbanized area.

In this context, opportunities may exist for Metro Vancouver Regional Parks to benefit from climate change adaptation actions:

- Where protection is anticipated, and dikes need to be gradually raised, a Metro Vancouver Regional Park tenure in cooperation with local and senior governments and diking authorities could provide a protected site with added public benefits for gradual dike adaptation. The emergency access trail at the top of a dike can provide an excellent regional corridor or trail connection, as seen in the Matsqui system. Lands and waters in the riparian and flood fringe could provide habitat and prime locations for habitat restoration.
- Where accommodate or retreat approaches to flood risk are taken, Metro Vancouver Regional Parks may be an ideal institution to hold floodable area. Much of this area could be suitable for public trail and environmental uses. Limited facilities could be designed to provide local examples of best practices in being resilient to potential infrequent flooding.
- A similar approach could be taken to other hazard lands (e.g. areas below unstable slopes), where good science could likely indicate conditions when a park facility would need to be closed to manage a landslide risk, but where public access between these periods would be reasonably safe.

Table 8: Strengths and Challenges of a Focus on Climate Change

Strengths	Challenges
» **Land expansion opportunities.** As climate change occurs, major physical infrastructure, such as the diking system, will need to be upgraded. With these upgrades, there may be opportunities to build in planning for an enhanced Regional Parks function. » **Partnership opportunities.** As planners and regulators consider how to address the anticipated impacts of climate change, there will be need to form partnerships. These partnerships may in turn help manage costs borne by Regional Parks agencies.	» **Limited precedent.** Regional Districts are just beginning to consider how Regional Parkland acquisition will support climate change adaptation, providing relatively few precedents to look to. » **Cost of acquisition.** Lands likely to be impacted by climate change are often also highly desirable lands (e.g. waterfront) that have high associated costs. While awareness of climate change is growing, many of these lands continue to have high land values, limiting potential investment. » **Cost of maintenance.** Climate change will impact lands. If the Regional District takes an active role in managing lands that are likely to be affected by climate change, there will be costs associated with developing and maintaining facilities that are resilient.

Conclusions

In all responses to climate change, there may be a significant opportunity for Metro Vancouver Regional Parks to partner with emergency management agencies, senior, and local governments for mutual advantage in the protection and enhancement of public and ecosystem resilience.

Summary of Conclusions for using Climate Change within a Nature-Based Gap Assessment model:

- Potential risks or effects of climate change on lands being considered for Regional Parks acquisition warrant consideration in the analysis process.
- Opportunities may exist for the Regional Parks function to play an important role in the function and management of lands affected by climate change adaptation (e.g. dike upgrades), including establishment of Regional Parks functions such as natural area protection and nature-based recreation as climate change responses are implemented.
- The implications, including costs, of managing lands likely to be affected by climate change will be an important consideration.

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

In the context of how much land would be needed, it would depend on the risk being mitigated and the role Regional Parks would play in this activity.

3.3.2 Human-Based Approaches

From a nature-based approach there is likely no such thing as "too much" protected land. From a human perspective however, there are limits to what is achievable. Regional Parks must coexist with the land that also drives the economy, provides shelter, and supports modern daily life. This coexistence is more complicated within a highly urban setting such as Metro Vancouver.

Like the nature-based approach, there are various focus points for completing a gap assessment for a human-based approach.

» Human-based approaches may take into account **publicly identified desires** – which are obtained through direct input from the people who use Regional Parks.
» There may also be a more objective lens that considers various human-based criteria through spatial **community analysis**. Examples of this would include geographical distribution or access of populations to parklands.
» A final human-based focus that may influence acquisition decisions is **carrying capacity**, which considers the ability of natural areas to "carry" or accommodate the human activities that are typically associated with Regional Parks.

Human-based approaches influence support for Regional Parks land acquisition. Often there is a strong link between public recognition that their desires or needs are being accommodated and public willingness to support increased investment for future acquisition.

Focal Point: Publicly Identified Desires

Findings

The most direct way to identifying public desires is to ask what people want. This approach seeks or makes use of existing public input on where and what type of Regional Parkland should be pursued as priorities. Typically, information gathering on public desires occurs at the strategic planning level, where agencies seek information about desired activities, geographical, or typological features for the future of Regional Parks. Using this input, an acquisition plan can recommend priorities that meet the general interests and desires expressed by the community. Identification of site-specific acquisitions does not typically seek public input due to sensitivities around private lands.

Anecdotal input from the Regional District of Nanaimo indicates use of a publicly identified desires approach for identifying potential acquisitions, using the Regional Parks Plan process as a venue for gathering insights on public priorities. Public priorities are analyzed within a context of other

criteria such as alternate protection, geographical location, and cost to identify a priority acquisition list (Marshall, 2015).

The East Bay Regional Parks District (EBRPD) acknowledges a visible shift in public desires over their long history. Previous trends for more active recreation opportunities resulted in direction for the EBRPD to acquire lands such as golf courses, pools, and a gun club. In recent years, the pendulum has shifted to more of a preservation and passive recreation focus, aligning more closely with Metro Vancouver's current Regional Parks focus (Musbach, Nisbet, Tong, Graul, & Rasmussen, 2015); however, the EBRPD continues to maintain the parklands that were acquired when public priorities were different.

Discussion

Understanding publicly identified desires provides grounding for acquisition planning helping to define priorities that will be supported and utilized by the people who live in the region.

Table 9: Strengths and Challenges of a Focus on Publicly Identified Desires

Strengths	Challenges
» **Public support.** Being able to link acquisition planning and execution back to identified public desires can help strengthen public support, and as an outcome, willingness to support investment in Regional Parks. » **Adaptation.** Trends in outdoor recreation continue to evolve. Monitoring public desires provides an indication of how the system may need to adapt alongside an evolving community.	» **Limits to participation.** Typically, community input on parks is voluntary, so there is a risk that results may not necessarily be representative of larger population needs. » **Limited context.** Without considering the larger picture for parks in the region, community priorities may not align with ecological or other community needs. » **Extensive costs.** The long "wish" lists typically generated through community input processes are often extensive and expensive and can lead to concerns that it is unattainable, risking lack of buy-in. » **Unrealistic expectations.** Public hopes can be highly aspirational, yet difficult to achieve in the context of land ownership, political will, costs, and other challenges. A focus on public desires can result in difficulties during implementation when barriers to acquisition are identified. » **Education.** Often members of the public do not differentiate between the roles of different levels of government in providing parks and recreation services. It can be challenging to provide sufficient information to inform educated decision-making on this complex topic.

Conclusions

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

A community input approach may not answer the question "How much Regional Parkland is enough?" but does provide guidance on "How much is desired?"

Publicly identified desires help indicate how much and what type of parkland is desirable for acquisition. Due to the sensitivity of specific property information, typically public input into land acquisition strategies is drawn from strategic planning or general public input processes.

Summary of Conclusions for using Publicly Identified Desires within a Human-Based Gap Assessment model:

- Expressed public desires may provide guidance on "How much Regional Parkland is desired?" and on the types of experiences people wish to have in Regional Parks.
- There is a connection between delivery of Regional Parks services that meet the expressed desires of the public and willingness of public taxpayers in supporting increased or ongoing investment in acquisition.

Focal Point: Community Analysis

Findings

Community analysis provides objective analysis by using select community criteria to support parkland acquisition planning. Community analysis can consider a wide range of inputs such as demographics, geographical distribution, access to parks, Regional Parkland use, participation rates, and more. The criteria used are decided based on what is considered important to a community.

Examples of community analysis guiding Regional Parks Land Acquisition can be seen in the following examples:

- The East Bay Regional Parks District uses a Principle of Balanced Parkland Distribution, which is prioritized above other criteria. Allocations for parks acquisition are based on population projections for three defined geographical areas with the ongoing goal of having equitable parkland distribution for each of the three areas. This principle is considered alongside other factors including financing, long-term goals, special opportunities, and unique characteristics (East Bay Regional Park District, 2013).
- Another example of community analysis is public access to Regional Parks. To meet expectations of land being a "park" as opposed to a "conservation area", it is likely that some public access for nature-based recreation and education is expected in future Regional Parks. This may limit consideration for protection of overly remote or highly sensitive lands as publicly accessible Regional Parks.

» An inverse relationship exists between population growth and availability of land. As more people move to a region, more land is developed for these people to live, work, and move. In turn, less land is available for Regional Parks or other natural areas. With ongoing growth predicted for the Lower Mainland, it can be assumed that there will be more people, requiring more access to natural areas, including Regional Parks, and less land available to provide this function in the future. Several of the American Regional Districts studied, including the Mid Peninsula Regional District, Oregon Metro, and Boulder County Parks and Open Space, responded to similar high growth trends in their regions by undertaking aggressive acquisition campaigns to protect land before opportunities were lost. During this time, these regions prioritized securing land before all other activities, including development of these lands for public access (Oregon Metro, 2011).

Discussion

Community analysis supports a more analytical approach to understanding community needs for Regional Parks. Successful application requires careful selection of meaningful criteria to be analyzed. There are risks to overanalyzing, or analyzing criteria that may not provide meaningful guidance for parkland acquisition.

Defining appropriate criteria requires careful consideration of potential challenges that may arise when the criteria are applied. In looking in the EBRPD Principle of Balanced Parkland Distribution, anecdotal feedback from EPRPD staff acknowledges challenges delivering a balanced approach to three areas as land is easier to acquire in some jurisdictions over others (Musbach, Nisbet, Tong, Graul, & Rasmussen, 2015). In Metro Vancouver, with 22 member municipalities, one electoral area, and one treaty First Nation, challenges around implementing a balanced approach could be substantially more complex.

When selecting criteria to analyze Regional Parks, it is important to understand that what is a high priority in the context of one community may not be in another. For example, the EBRPD's Principle of Balanced Parkland Distribution may not apply in a community that prioritizes protection of regionally significant landscape types that are inequitably distributed throughout a region's geography.

Table 10: Strengths and Challenges of a Focus on Community Analysis

Strengths	Challenges
» **Analytical outcomes.** Analysis based on community criteria provides a more objective lens to the human side of acquisition planning than focusing only on publicly identified desires. » **Increased understanding of community.** Analysis of data can reveal patterns or issues that are imperceptible through other means, increasing awareness and knowledge about the decisions for Regional Parks.	» **Selection of criteria for analysis.** If this focus is considered, a community analysis program must define what criteria are considered important for Regional Parks. Opinions on these criteria may vary. » **Restrictive.** Community analysis may limit flexibility to respond to opportunities if they don't meet agreed upon criteria. » **Questionable Data.** Use of data can give false confidence in accuracy. If the integrity of data is poor or data is lost, results could provide improper guidance.

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

Community analysis may provide guidance on how much parkland is needed to meet identified community criteria.

Conclusions

Community analysis provides a more objective approach to defining how and where new parkland will be prioritized based on a human dimension. The challenge for community analysis is determining the appropriate criteria to analyze.

In the context of high growth, the response to question "How much Regional Parkland is enough?" may be that the region needs as much as can be achieved before opportunity is lost. With growth projected in the Lower Mainland for the foreseeable future, opportunities to obtain natural areas will continue to diminish over time.

Summary of Conclusions for using Community Analysis within a Human-Based Gap Assessment model:

- Community analysis provides perspective on how or where parkland should be acquired to respond to selected criteria.
- Careful consideration and testing of community criteria to be analyzed is required to create meaningful data and decisions that reflect the vision for Regional Parks.
- Recent and forecasted growth in the Lower Mainland has potential to affect the timeline for prioritizing parkland acquisition.

Focal Point: Carrying Capacity

Findings

Throughout the world, parks agencies are experiencing increased demand for access to Regional Parks as populations grow and recreational interests evolve. A sustainable future for Regional Parks relies on maintaining a balance between the protection of natural areas and the provision of nature-based recreation opportunities.

The concept of carrying capacity is related to how much human activity a natural area can handle before there are impacts to natural features or experience of the area (Brandt & Holmes, 2011). There is not a scientifically set size for carrying capacity, rather it is based on consideration of three main components: natural sensitivities of the land, the desired experience, and the management of the area (Parks & Benefits: Baltic Protected Areas and Tourism, n.d.).

Figure 5 demonstrates the growing popularity of Regional Parks in Metro Vancouver, emphasizing the need to consider carrying capacity. It also demonstrates that demand for Regional Park access may not necessarily be related only to population growth – there is a trend of parks visits growing significantly faster than Metro Vancouver's population.

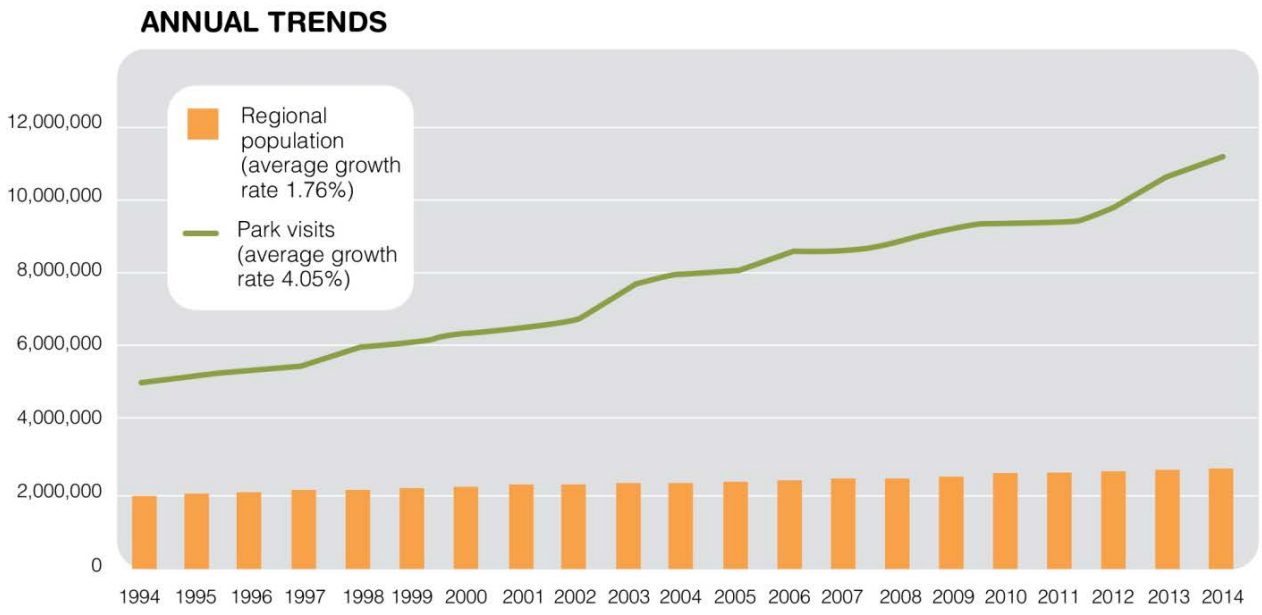

Figure 5: Annual Visitation to Metro Vancouver Regional Parks and Population Growth

The concept of "carrying capacity" applies to the amount and location of public access in Regional Parks. Each park in a Regional Parks inventory will have varied natural and human needs which affects its carrying capacity. Considerations in identifying carrying capacity of a park could include:

- Presence and location of sensitive ecosystems that could be damaged by human activity, which may preclude or limit human recreation in some portions of a park.
- Presence of scenic landscapes such as vistas, viewpoints, waterfalls, watercourses, or tree stands that attract human use.
- The expectation that Regional Parks should provide experiences that are sufficient to satisfy human recreational interests.

Each potential Regional Park would benefit from an inventory of natural and human-use assets to understand the potential effects of public access. Metro Oregon uses a scientific analysis approach to planning development of their lands, creating short- and long-term plans for each property that look at alternatives based on ecology and available resources (Oregon Metro, 2011).

The East Bay Regional Park District creates a Land Use Plan for each Regional Park that identifies the various levels of resource protection and recreational intensity within the park. EBRDP defines units within their parks including natural units, recreation / staging units, special protection features, and special management features and manages areas according to these designations (East Bay Regional Park District, 2013).

Discussion

Goal 2 for Regional Parks in Metro Vancouver states, "Within the context of natural area protection, provide opportunities for people to connect with, enjoy, be active, and learn about the environment" (Metro Vancouver, 2015). Based on this goal, it can be expected that in all Regional Parks, there will be some public facilities such as a trailhead, interpretive facilities, and limited trail access to part of the asset, or potential for these facilities to be accommodated in the future as budgets allow and demand grows.

Carrying capacity is a subjective measurement. Acceptable limits will vary based on the sensitivity of natural resources, as well as the tolerance of people visiting a park for other human traffic. Some self-regulation of carrying capacity occurs when people make a decision to stop visiting an asset because the level of human activity is beyond their desired or expected visitor experience. These expectations will vary by individual.

Provision of services also affect carrying capacity. Amount of parking, provision of restrooms, and accessibility of trails all play a role in how much

traffic occurs at a Regional Park. Site-by-site park planning supports decision making about provision of services that align with the capacity of the site.

In some cases, owners can manage carrying capacity through more structured regulation, including limiting park visitors. This approach is common in national parks as a means of limiting human impacts on sensitive natural areas.

Table 11: Strengths and Challenges of a Focus on Carrying Capacity

Strengths	Challenges
» **Actual use.** Monitoring carrying capacity tracks human demands and impacts which may provide useful insights into whether additional land is required.	» **Level of effort.** Monitoring demand and use can be a time-consuming and costly endeavour. » **Subjectivity.** There is no defined "amount" of activity that a park can handle. Limits are typically considered on a park-by-park or park unit basis.

Conclusions

As demand grows, likely so will the need for additional access to recreational activity in Regional Parks. Monitoring demand and activity will provide insights into how many people are accessing Regional Parks and allow future acquisition planning to consider this growth.

As demand increases, carrying capacity will help provide guidance on how soon additional land needs to be acquired or how existing parkland should be managed to meet expanded demands.

Summary of Conclusions for using Carrying Capacity within a Human-Based Gap Assessment model:

- Carrying capacity of parks is typically addressed on a park-by-park basis to understand where human activity can be accommodated without significant negative impacts to natural areas or loss of experience.
- Carrying capacity is a subjective assessment that considers natural sensitivities, visitor experience, and management of the asset.
- Monitoring use of parks can provide insights into carrying capacity by observing volume of traffic and impacts on Regional Parks.

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

Monitoring actual demand and use provides greater clarity on how Regional Parks use is increasing or decreasing. This information is useful in land acquisition planning as a way of continuing to provide adequate level of service to park users.

3.4 Opportunistic Model

Findings

A lesson identified by other parks agencies is the need to remain sufficiently flexible to respond to opportunity (Marshall, 2015; Beer, 2015). While there is value in having a thoughtful acquisition plan, it is impossible to accurately predict how the future will evolve.

If acquisition priorities are too tightly defined, it can limit ability of an agency to respond to opportunities that arise after completion of parks acquisition planning. Anecdotal information from Auckland Council suggests their current approach is to keep acquisition planning at a high level – indicating desirable elements (e.g. type, general location), but limiting detail so the plan remains relevant and responsive to opportunities (Beer, 2015).

Discussion

For acquisition planning, this means ensuring the approach is sufficiently responsive to new opportunities. Several Regional Districts – including Capital Regional District and Regional District of Nanaimo – have produced detailed evaluation criteria as a tool for evaluating new opportunities. These criteria provide confidence that opportunities will be evaluated consistently, whether planned within an acquisition strategy or unforeseen.

Table 12: Strengths and Challenges of an Opportunistic Model

Strengths	Challenges
» **Responsive.** Supports responsiveness to opportunities that arise after the planning process.	» **Consistent application.** Requires pre-determined consideration of criteria so that opportunities can be objectively considered. » **Unsupported decisions.** Risk of acquisition of lands that may not be fully reflective of ecological or community needs.

How does this model address the questions: "How much Regional Parkland is needed? How much is enough?"

An opportunistic approach does not provide guidance on the question "How much Regional Parkland is needed?"

Conclusions

While it's not recommended that an agency rely wholly on an opportunistic model, there is merit in being prepared to respond to opportunity.

Summary of Conclusions for using an Opportunistic Model:

- There are benefits to maintaining a Land Acquisition Strategy at a high enough level to allow flexibility to respond to opportunities.
- Responsiveness to opportunities typically requires a strong framework that supports a region in responding consistently and thoughtfully to potential opportunities.

4 | Conclusions & Next Steps

4.1 Summary

There are various models that could help respond to the questions:

- **How much Regional Parkland needs to be acquired?**
- **How much Regional Parkland is enough?**

Refer to **Appendix A**, **Table 13** for a compiled summary of the acquisition models described in **Section 3**.

4.2 Conclusions

A set numerical metric that responds to the questions, "How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?" was not identified through the literature nor was it commonly identified as being used during a review of Regional Parks agencies. Rather, most agencies interviewed noted they do not set a numerical target for how much land should be acquired in their land acquisition strategies.

Feedback suggested that it is not necessarily possible nor desirable to say with exact certainty how much is needed – there are many factors that are part of a holistic account. In addition, as seen in the 1966 plan, it is impossible to precisely predict how human needs will evolve into the future. People's interests and leisure time, along with the environment, transportation networks, climate change, and more all play a role in what a region's parkland needs will be. If the past century is any indication, the world will only change more rapidly, suggesting that a Land Acquisition Strategy should be regularly updated to reflect change.

The models selected by Metro Vancouver for a Land Acquisition Strategy should clearly support the two goals for Regional Parks:

- Protection of natural areas; and
- Provision of opportunities for people to connect with, enjoy, be active, and learn about the environment.

When considered in this context, a combined model for Metro Vancouver's Land Acquisition Strategy should consider:

- **Nature-based Gap Assessment** that studies the natural context of the Lower Mainland. Decisions will need to be made about focal points for this gap assessment – regional science-based targets that already exist or are in development, landscape ecology principles where feasible, and definition of regionally significant landscape types all have merit as nature-based gap assessment focal points. The Land Acquisition Strategy should also advance the role of Regional Parks in climate change adaptation.
- **Human-based Gap Assessment** that considers information gained from public input, alongside selection and analysis of key human-based criteria to inform a community analysis. Care should be taken when identifying human-based criteria so that selected criteria are not overly onerous to apply and reflect the values of the community.
- **Carrying Capacity** should be a consideration within park acquisition planning to recognize the need for Regional Parks to provide nature-based recreation opportunities, while recognizing their role in natural

area protection. Early analysis of how much of each of these elements a potential park could provide and the risks of user overcrowding will help identify a park's potential role in the Regional Parks System.

- The value of maintaining flexibility as described in the **Opportunistic Model** will help the Regional Parks Land Acquisition Strategy adapt over time.
- While a Quantitative Standards Model is not recommended for Regional Parks, consideration for **benchmarking** against similar communities warrants deliberation as a way of understanding how Metro Vancouver compares with what others have achieved.

While not outlined in the models, another significant factor that will influence the implementation of a Land Acquisition Strategy is available budget. It is likely that when scientific needs and community needs are considered, the desired acquisition targets will be higher than what can be realistically afforded. Land acquisition is inherently tied to available funding, especially in the context of the Lower Mainland's high land prices. Through a supported acquisition plan, there may be opportunity to increase funding to some degree, but likely not to a point where "enough" land has been acquired. A key consideration in the Land Acquisition Strategy will be finding a balance between the desired acquisitions and a realistic timeline for implementation.

4.3 Next Steps

As Metro Vancouver embarks on its Land Acquisition Strategy it will be important for those involved to recognize the complexity of the topic. Effective planning will consider a broad assessment that looks at the unique criteria and characteristics that are important in the Lower Mainland to develop a strategy that is visionary, yet achievable.

The conclusions contained in this report are anticipated to provide guidance on models a Land Acquisition Study may consider. In addition to information about potential models and approaches, a benefit from this work has been establishing connections with other Regional Districts tackling similar challenges and questions as Metro Vancouver. Continued exchange of information with these sources may help identify additional information to be considered in the Land Acquisition Strategy.

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6 | Appendices

A: Compiled Summary of Acquisition Models

B: Overview of Agencies Studied

C: Agency Database

D: Summary of Discussions with Park Agency Representatives

E: Discussion Paper on Models and Principles

F: Overview of Agency Practices

APPENDIX A
Compiled Summary of Acquisition Models

The following table compiles a summary of the models described in **Section 3.**

Table 13: Summary Table of Models

Model	Approach	Focal Points	Strengths	Challenges	Conclusions	Relevance to the Questions, *"How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"*
Quantitative Standards	Numerical Targets	Parkland Area / Population	» **Easy to apply and measure.** A simple mathematical calculation based on known numbers. » **Provides an easily communicated goal.** A numerical target is easy for all people involved in Regional Parks planning – Board members, staff, and members of the public to understand and work towards.	» **Risk of arbitrary targets.** As seen in the *Vancouver-Fraser Park's District 1966 Regional Parks Plan*, often quantitative targets appear to be arbitrary, based on little to no scientific or community-based evidence on why this amount of parkland is the appropriate amount. Natural areas are complex, dynamic systems that may require consideration beyond quantitative assessment. » **Narrow focus.** With numerical targets, there is a risk that the primary focus becomes achieving a land area target without sufficient consideration of the ecological or recreational values of lands being acquired. Scudder (2003) observed this challenge in his study of coincidence between biodiversity rarity and richness hotspots with current protected areas in British Columbia. He summarized that while the target of BC's Protected Areas Strategy (PAS) (British Columbia, 1993) had been achieved with over 12% of the province now as protected land, major ecological regions in BC lack a proportional representation of these lands (Scudder, 2003). So while the set target has been achieved, the intent behind the target – protection of ecologically-significant lands – falls short. » **Inability to evolve.** If a target is set to be achievable, there is an innate expectation that once that target is reached, the work is complete. This may limit further will to invest in parks, even if current demand, need, or opportunity warrants consideration. » **Unattainability**. At the opposite end of the spectrum, ambitious or aspirational targets may be set; however, failure to achieve these targets or interpretation that these aspirations are unreachable, can undermine confidence and support for future investment.	» It is no longer considered best practice for Regional Parks agencies to rely solely on a quantitative standards model for determining how much parkland needs to be acquired. » Quantitative measures, including Parkland Area / Population, may be useful tools in benchmarking current parkland provision against other similar agencies for information when reviewing a Land Acquisition Strategy. » Quantitative targets may be useful tools for communicating short-term goals and measuring progress if used mindfully that these standards only provide guidance on quantity, not quality of parkland.	» While a Quantitative Standards Model could provide a numerical response to the research questions – there is currently no universally-accepted number for Regional Parkland provision. Instead, agencies are forgoing numerical targets in favour of models that take into consideration the context and needs of a region.

Model	Approach	Focal Points	Strengths	Challenges	Conclusions	Relevance to the Questions, *"How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"*
Gap Assessment	Nature-Based	Scientific Targets	» **Thoughtful acquisition.** Looks to scientific information to identify lands with high natural values. » **Existing information.** Leverages existing knowledge, research, and planning, as available, to identify high value natural areas. » **Supports collective efforts.** Awareness and movement around natural area protection is growing, with a wide range of public and private entities contributing. Regional Parks can leverage the power of collective efforts to maximize benefits to the larger system.	» **No definitive target.** There is no single, definitive number set for natural area protection. » **Reliance on other research and planning.** Regional Parks must look to information developed by others to define goals for natural area protection. In the absence of a supported set of regional goals and targets, it may be more challenging to define targets for Regional Parks. » **Evolution.** Science around natural area protection is evolving and land acquisition planning should be updated concurrently to reflect current knowledge and best practices. » **Multiple players.** It may be challenging to determine the role of Regional Parks alongside other private and public entities playing roles in natural area protection.	» Positioning Regional Parks within a larger collective effort of protecting natural areas in the Lower Mainland may provide guidance on how much Regional Parkland should be protected in support of larger, natural area targets or goals for the region. » Current scientific resources such as the Sensitive Ecosystems Inventory or Conservation Data Centre information could support identification of lands with high natural value and guidance on the amount of land needed to protect these values. » Consider how natural areas could be protected through alternate means such as planning regulations, partnerships, or other levels of protection, when determining if Regional Parkland acquisition is required.	» The literature does not provide precise numbers about how much land must be protected to support biodiversity as there are complex variables that contribute to these needs. » Often Regional Parks land acquisition strategies look to existing data or regional targets for guidance on setting related priorities or short-term targets

Model	Approach	Focal Points	Strengths	Challenges	Conclusions	Relevance to the Questions, *"How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"*
		Landscape Ecology	» **Science-based.** Builds upon a well-defined, accepted approach to natural area protection. » **Geographic-based.** Focuses more on a geographical pattern of land acquisition, which potentially reduces need for intensive scientific review of potential lands. » **Builds upon other protected lands.** Can create linkages between other patches and corridors that have protection through multiple designations and jurisdictions. » **Incremental improvement.** Reconnection of fragmented ecosystems using a landscape ecology approach has potential to increase biodiversity and health of natural areas over time. » **Urban definition.** Connected natural corridors may help contain urban sprawl and limit merging of urban areas. » **Easy to understand.** When compared with the complexities of a scientific targets approach, landscape ecology is generally a simple concept to communicate.	» **Urban fragmentation.** Large patches and connections may be difficult to achieve in highly urbanized environments that have existing fragmentation. » **Size uncertainty.** A landscape ecology focus does not provide specific guidance on the amount of land that is needed. » **Multiple players.** It can be complex to determine the role of Regional Parks alongside other private and public entities playing roles in natural area protection.	» Corridors, which are emphasized in a landscape ecology focus, have potential to increase the value and health of linked natural areas. » A landscape ecology focus would require analysis of the overall geography of natural landscapes in the Lower Mainland to seek opportunities to build upon these areas through development of a linked system.	» Literature on landscape ecology is typically quiet on how much land is needed, rather focusing on establishing the structure of patches and corridors that facilitates movement among natural areas. It is not only the quantity of natural areas that are protected, but the connectedness among them that determines success.
		Regionally Significant Landscape Types	» **Biodiversity benefits.** Protection of representative landscapes can help protect a variety natural areas, enhancing biodiversity. » **Human-based benefits.** In addition to biodiversity benefits, people often value the opportunity to experience a variety of landscape types that represent the region. » **Easy to understand.** When compared with the complexities of a scientific targets approach, regionally significant landscape types is generally a simple concept to communicate.	» **Parkland fragmentation.** A focus on representative landscapes may encourage more, smaller pieces of varied parkland to be acquired, rather than large contiguous or connected parcels that is the focus of landscape ecology. » **Size uncertainty.** A regionally significant landscape type focus does not provide specific guidance on how much land is needed. » **Definition of regionally significant landscape types.** If this focus is considered, an acquisition program must define what landscape types are considered to have regional significance. Opinions on these definitions may vary.	» A regionally significant landscape types focus will require determination of what landscape types are considered to have significance. Identification of these landscape types may provide additional guidance on how much of each type is needed to support their health and longevity.	» Using a regionally significant landscape type focus, there may be opportunities to identify how much of each type of landscape warrants protection within the system, once the landscape types are defined.

Model	Approach	Focal Points	Strengths	Challenges	Conclusions	Relevance to the Questions, *"How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"*
		Climate Change	» **Land expansion opportunities.** If climate change occurs as many predict, major physical infrastructure, such as the diking system will need to be upgraded. With these upgrades, there may be opportunities to build in planning for an enhanced Regional Parks function. » **Partnership opportunities.** As planners and regulators consider how to address the potential impacts of climate change, there will be need to form partnerships. These partnerships may in turn help limit costs borne by Regional Parks agencies.	» **Limited precedent.** Regional Districts are just beginning to consider how Regional Parkland acquisition could support climate change adaptation, providing relatively few precedents to look to. » **Cost of acquisition.** Lands often impacted by potential climate change are often also highly desirable lands (e.g. waterfront) that have high associated costs. While awareness of climate change is growing, many of these lands continue to have high land values, limiting potential investment. » **Cost of maintenance.** Climate change will impact lands. If the Regional District takes an active role in managing lands that are likely to be affected by climate change, there will be costs associated with developing and maintaining facilities that are resilient.	» Potential risks or effects of climate change on lands being considered for Regional Parks acquisition may warrant consideration in the analysis process. » Opportunities may exist for the Regional Parks function to play an important role in the function and management of lands affected by climate change adaptation (e.g. dike upgrades), including establishment of Regional Parks functions such as natural area protection and nature-based recreation as climate changes responses are implemented. » The implications of managing lands likely to be affected by climate change will be an important consideration.	» In the context of how much land would be needed, it would depend on the risk being mitigated and the role Regional Parks would play in this activity.

Model	Approach	Focal Points	Strengths	Challenges	Conclusions	Relevance to the Questions, *"How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"*
Gap Assessment	Human-Based	Publicly Identified Desires	» **Public support.** Being able to link acquisition planning and execution back to identified public desires can help strengthen public support, and as an outcome, willingness to support investment in Regional Parks. » **Adaptation.** Trends in outdoor recreation continue to evolve. Monitoring public desires provides an indication of how the system may need to adapt alongside an evolving community.	» **Limits to participation.** Typically, community input on parks is voluntary, so there is a risk that results may not necessarily be representative of larger population needs. » **Limited context.** Without considering the larger picture for parks in the region, community priorities may not align with ecological or other community needs. » **Extensive costs.** The long "wish" lists typically generated through community input processes are often extensive and expensive and can lead to concerns that it is unattainable, risking lack of buy-in. » **Unrealistic expectations.** Public hopes can be highly aspirational, yet difficult to achieve in the context of land ownership, political will, costs, and other challenges. A focus on publicly identified desires can result in difficulties during implementation when barriers to acquisition are identified. » **Education.** Often members of the public do not differentiate between the roles of different levels of government in providing parks and recreation services. It can be challenging to provide sufficient information to inform educated decision-making on this complex topic.	» Expressed public desires may provide guidance on "How much Regional Parkland is desired?" and on the types of experiences people wish to have in Regional Parks. » There is a connection between delivery of Regional Parks services that meet the expressed desires of the public and willingness of public taxpayers in supporting increased or ongoing investment in acquisition.	» A community input approach may not answer the question "How much Regional Parkland is enough?" but does provide guidance on "How much is desired?"
		Community Analysis	» **Analytical outcomes.** Analysis based on criteria provides a more objective lens to the human-based side of acquisition planning than focusing just on publicly identified desires. » **Increased understanding of community.** Analysis of data can reveal patterns or issues that are imperceptible through other means, increasing awareness and knowledge about the decisions for Regional Parks.	» **Selection of criteria for analysis.** If this focus is considered, a community analysis program must define what criteria are considered important for Regional Parks. Opinions on these criteria may vary. » **Restrictive.** Community analysis may limit flexibility to respond to opportunities if they don't meet agreed upon criteria. » **Questionable Data.** Use of data can give false confidence in accuracy. If the integrity of data is poor or data is lost, results could provide improper guidance.	» Community analysis provides perspective on how or where parkland should be distributed to respond to selected criteria. » Careful consideration and testing of community criteria to be analyzed is required to create meaningful data and decisions that reflect the vision for Regional Parks. » Recent and forecasted growth in the Lower Mainland has potential to affect the timeline for prioritizing parkland acquisition.	» Community analysis may provide guidance on how much parkland is needed to meet identified community criteria.

Model	Approach	Focal Points	Strengths	Challenges	Conclusions	Relevance to the Questions, *"How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"*
		Carrying Capacity	» **Actual use.** Monitoring carrying capacity tracks human demands and impacts which may provide useful insights into whether additional land is required.	» **Level of effort.** Monitoring demand and use can be a time-consuming and costly endeavour. » **Subjectivity.** There is no defined "amount" of activity that a park can handle. Limits are typically considered on a park-by-park or park unit basis.	» Carrying capacity of parks is typically addressed on a park-by-park basis to understand where human activity can be accommodated without significant negative impacts to natural areas or loss of experience. » Carrying capacity is a subjective assessment that considers natural sensitivities, visitor experience, and management of the asset. » Monitoring use of parks can provide insights into carrying capacity by observing volume of traffic and impacts on Regional Parks.	» Monitoring actual demand and use provides greater clarity on how Regional Parks use is increasing or decreasing. This information is useful in land acquisition planning as a way of continuing to provide adequate level of service to park users.
Opportunistic	Framework for responding to opportunities	Evaluation Criteria	» **Responsive.** Supports responsiveness to opportunities that arise after the planning process.	» **Consistent application.** Requires pre-determined consideration of criteria so that opportunities can be objectively considered. » **Unsupported decisions.** Risk of acquisition of lands that may not be fully reflective of ecological or community needs.	» There are benefits to maintain a Land Acquisition Strategy at a high enough level to allow flexibility to respond to opportunities. » Responsiveness to opportunities typically requires a strong framework that supports a region in responding consistently and thoughtfully to potential opportunities.	» An opportunist approach does not provide guidance on the question "How much Regional Parkland is needed?"

APPENDIX B

Overview of Agencies Studied

Metro Vancouver, BC (MV)

Established	1967
Population	2,616,137 (includes Abbotsford)
Land Area	2,340.48 sq.km
Number of Parks	33
Length of Trails	-
Area of Parkland	14,433 ha
Park Visits/Year	10.8 million (2014)
Annual Budget	$33.4 M budgeted for 2015

Mission

Regional Parks contribute to a livable region by conserving natural assets and promoting human connection to nature. They enhance the quality of life of residents and visitors and provide opportunities to experience nature. The important natural landscapes protected in Regional Parks contribute ecological goods and services to the region and mitigate climate change. The Regional Parks service fosters environmental interpretation, education, and stewardship through community development and promotes a sense of responsibility for, and connection to, the place in which we live (Metro Vancouver, 2015).

Metro Vancouver provides Regional Parks services to a substantial population in the Lower Mainland. The largest Regional District in British Columbia, the Regional Parks Service includes 22 municipalities, one electoral area, and one treaty First Nation. The Regional Parks Service includes the City of Abbottsford which is not part of other regional functions (Neilson-Welch, 2014).

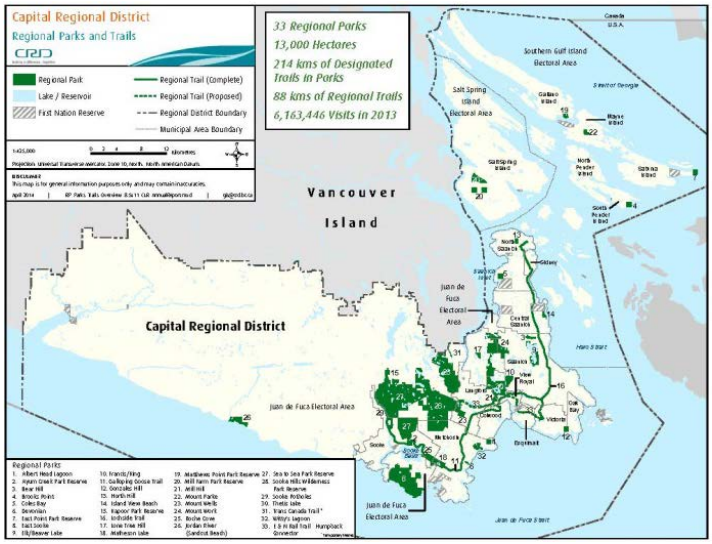
Metro Vancouver's 2040 Regional Growth Strategy is predicting an additional 1.2 million people living in the region by 2041 (Greater Vancouver Regional District, 2015). This growth will place additional demand on the existing Regional Parks system, and potentially affect potential acquisition opportunities in the future.

Currently Metro Vancouver is generating $3.77 M annually for parkland acquisition through the Heritage Parkland Acquisition Fund, which translates to approximately $1.50 / person annually.

In 2014, Metro Vancouver completed a Parks Service Review to "examine the long-term Regional Parks function, the relevance of the parks function in the future, and how the growth of the function will be managed" (Neilson-Welch, 2014). Based on recommendations in the review, Metro Vancouver is planning to prepare a new 25-year Land Acquisition Strategy in 2016.

Capital Regional District, BC (CRD)

Established	1966
Population	375,428
Land Area	2,370 sq.km
Number of Parks	30
Length of Trails	88 km
Area of Parkland	13,000 ha
Park Visits/Year	6.3 million (2014)
Annual Budget	$11.2 M ($3.9 M on acquisition) in 2013



Vision

Capital Regional District (CRD) parks and trails secure the region's ecology and quality of life by establishing, in perpetuity, an interconnected system of natural lands. Parks protect and restore our region's biodiversity, offer compatible outdoor recreation and education opportunities and accessible, nourishing, joyful connection with the natural world and our cultural heritage. Regional trails connect communities and provide many outdoor recreation opportunities and an alternate non-motorized transportation network. Parks and trails support the health of our region, its inhabitants, and the planet as a whole. In this century, Regional Parks and trails will become part of a larger integrated and connected system of natural areas. Subscribing to the idea that "nature needs half", policies and actions are explored through sustainability planning to significantly enhance the system of natural areas in the region in order to sustain life supporting ecological processes. By conserving at least half of the Capital Region's land and water base for nature, residents may live and work in harmony with the environment (Capital Regional District, 2012).

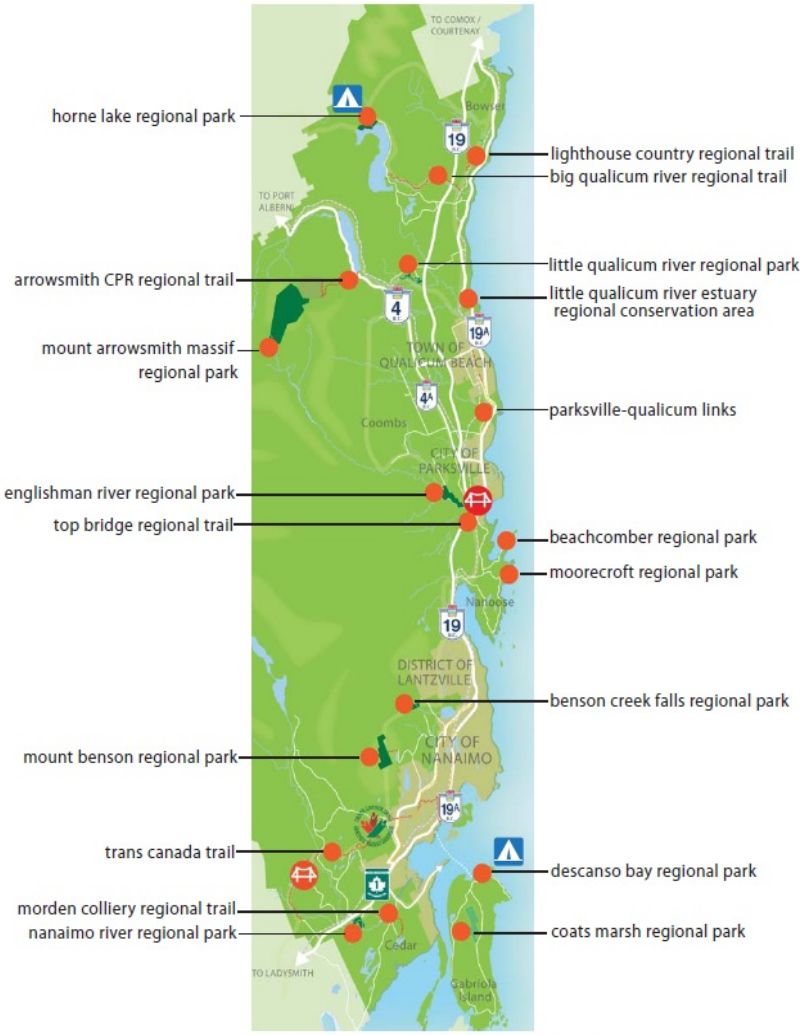
The Capital Regional District is significantly smaller in population and has a slightly slower growth rate than Metro Vancouver. The CRD has demonstrated a strong commitment to parkland acquisition for the future, with over 13,000 ha of Regional Parks, nearly equivalent to Metro Vancouver. In 2013 the Regional Parks service spent 30.7% of their $10.6 M budget on acquisition (Capital Regional District, 2013).

The CRD continues to prioritize acquisition to ensure land is secured in perpetuity and maintains an acquisition fund that was first established in 2000. The initial levy for parkland acquisition was $10/average household assessment between 2000 and 2009. In 2010, it was decided to extend the levy with increases to $20/average household assessment by 2014. The fund generates approximately $3.7 M/year, dedicated toward parkland acquisition (Capital Regional District, 2015).

CRD has created a stand-alone Land Acquisition Strategy that defines the purpose, principles, and criteria for evaluating potential Regional Parks. The strategy is updated on a three-year basis maintaining a focus on identifying and achieving key priorities (Capital Regional District, 2015).

Regional District of Nanaimo, BC (RDN)

Established	1989
Population	146,574
Land Area	2,083 sq.km
Number of Parks	19
Length of Trails	60 km
Area of Parkland	2,061 ha
Park Visits/Year	-
Annual Budget	$1.9 M



Vision

The vision for the RDN's Regional Parks and Trails for the next 10 years is a system that:

- Secures, protects and stewards lands and water features of environmental significance and wildlife habitat value;
- Provides rewarding outdoor recreational opportunities;
- Fosters education and appreciation of the Region's natural environment; and
- Enhances livability for the current and future residents of the RDN (Regional District of Nanaimo, 2005).

With a small population and a relatively new Regional Parks service, the RDN has acquired less Regional Parkland than other agencies studied. The service has grown rapidly from just 25 ha of parkland in 1995 to 2,061 ha today (Regional District of Nanaimo, 2015).

In the 2005 plan, the RDN identified that only 1.5% of the region's land base is currently protected by parks of all types. With limited resources and range of needs, the RDN uses a variety of methods to expand the Regional Parks and Trails system including use of acquisition funding as a leveraging tool, to catalyze and promote partnerships in acquisition projects and to find creative means of financing land acquisition. Partnerships and long-term leases are used frequently as an alternative to fee simple purchase (Regional District of Nanaimo, 2005).

Regional District of Central Okanagan, BC (RDCO)

Established	1974
Population	179,830
Land Area	3,142 sq.km
Number of Parks	31
Length of Trails	-
Area of Parkland	2,020 ha
Park Visits/Year	-
Annual Budget	$8.6 M ($1.2 M on capital) for 2015

Purpose

To establish and conserve a network of Regional Parks and trails in perpetuity, which represent the complete range of regionally significant natural environments that are within the Okanagan Valley. Regional Parks will provide opportunities for outdoor experiences and activities that encourage public understanding, appreciation and enjoyment of the region's natural and cultural landscapes while ensuring the long ecological and commemorative integrity of each park and trail (Regional District of Central Okanagan, 2000).

The RDCO has a comparatively small population to Metro Vancouver; however, as one of the fastest growing regions in BC, RDCO has identified parkland acquisition as a priority to ensure that regionally significant natural environments within the Okanagan Valley are protected (Regional District of Central Okanagan, 2007).

RDCO has set a quantifiable target for Regional Parkland provision (12 ha / 1,000 residents). In 2007, a Parkland Acquisition Strategy initiated a levy of $0.02/$1,000 assessed value of residential properties generating $535,000 annually for parkland purchase (Regional District of Central Okanagan, 2007). Since that time, the funding level has increased to $0.09/$1,000 assessed value and $2.5M was allocated to reserves in 2014 (Kopp, 2015). The strategy also recommended implementation of a Regional Parks DCC in the amount of $100/unit to reflect the need to increase Regional Parkland in relation to development (Regional District of Central Okanagan, 2007), but that measure has not been implemented.

A unique target with RDCO's Land Acquisition Strategy is identification of Biogeoclimatic Zone Gaps as a primary acquisition focus (Regional District of Central Okanagan, 2007). The RDCO takes a combined approach to acquisition, using short-term financing to protect threatened park interests; building a reserve fund to finance future parkland purchase; and a partnership approach that includes leasing and NGO partnerships (Regional District of Central Okanagan, 2007).

Regional Municipality of York, ON (York Region)

Established	1924
Population	1,156,186
Land Area	1,776 sq.km
Number of Parks	21 Regional Forest Tracts
Length of Trails	-
Area of Parkland	2,365 ha
Park Visits/Year	-
Annual Budget	$1.7 M (in 2014)

A Sustainable Natural Environment Goal

To protect and enhance the natural environment for current and future generations so that it will sustain life, maintain health, and provide an improved quality of life (York Region, 2010).

In 1994, York Region initiated the Regional Greenlands System to protect lands that make significant contribution to ecological function. In 2005, the Regional Greenlands System included 60,174 ha of land or 34% of the total area in York Region (York Region, 2005). Regional Forest Tracts form a part of the greenbelt system, but York relies on a number of other regional partners and policies for greenland protection.

York's approach follows the landscape ecology focal point introduced in **Section 3**. The Regional Greenlands System is composed of cores, corridors, and linkages. Core areas have the highest concentration of significant natural features on the landscape including significant woodlands and wetlands, Life Science Areas of Natural and Scientific Interest, and Environmentally Significant Areas. Corridors include existing significant valleylands and watercourses. Linkages connect core areas and are enhanced through restoration.

Based on reporting in 2004, the York Region contains a large area of environmentally significant lands, totaling 44.2% of the region's land area. Of this total, 15.1% of the region's lands are fully protected, 11% is generally protected, meaning that development is not allowed to have any negative impacts, 14% has some minimal level of protection, and 4.1% of sensitive lands have no protection at all (Donald & Neary, 2004). York Region works closely with other organizations including the Oak Ridges Moraine Land Trust to cooperatively work on protecting lands in the region. The region benefits from a strong research background about natural areas.

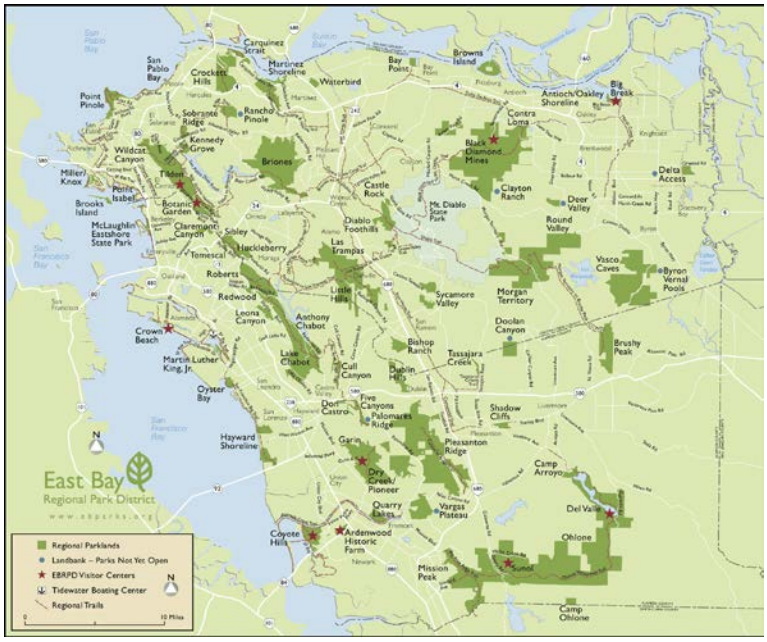
York uses a regional approach to Greenland protection, planning the overall network at a high level and using a variety of methods for protection in this network.

East Bay Regional Park District, CA (EBRPD)

Established	1934
Population	2,722,260
Land Area	3,625.98 sq.km
Number of Parks	65
Length of Trails	1,931 km
Area of Parkland	48,157.6 ha
Park Visits/Year	22 million
Annual Budget	$223 M (2015 budget)

Mission

The East Bay Regional Park District preserves a rich heritage of natural and cultural resources and provides open space, parks, trails, safe and healthful recreation and environmental education. An environmental ethic guides the District in all its activities (East Bay Regional Park District, 2013).



One of the oldest park agencies reviewed in the research, East Bay Regional Park District is a large, independent organization that encompasses Contra Costa and Alameda counties in California. EBRPD is the largest Regional Park system in the United States (East Bay Regional Park District, 2013).

EBRPD has the most comparable population to Metro Vancouver, but is based within a slightly larger land area, suggesting land availability may be slightly less constrained. The EBRPD has the benefit of many years of experience in parkland acquisition and undertook an aggressive acquisition campaign starting in the 1930s that has contributed to the system of today. With an extensive, well-balanced system in place, EBRPD now focuses acquisition on growing and connecting the parklands (East Bay Regional Park District, 2013).

EBRPD combines a taxation structure, including a general obligation bond voted on by the residents, with aggressive pursuit of grants from federal, state, and local agencies to fund growth of the parks system.

EBRPD follows a unique Principle of Balanced Parkland Distribution endeavouring to balance land acquisition, development, services, and parkland operations equitably between geographical areas. Typically, each park or trail is composed of several acquisitions made over years (East Bay Regional Park District, 2013).

Midpeninsula Regional Open Space District, CA (MidPen)

Established	1972
Population	741,000
Land Area	1,424 sq.km
Number of Parks	26
Area of Parkland	25,091 ha
Length of Trails	354 km
Park Visits/Year	2 M
Annual Budget	$32.4 M ($12.1 M for acquisition in 2015)

Mission

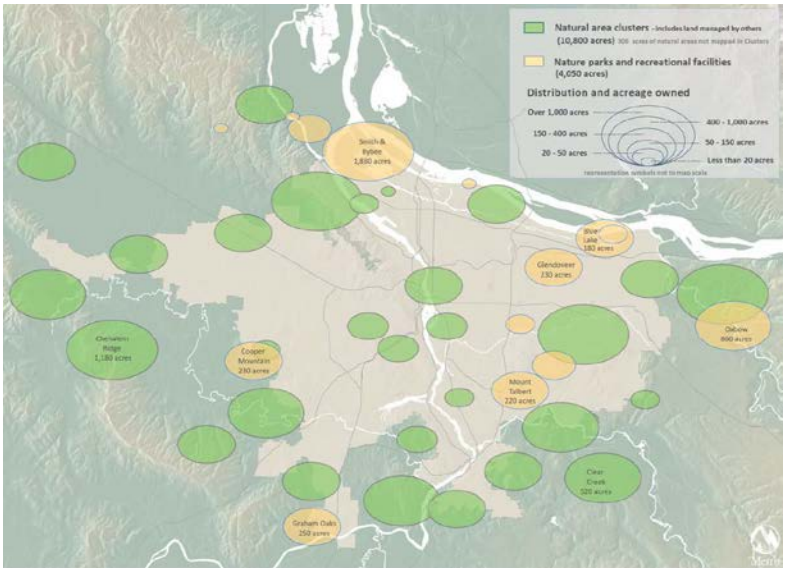
To acquire and preserve a regional greenbelt of open space land in perpetuity, protect and restore the natural environment, and provide opportunities for ecologically sensitive public enjoyment and education (Midpeninsula Regional Open Space District, 2014)

Midpen was founded in 1972 in the face of rapid development of the San Francisco Peninsula, especially in Silicon Valley, to preserve a regional greenbelt in northwestern Santa Clara County. Small portions of San Mateo and Cruz counties were added in later years. MidPen's 2011 Strategic Plan showed that nearly all expansion between 2004 and 2014 was driven by the need to acquire lands for protection. With their focus on acquisition, nearly all lands acquired during this time remain closed to the public resulting in only 47.7% of MidPen's Regional Parks being publicly accessible (Midpeninsula Regional Open Space District, 2014). A key focus for MidPen has been accumulation of large swaths of connected Regional Parkland. While the sizes of parks in the system vary, the average size of parks in MidPen is over 950 ha, almost double the average size of Regional Parks in Metro Vancouver.

In their 2014 Vision Plan, MidPen has declared the start of a new phase of planning that equally balances the three components of their mission: preserving open space, protecting and restoring the natural environment, and providing public access and education (Midpeninsula Regional Open Space District, 2014). Their Vision Plan maintains an ambitious approach to land acquisition having achieved public support for an additional $300 M bond measure to implement a plan that includes adding 19,000 ha more parkland and 290 km of new trail over the next 30 years. To achieve these goals, MidPen prepared a Financial and Operational Sustainability Model in 2015 to address the demands that will be required in the organization to meet these goals (Management Partners, 2015).

Oregon Metro (Portland Metro; Metro), OR

Established	1995
Population	1,500,000
Land Area	1,200 sq.km
Number of Parks	45 (excl. rec facilities and cemeteries)
Area of Parkland	5,260.91 ha
Length of Trails	-
Park Visits/Year	-
Annual Budget	$52.5 M (2015-16 budget)



Purpose

Protection of natural resource areas in the public interest is the primary objective of the Metropolitan Greenspaces Master Plan (Metro, 1992).

Since 1995, Metro has been working to secure Regional Parkland. Similar to Midpen, funding for Metro parkland has focused almost exclusively on acquisition. Current planning suggests only about one-third of Metro's parks are open to public use. Recent planning identified a need to focus more on the development **a**nd long-term management of parkland within their portfolio (Oregon Metro, 2011).

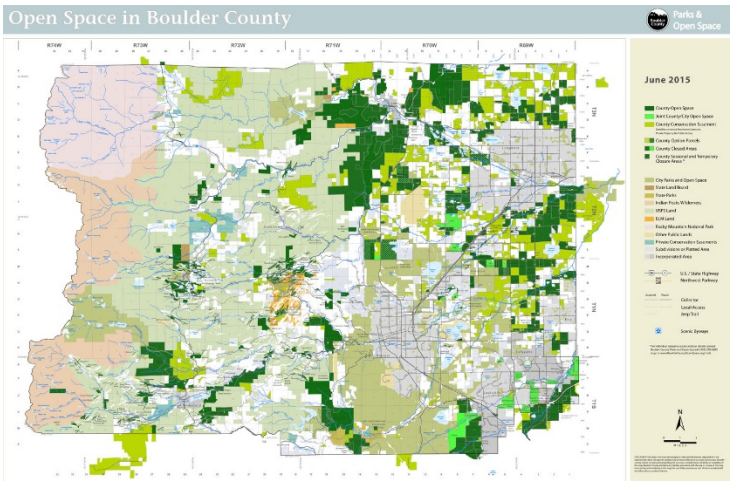
Metro's parks contain more active recreation opportunities than other Regional Parks functions including golf, sports facilities, playgrounds, boat launches, cemeteries, and other infrastructure (Oregon Metro, 2011).

Metro takes an active role in managing natural areas developing short-term and long-term plans for each property to look at alternatives for the future based on ecology and available resources. The costs of restoration and maintenance are high which is challenging Metro now to decide which properties to restore and how to care for them over time. Initial research suggests an estimate of $12-45 million to bring all of Metro's properties to their ideal condition and if all parks were developed, an additional $6 million to operate these parks (Oregon Metro, 2011).

In 2002, Metro initiated a $1-per-ton increase in the solid waste tax by the region's haulers and increased it in 2004 to $1.50-per-ton to generate funding to develop Regional Parks (Oregon Metro, 2011).

Boulder County Parks and Open Space, CO

Established	1975
Population	294,567
Land Area	1,919 sq.km
Number of Parks	52
Area of Parkland	41,547 ha (16,445 Conservation Easement)
Length of Trails	185 km
Park Visits/Year	1.34 million
Annual Budget	$34.8 M (2016 budget)



Mission

To conserve natural, cultural, and agricultural resources and provide public uses that reflect sound resource management and community value (Boulder County Parks and Open Space, 2012).

The BCPOS was established in 1975 in response to rapid development as a method of preserving open space. The functions of open space include urban shaping, preservation of ecosystems, vistas, and habitat, conservation of natural resources, and protection of areas designated of environmental concern (Boulder County Parks and Open Space, 2011).

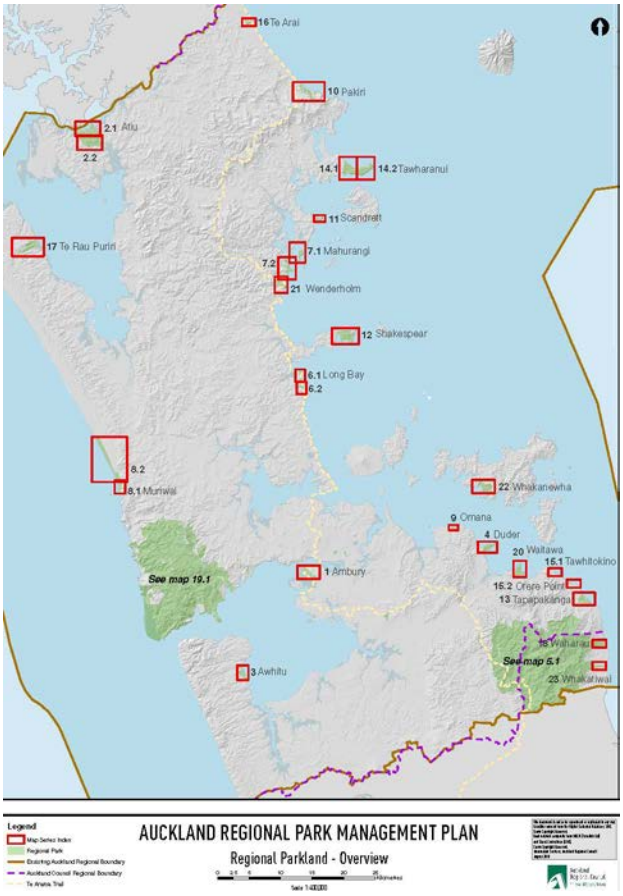
The BCPOS encompasses a broader mandate than other agencies studied. About one-quarter of the over 100,000 acres of land protected by the BCPOS is agricultural land. Many of these lands are leased to farmers to be actively farmed following the guidelines and policies of BCPOS. BCPOS owns croplands to protect the resources and aims to be a national leader in sustainable agriculture (Boulder County Parks and Open Space, 2011).

In 2006, BCPOS adopted a departmental planning approach, creating policies and management groups to guide the management of key resources, including:

- Forest Policy
- Conservation Easement Policy
- Water Policy
- Cropland Policy
- Grasslands Policy
- Cultural Resources Policy
- Visitor Use Policy
- Wildlife Policy

Auckland Council Regional Parks, NZ (ACR)

Established	1941
Population	1,415,550
Land Area	4,894 sq.km
Number of Parks	26
Area of Parkland	42,000 ha
Length of Trails	-
Park Visits/Year	6 million
Annual Budget	$219.8 M ($41.6 M allocated to acquisition and development in 2015)



Purpose

The regional parks represent many of the special natural and cultural qualities of the Auckland region. The parks are purchased, and are managed, to protect their intrinsic, natural, cultural, and landscape values and to provide outdoor recreational opportunities for the enjoyment and benefit of the people of the region and are held in perpetuity for that purpose (Auckland Regional Council, 2010).

The administrative framework for parks for the ACR differs from that of Metro Vancouver in that the ACR is responsible for delivering both regional and local scale parks. However, ACR faces the same questions and challenges being considered by Regional Park agencies worldwide.

Another community that has seen high growth, Auckland has invested heavily in securing Regional Parkland for the future. Similar to CRD, Auckland views Regional Parks as having a primary role in representing the special natural and cultural qualities of the Auckland region and are purchased and managed to protect their intrinsic natural, cultural, and landscape values and to provide outdoor recreational opportunities (Auckland Council, 2013).

With a very large land base, Auckland Council has focused acquisition largely outside urban areas, securing large tracts of significant landscapes. Many of these Regional Parks are more than an hour drive from urban areas (Beer, 2015).

A trend noted by Auckland is increasing demand for more “urban” experiences within Regional Parks, especially those close to urban areas (Auckland Regional Council, 2010).

Comparison of Agency Metrics

While it is impossible to find an exact comparison as populations, locations, mandates, and more affect the decisions a community makes for their Regional Parks system, it can be informative to look generally at how different parks agencies compare in their provision of Regional Parks services. This practice of "benchmarking" is becoming increasingly common as use of "official" numerical standards fall out of favour. Benchmarking provides a point of comparison of what similar services deliver.

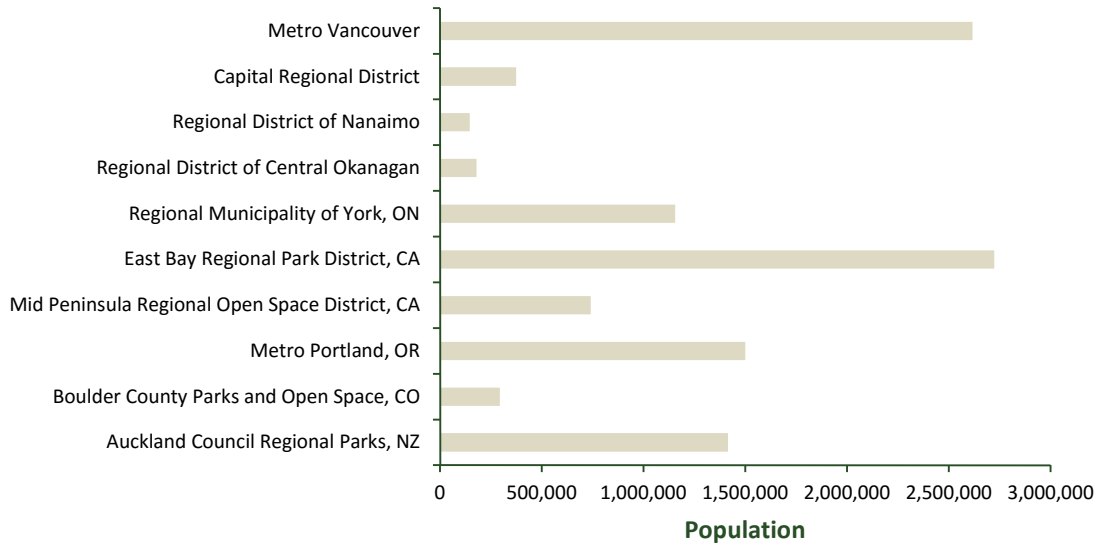
This information provides context to the discussions in this research; however, it should be recognized that each agency is evolving and this data only shows a single point in time. When considering metrics, it is important to recognize that there are multiple variables that affect the numbers, limiting the ability of metrics in providing a complete picture for comparison.

The following charts provide a snapshot of how quantitative characteristics of the parks agencies studied compare:

- Community Population
- Geographical Area
- Number of Regional Parks
- Area of Regional Parks
- Percent of Land Base that is Regional Park
- Regional Parkland (ha) per 1,000 population

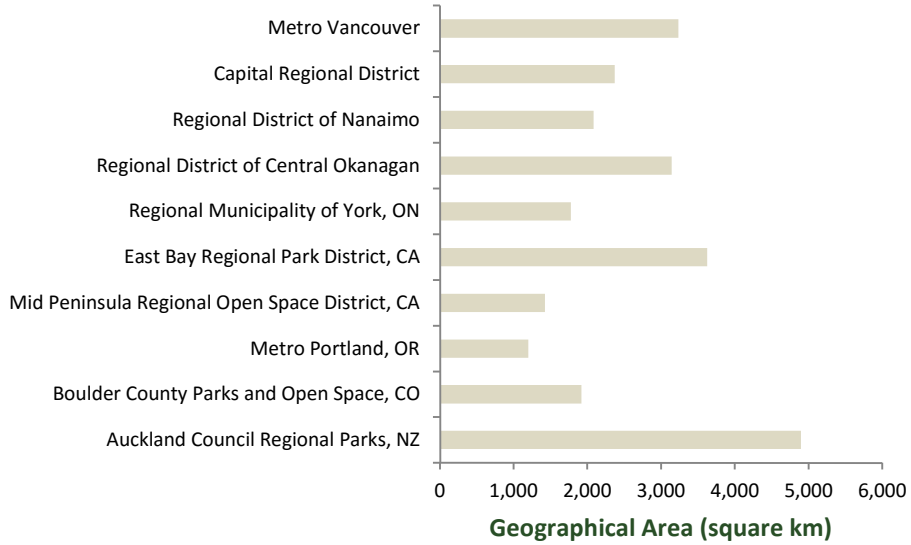
Community Population

The agencies studied in this research have widely variable populations, ranging from under 150,000 to over 2.5 million residents, with Metro Vancouver having the second largest population of the agencies studied. Population affects Regional Parks acquisition as a larger population affects the potential demand for access to Regional Parks.



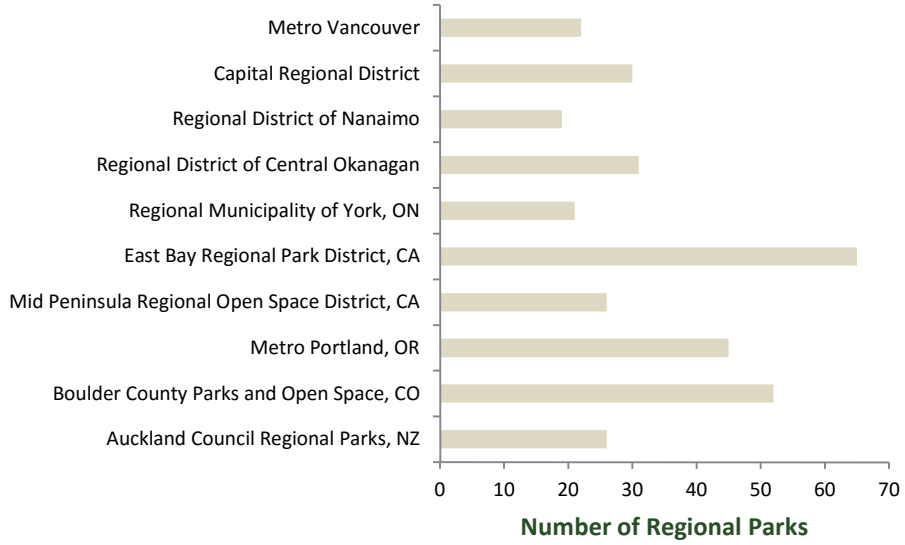
Geographical Area

Metro Vancouver covers a geographical area that is average in comparison to the other agencies studied. This suggests a particular challenge for Metro Vancouver for providing parkland to a very high population constrained within an average land base.



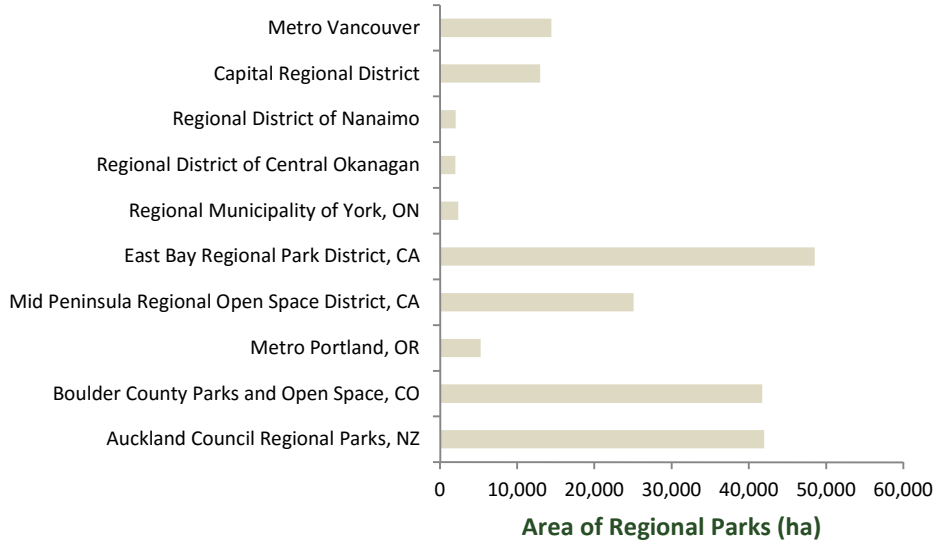
Number of Regional Parks

Metro Vancouver includes an average number of Regional Parks amongst the agencies studied. East Bay Regional Park District and Boulder County have a significantly higher number of Regional Parks than the other agencies. Number of Regional Parks is affected by a number of variables such as length of time the agency has been in service and acquisition focus (for example, some agencies focus on acquiring fewer large areas of parkland, while others focus on acquiring smaller tracts of land distributed throughout their geographical area).



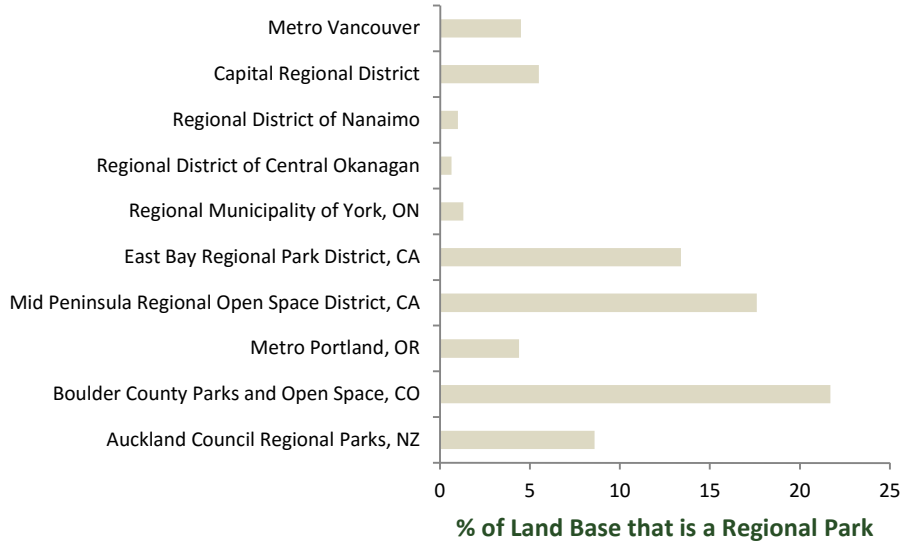
Area of Regional Parks

Area of Regional Parks considered how much land base agencies have acquired as Regional Park. Metro Vancouver has a greater area of Regional Parks than the other agencies in British Columbia, and a lower area of Regional Parks compared to some of the more populated regions such as East Bay Regional Park District, Auckland Council Regional Parks, and Boulder County.



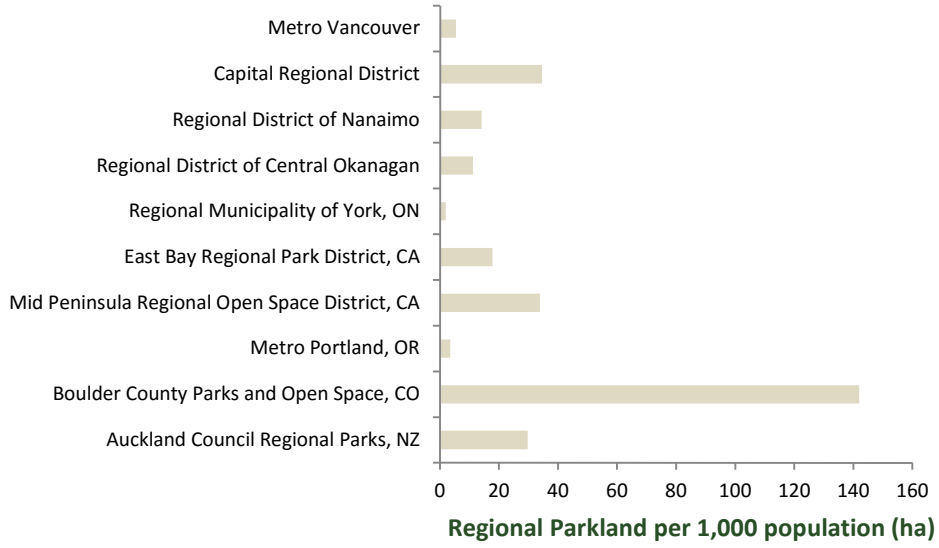
Percent of Land Base that is Regional Park

This measure looks at how much of the geographical area of a region is dedicated as Regional Park. Regional Parks in Metro Vancouver account for a larger percentage of land base compared to the other British Columbian agencies studied, although this percentage is less than some of the other urban regions studied.



Regional Parkland per 1,000 population (ha)

Parkland per 1,000 population is a common metric used when comparing parkland provision. However, this provides only a quantitative measure and does not consider type, quality, or function of Regional Parks which can vary significantly between agencies. For example, Boulder County Parks and Open Space has a very high metric; however, the agency has a unique Regional Parks mandate that includes acquiring and leasing agricultural lands. These lands account for over one quarter of the Regional Parks land base, but don't offer public access or protection of natural areas.



APPENDIX C

Agency Database

The Agency Database in a compilation of data extracted from reviewing agency information. This information was used to identify practical applications of the potential Land Acquisition Models considered in **Section 3** of the document. This information is presented in an appendix as background information.

Please note that information is extracted from a range of sources, and while documentation endeavours to identify the most current information available, this data should not be relied upon as the most current or accurate information for the parks agencies listed.

Park Agency	Metro Vancouver(MV)	Capital Regional District (CRD)	Regional District of Nanaimo (RDN)	Regional District of Central Okanagan (RDCO)	Regional Municipality of York, ON (York Region)	East Bay Regional Park District, CA (EBRPD)	Mid Peninsula Regional Open Space District, CA (Midpen)	Metro Portland, OR (Metro)	Boulder County Parks and Open Space, CO (BCPOS)	Auckland Council Regional Parks, NZ (ACR)
General										
Population (year)	2,616,137 (2014) *Source: Metro Vancouver Regional Parks* *Note: Includes Abbotsford*	375,428 (2014) *Source: CRD Revised Estimates of Population Growth Capital Region*	146,574 (2011) *Source: Statistics Canada, Nanaimo, RD*	179,830 (2011) *Source: https://www.regionaldistrict.com/about-the-rdco/population-map.aspx*	1,156,186 (2015) *Source: http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/regionalofficialplan*	2,722,260 *Source: US Census Quick Facts for Alameda and Contra Costa Counties*	741,000 *Source: Wikipedia*	1,500,000 *Source: http://www.oregonmetro.gov/regional-leadership*	294,567 (2010) *Source: http://www.bouldercounty.org/gov/about/pages/about.aspx*	1,415,550 (2013) *Source: State of the Environment Report, 2015, p.10*
Growth Rate (year-year)	9.3% (2006-2011) *Source: 2011 + 2006 Census, Statistics Canada, Ottawa*	4.3% (2006-2011) *Source: 2011 + 2006 Census, Statistics Canada, Ottawa*	5.7% (2006-2011) *Source: Statistics Canada, Nanaimo, RD*	11.0% (2006-2011) *Source: RDCO Regional Growth Strategy, 2013, p.6*	2% (2006-2011) *Source: 2011 + 2006 Census, Statistics Canada, Ottawa*	Alameda County 4.6% (2000-2010) Contra Costa 10.6% (2000-2010) *Source: EBRPD Master Plan, p.27*		1.35% (Est. 2000-2020) *Source: 2014 Urban Growth Report, Appendix 1a, p.6*		8.5% (2006-2013) *Statistics: New Zealand Population Dwelling*
Anticipated Growth Rate	Projection: 1.2 million additional residents by 2041 for total population of 3.4 million *Source: Metro 2040 Residential Growth Projections, p.2*	Projection: 0.55% Annual Growth Rate for a total of 433,600 residents in 2036 *Source: Population and Household Projections to 2036, p.1, updated June 2008*	Projection: 2% per year, slowing to just under 1% by 2036 for a total of 231,184 residents in 2036 *Source: Population and Housing Change in the Nanaimo Region, 2006 to 2036, October 2007*	40% growth between 2001 and 2031 *Source: Ten Year Park Land Acquisition Strategy, p.2* Projection: Estimates 270,393 residents in 2036 *Source: RDCO Regional Growth Strategy, 2013, p.7*	Projection: Estimates 1,790,000 residents in 2041 *Source: http://www.york.ca/wps/portal/yorkhome/yorkregion/yr/regionalofficialplan*			Projection : ~1.1% Growth with between 470,000 and 720,000 additional residents by 2035 *Source: 2014 Urban Growth Report, p14*		Projection: 2 Million by 2036 *Source: Regional Parks Management Plan 2010*
Geographical Area (sq.km.)	3,235 sq.km *Note: Includes Abbotsford* *Source: Metro Vancouver Regional Profile (website), Abbotsford Summary 2014 Demographic Profiles*	2,370 sq.km *Source: Regional Profile (website)*	2,083 sq.km *Source: Statistics Canada, Nanaimo, RD*	3,142 sq.km *Source: http://www.regionaldistrict.com/about-the-rdco/population-map.aspx*	1,776 sq.km *Source: York Region Official Plan, 2010*	3,626 sq.km (1,400 sq. miles) *Source: EBRPD Master Plan p.17*	1,424 sq.km (550 sq. miles) *Source: MROSD Strategic Plan Summary Report, p.3*	1,200 sq.km (463 sq.miles) *Source: http://www.oregonmetro.gov/regional-leadership*	1,919 sq.km (741 sq.miles) *Source: http://www.bouldercounty.org/gov/about/pages/about.aspx*	4,894 sq.km *Source: Auckland Council Draft Annual Plan 2011/2012*
Initiation of the Regional Parks Service	1967 *Source: Regional Parks Service Review,p.8*	1966 *Source: CRD Regional Parks Strategic Plan 2012-2021, p.16*	1989 *Source: RDN Regional Parks and Trails Plan, 2005*	1974 *Source: RDCO Regional Parks Plan,p.11*	1924 (establishment of York Regional Forest) *Source: Everyday Guide to the York Regional Forest, 2013, p.7*	1934 *Source: EBRPD Master Plan,p.23*	1972 *Source: MROSD Strategic Plan Summary Report, p.1*	1995 *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.6*	1975 *Source: Boulder County Comprehensive Plan, OS, p.1*	1963 *Source: Regional Parks Management Plan 2010*
Number of Regional Parks	22 regional parks 4 regional park preserves 2 ecological conservancy area 5 regional greenways (81.5km) *Source: MV Regional Parks Service Review Report, p.7*	30 Regional Parks 3 Regional Trails (88km) *Source: Regional Parks 2014 Annual Report, p.4*	19 Regional Parks and Trails 60 km Regional Trail *Source: RDN 2014 Parks and Trails Guide*	31 Regional Parks *Source: https://www.regionaldistrict.com/your-services/parks-services/parks-and-trails/regional-parks-what-we-do.aspx*	21 Regional Forest Tracts 32 Recreational Trails 120 km of Regional Forest Trails *Source: York Region Official Plan, 2010, p.11*	65 Regional Parks 1,250 miles of trails (2,012 km) *Source: http://www.ebparks.org/parks*	26 Open Space Preserves 220 miles of trails (354km) *Source: http://www.openspace.org/*	7 Nature Parks 38 Natural Area Clusters 7 Recreational Facilities 1 Operational Facility 14 Cemeteries *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, Appendix A*	52 Regional Parks 115 miles of trail (185 km) *Source: https://bouldercountyopenspace.org/40/*	26 Regional Parks *Source: Auckland Council Long-term Plan 2015-2025, vol2, p.185*
Total Area of Regional Parks (ha)	14,443 ha *Source: MV Regional Parks Service Review Report, p.7*	13,000 ha *Source: Regional Parks 2014 Annual Report, p.4*	2,061 ha *Source: http://www.rdn.bc.ca/cms.asp?wpID=2561*	2,020 ha *Source: https://www.regionaldistrict.com/media/138339/2014AR.pdf*	2,365 ha of protected lands in York Regional Forest *Source: Greening Strategy Achievements,2013*	48,519 ha (119,893 acres) *Source: http://www.ebparks.org/parks*	25,091 ha (62,000 acres) *Source: Midpen Vision Plan, p.5*	5,260 ha (17,000 acres) *Source: http://www.oregonmetro.gov/library/nature-shelf*	41,714 ha (103,078 acres) *Source: http://www.bouldercounty.org/os/openspace/pages/posacres.aspx*	42,000 ha *Source: Auckland Council Long-term Plan 2015-2025, vol2, p.185*
Smallest Park Size (ha)	28 ha (exlc. greenways)	1.8 ha (excl. trails)	1 ha (excl. trails)	1.6 ha	19.6 ha		22.3 ha	0.5 ha (excl. trails and cemeteries)		
Largest Park Size (ha)	3,717 ha	4,090.2 ha	1,300 ha	524.7 ha	581.1 ha		7,621 ha	761 ha	2,032 ha	16,000 ha
Average Park Size (ha)	478.3 ha (excl.greenways)	433.3 ha (excl.trails)	108.5 ha (excl. trails)	61.3 ha	112.6 ha	746.4 ha	888 ha	79 ha	802 ha	1,615.4 ha
Parkland Supply Metrics **(Note: Parkland supply metric calculations are developed for high level comparisons and are based on information from various available sources. Metrics may not reflect the most current information and should not be relied upon as current numbers.)**										
% of Region's Land Base that is Regional Park	4.5%	5.5%	1.0%	0.65%	1.3% Regional Forest Tracts	13.40%	17.6%	4.4%	21.7%	8.6%
% of Region's Land Base that is Protected Green Space (incl. Regional Parks)	48.5 % (156,786 ha incl. watersheds, municipal parks, provincial parks, wildlife mgmt. areas, institutional sites, federal sites) *Source: Regional Parks & Greenways, Municipal and Provincial Parks & Protected Areas Map*	11.0% Protected (incl. National, Provincial, Regional, Municipal, Ecological Reserves, Land Trusts) 19.4% (incl. Greater Victoria Water Supply Area) *Source: Regional Parks Strategic Plan, p.24*	2.2% Protected (incl. current Regional Parks) *Source: Regional Parks & Trails Plan 2005-2015 (2015 Regional Parks Numbers)*	45% of the RDCO land base is titled lands (the remainder is unsurveyed Crown lands). Of the titled lands, 35% is currently available for parks, open space and recreation opportunities which includes provincial, municipal and regional parks, as well as the major lakes. *Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.7*	15.1% of land is fully protected (tightly restricted development) 11.1% is generally protected (development permitted if no negative impacts on ecological features or functions) 14% is partially protected (mentioned in planning documents but degree of protection is low) 4.1% is not protected 55.8% of land is not identified as greenlands *Source: Neptis Foundation. 2004. The State of Greenlands Protection in South-Central Ontario, p.47*		14.6 % (43,300 acres / 17,523 ha public owned parks and natural areas in the greater Portland Region) *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.68*		
Regional Parkland (ha)/1,000 population	5.5 ha / 1,000 pop.	34.6 ha / 1,000 pop.	14.1 ha / 1,000 pop.	11.2 ha / 1,000 pop.	2.0 ha / 1,000 pop.	17.8 ha / 1,000 pop.	33.9 ha / 1,000 pop.	3.5 ha / 1,000 pop.	142 ha / 1,000 pop.	29.7 ha / 1,000 pop.
Strategic Planning										
Regional Parks Mandate/Purpose/ Service Definition	• Protect important natural areas to contribute to regional livability and to enhance connections • Within the context of natural area protection, provide opportunities for people to connect with, enjoy, be active, and learn about the environment. *Source: draft Regional Parks Plan, 2015, p.9*	Vision: "Capital Regional District (CRD) parks and trails secure the region's ecology and quality of life by establishing, in perpetuity, an interconnected system of natural lands. Parks protect and restore our region's biodiversity, offer compatible outdoor recreation and education opportunities and accessible, nourishing, meaningful connection with the natural world and our cultural heritage. Regional trails connect communities and provide many outdoor recreation opportunities and an alternate non-motorized transportation network. Parks and trails support the health of our region, its inhabitants and the planet as a whole." *Source: Regional Parks 2013 Annual Report, p. 7*	Within that overall network of parks, regional parks and trails in the RDN: • Protect regionally significant natural environments and landscapes. • Are based on a natural area or feature – i.e., not a developed area or facility such as a ball field or swimming pool. • Manage areas and their uses for ecological integrity as well as outdoor recreation, which means that there will be different levels of use and protection in different parks and trails. • Provide opportunities for a range of outdoor experiences in a natural or semi-natural setting. • Include a variety of types of trails, from wide, gentle multi-use trails to narrow, mountainous hiking trails, but are focused on non-motorized use. • Link the region's communities, parks (at all levels) and municipal trails to one another, and connect the RDN to neighbouring region districts. • Are aimed to meet the needs of RDN residents. • Provide attractions for ecotourism. *Source: RDN Regional Parks Plan 2005-2015, P. 9*	Purpose: "To establish and conserve a network of regional parks and trails in perpetuity which represent the complete range of regionally significant natural environments that are within the Okanagan Valley. Regional Parks will provide opportunities and activities that encourage public understanding, appreciation and enjoyment of the region's natural and cultural landscapes while ensuring the long term ecological and commemorative integrity of each park or trail." *Source: Regional parks Plan 2000, p. 15*	A Sustainable Natural Environment Goal: To protect and enhance the natural environment for current and future generations so that it will sustain life, maintain health, and provide an improved quality of life. *Source: York Region Official Plan, 2010, p.7*	Mission: "The East Bay Regional Park District preserves a rich heritage of natural and cultural resources and provides open space, parks, trails, safe and healthful recreation and environmental education. An environmental ethic guides the District in all of its activities." The Park District's goal is to preserve and provide access to the best remaining natural open lands in the East Bay through a connected system of regional parklands the preserve water resources, native plants, wildlife habitat, traces of the history of human occupation and use of this area. *Source: EBRPD Master Plan 2013,p.21-22*	Mission: To acquire and preserve a regional greenbelt of open space land in perpetuity, protect and restore the natural environment, and provide opportunities for ecologically sensitive public enjoyment and education. *Source: MROSD Strategic Plan Summary Report, p.4* Current Focus: For the next 15 to 20 years and beyond we imagine a future that equally balances the three components of our mission: preserving open space, protecting and restoring the natural environment, and providing public access and education. *Source: MROSD Strategic Plan Summary Report, p.1* 2011 vision suggests increase in parkland from 62,300 acres to over 100,000 acres and doubling of trails from 230 miles to over 400 miles *Source: FOSM Report, p.12*	Vision: It is our vision to protect, on a long-term basis, natural areas, open space, trails and greenways that lend character and diversity to our region even as more and more people move here to share our special place. It is our vision to balance our urban focus and drive for economic health and property with an array of wildlife habitat in the midst of a flourishing cosmopolitan region. Our vision is to conserve and enhance a diversity of habitats woven in to a lush web of protected greenspaces. We seek to maintain our cities as places where nature is valued in and of itself and is an integral element in daily life. We seek to maintain our cities as places to live and work, to raise a family, play, grow, relax and retire where we forge a unique ecologically relationship between human and natural communities. We seek to maintain our cities as places where we can balance our drive for a sustained economy with our need for sustained livability. *Source: Metropolitan Greenspaces Master Plan, 1992, Vision*	Mission: To conserve natural, cultural and agricultural resources and provide public uses that reflect sound resource management and communityvalue.	Vision: "Regional Parks are exemplars of the diverse landscapes and natural environments of the Auckland region, enabling people to enjoy respite and recreation in outstanding locations, and through linking them to the land and sea, encouraging them to become stewards of this legacy for future generations " *Source: Regional Parks Management Plan 2010, p.1* Purpose: The regional parks represent many of the special natural and cultural qualities of the Auckland region. The parks are purchased, and are managed, to protect their intrinsic, natural, cultural and landscape values and to provide outdoor recreational opportunities for the enjoyment and benefit of the people of the region and are held in perpetuity for that purpose. *Source: Regional Parks Management Plan 2010, p.3*
Land Acquisition Strategy	New LAS being developed in 2016	3-year term Current strategy 2015-2017	Priority areas of interest for acquisition identified within 2005-2015 Regional Parks Plan. *Source: Regional Parks & Trails Plan 2005-2015, p.33*	10-year term Current strategy 2007-2017		Acquisition approach and procedures outlined in EBRPD Master Plan. *Source: EBRPD Master Plan, 2013,p.83*	The 2014 Vision Plan identifies and profiles near-term and long-term general acquisition priorities. *Source: 2014 Vision Plan,p.47* The Financial and Operational Sustainability Model recommends creation of a Property Acquisitions Plan to communicate policies and goals for strategic land acquisition. *Source: Financial and Operationally Sustainability Model, 2015, p.26*	The 1992 Greenspaces Master Plan outlines Regionally Significant Natural Area Sites and Interconnections and Significant Trails, Greenways and Wildlife Corridors as priorities for future acquisition. *Source: Metropolitan Greenspaces Master Plan, 1992, p.21-42*	Reporting states BCPOS has now acquired 90% or more of the land they'd like to preserve. Future shift to monitoring and management. *Source: http://www.bouldercounty.org/doc/landuse/bcpos40anniversary.pdf*	1999 Regional Parkland Acquisition Plan and 2005 Auckland Regional Open Space Strategy
Principles / Policies / Approach to Acquisition		Land Acquisition fund created in 2000 to contribute to the environmental, economic and social sustainability of the region *Source: Regional Parks 2013 Annual Report, p. 8* "The purpose of the proposed regional parks and trail system as defined in the Regional Parks Strategic Plan is to meet the needs of the region's residents now and in the future, respond to expected population growth, connect, protect and restore the region's significant natural areas, and provide areas for residents to connect with nature. An overriding concept is that bigger natural areas are better and connected natural areas are best" *Source: Land Acquisition Strategy 2015-2017, p. IV* The principles that guide land acquisition are: 1. Acquire land based on fair market value and a willing buyer and seller. 2. Acquire property in accordance with the Regional Parks Strategic Plan and available park and trail management plans, giving careful consideration to operating and program needs, Regional Parks' financial position, and timing factors that affect the sale of a property. 3. Focus land acquisition efforts on the portions of a legal parcel that are required for regional park purposes. When the entire land parcel must be acquired, portions not needed by Regional Parks will, where possible, be divided from the main parcel and sold at fair market value.	Given limited resources, RDN uses its acquisition funds as a leveraging tool, to catalyze and promote partnerships in acquisition projects and to find creative means of financing land acquisition. Partnerships and long-term leases are used frequently with organizations that own the land. *Source: RDN Regional Parks and Trails Plan, p.44*	• Establish new regional parks that protect natural environments that are under-represented in the existing system • Protect regionally significant natural landscape features • Establish new parks that highlight regionally significant recreational features near lakes and watercourses • Establish new parks that assist in the conservation of regionally significant cultural landscape of the Central Okanagan • Collaborate with municipal and provisional park systems in the development of a regional trails system that provides both recreational and habitat links to provincial, regional or major municipal parks • Add to the boundaries of existing regional parks to improve ecological health *Source: Regional Parks Plan 2000,p.15* Goal is 12 hectares for every 1,000 residents *Source: Central Okanagan Parks Legacy Program - Ten Year (2007 - 2017) Park Land Acquisition Strategy p.6*	**Securement Criteria:** • Connecting Greenlands Core Areas - North/South Linages and East/West Linkages • Strengthen Existing Green Nodes - Protecting Core Natural Heritage Features and Functions, Forest Rehabilitation *Source: York Region Securement Criteria, 2003, p.10*	**Principle of Balanced Parkland Distribution** - endeavours to balance land acquisition, development, services and parkland operations equitably between geographical areas. Typically each park or trail is composed of several acquisitions made over the years. Usually acquires property that is contiguous to existing holdings, but may acquire non-contiguous lands if consistent with the Master Plan **Acquisition priorities include:** • mostly large, undeveloped open space areas with spectacular views • natural habitat • historic legacy of the American farm period, the Spanish rancho lands and Indian habitation • buffers and separates developed areas from each other • reduce East Bay's carbon footprint by removing approx. 91,000 metric tons of carbon/year • non-vehicular access is encouraged and accommodated through extensive trails system • offer assortment of educational and recreational programs and activities (10 interpretive and educational centres) *Source: EBRPD Master Plan, p.84*	Emphasize priority actions that are: • Networked: Actions connect and link into a coherent system • Balanced: Actions are spread evenly, widely, and fairly • Sustainable: Actions can be done indefinitely • Multi-benefit: Actions promote more than one goal • Place-appropriate: Actions fit the place • Leveraged: Collaborative actions, with small investment and high return *Source: 2014 Vision Plan,p.25*	Metro identifies large target areas for parkland acquisition based on the Metropolitan Greenspaces Master Plan, which allows flexibility for negotiation for more desirable properties and to take advantage of market opportunities. *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.12* 3 Planning Categories: Resourced Based - protecting natural vegetation and biodiversity. Human-Use values - provide opportunity for a variety of experiences, provide a visual setting Economic Values - attributed to agricultural and forest resources. Greenspaces protect air and water quality and improve land values *Source: Metropolitan Greenspaces Master Plan, 1992, p.6*	• Urban shaping between or around municipalities or community service areas, and buffer zones between residential and non-residential development; • Preservation of: critical ecosystems; natural areas; scenic vistas and areas; fish and wildlife habitats; natural resources and landmarks; outdoor recreation areas; cultural, historic and archaeological areas; linkages and trails; access to public lakes, streams and other useable open space lands; and scenic and stream or highway corridors; • Conservation of natural resources, including but not limited to forest lands, range lands, agricultural lands, aquifer recharge areas and surface water; • Protection of designated areas of environmental concern, generally in multiple ownership, where several different preservation methods (including other governmental bodies' participation or private ownership) may need to be utilized; these lands will not be considered for control by the county open space program provided sufficient evidence exists that these lands are to be preserved in a natural state. Source: Boulder County Comprehensive Plan, OS, p.2	1. Meeting community needs, now and in the future 2. Connecting our parks and open space 3. Protecting and restoring Auckland's unique features and meanings 4. Improving the parks and open space we already have *Source: Parks and Open Space Acquisition Policy, 2013, p.16-21*

Park Agency	Metro Vancouver(MV)	Capital Regional District (CRD)	Regional District of Nanaimo (RDN)	Regional District of Central Okanagan (RDCO)	Regional Municipality of York, ON (York Region)	East Bay Regional Park District, CA (EBRPD)	Mid Peninsula Regional Open Space District, CA (Midpen)	Metro Portland, OR (Metro)	Boulder County Parks and Open Space, CO (BCPOS)	Auckland Council Regional Parks, NZ (ACR)
Rate of Acquisition		4,485 ha added between 2000-2014 5 new regional parks 1 new regional trail *Source: Regional Parks Strategic Plan, p.101*	Grew from 25 ha in 1995, to 450 ha in 2005 to 2,061 ha in 2014. *Source: http://www.rdn.bc.ca/cms.asp?wpID=2575*	Grew from 1,041 ha in 2007 to approximately 1,900 ha in 2014. *Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.6 and https://www.regionaldistrict.com/your-services/parks-services/parks-and-trails/regional-parks-what-we-do.aspx*	Since 2001 1,105 ha on 44 properties have been protected through land donation, easement and acquisition with a combined value of $66 M. *Source: Environmental Land Protection and Preservation Program Overview, 2014, p.3*	History of increased service as constituency grows and becomes more culturally diverse. At first, gradual then a more rapid approach at acquiring parkland. *Source: EBRPD Master Plan, P.25* Acquired or optioned 2,100 ha (5,187 acres) in 2014 *Source: EBRPD Community Report2014-2015*	Between 2004 and 2014 over 5,000 ha of parkland were added to the system. During this time, the number of acres open to the public has remained relatively static, while the area of closed parkland has increased dramatically. *Source: FOSM, 2015, p.27*	Acquisition begin in 1995 after the first bond measure was approved to buy natural areas. *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.6*	1993 sales tax was started and bonds approved leading to a period of rapid acquisition. *Source: http://www.bouldercounty.org/doc/landuse/bcpos40anniversary.pdf*	Dates back to 19th Century, Crown acquired public domains and scenic reserves to preserve native bush and use for recreation for citizens. Additional lands were purchased including land for water supply. Auckland Regional Planning Authority was established in 1954, started appraising the need for public open space and the creation of beach reserves. The Auckland Centennial Memorial Park was created in 1941 which during this time significant land was added to the park and acted as a template for regional public ownership and management of large tracts of open space. In 1965 numerous land purchases saw the network of regional parks grow. *Source: Regional Parks Management Plan, 2010, p.3*
Evaluation Criteria for Assessing Potential Regional Parks		**Environmental Criteria:** 1. Representativeness 2. Uniqueness 3. Connectivity 4. Environmental Function 5. Level of Fragmentation 6. Naturalness 7. Viability 8. Habitat Value 9. Distinct Environmental Features 10. Biological Diversity 11. Species Conversation Value 12. Climate Change **Outdoor Experiences: Area Attributes** 1. Environmental Features 2. Cultural/Historical Features 3. Uniqueness 4. Connectivity 5. Viewing Opportunities **Outdoor Experiences: Outdoor Activity and Experience Opportunities** 1. What experiences could be provided 2. Accessibility 3. Environmental Interpretation **Management and Planning Criteria:** 1. Municipal Planning 2. Development Proposals 3. Regional Growth Strategy/Draft Regional	1. Landscape representation 2. Sensitive ecosystem representation 3. Endangered species 4. Key habitat or wildlife corridor 5. Cultural, historic or heritage 6. Water source protection 7. Trail or park connectivity 8. Experiential value 9. Educational value 10. Scenic value 11. Accessibility 12. Complements and/or is of utility to the parks and trails system 13. Geographical equity 14. Priority sites from past Plans 15. Level of public interest 16. Level of threat 17. Availability for acquisition 18. Acquisition cost 19. Maintenance cost 20. Size *Source: RDN Regional Park Acquisition Criteria & Ranking Framework, p.4-6*	**Parkland Acquisition Requirements:** • Presence of cultural heritage resources • Must be representative of Central Okanagan geography and vegetation • That the Regional Parks system will contain sufficient park lands so that there is a ratio in excess of 12 ha per 1,000 residents. • Must be acquired by Purchase, Gift, or Transfer • Consideration given to size, configuration, proximity to residents, access, recreation / interpretive interests, adjacent land use, gaps in the current system, and cost of the acquisition • Priority given to potential natural landscape parks threatened by development that have been identified in this plan *Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.6*	That key natural heritage features and key hydrologic features within York Region for protection include: • significant habitat of endangered and threatened species • fish habitat • wetlands • Life Science Areas and Earth Science Areas of Natural and Scientific Interest • Environmentally Significant Areas • significant valleylands • significant woodlands • significant wildlife habitat • sand barrens, savannahs and tallgrass prairies • lakes and their littoral zones • permanent and intermittent streams • kettle lakes • seepage areas and springs deemed vulnerable or sensitive surface water features • Lake Simcoe Shoreline *Source: York Region Official Plan, 2010, p.14*	Potential acquisitions are considered with respond to the feature they contribute, which may include: • Natural resources • Opportunities for recreation or for enjoying open space, historic or cultural resources • Interpretive and educational opportunities • Scenic value • Access and transportation • Link within regional system (trails) *Source: EBRPD Master Plan, p.84*		**Criteria for prioritizing site selections:** • Rarity of ecosystem • Connectivity to other habitat needs • Biological diversity • Parcel Size • Presence of wetlands and waterways • Feasibility of ecological Restoration • Geographic distribution • Connection to other sites • Natural qualities of the landscape • Public access • Views and vistas • Local public support • Historical / cultural significance • Urban Growth Boundary • Physical constraints • Protection by other means *Source: Metro Greenspaces master plan, p.29*	**Parks and Open Space staff strive to acquire land that meet these criteria:** • Land threatened by development that is near or adjacent to existing open space • Prime agricultural land • Wildlife habitat • Riparian and scenic corridors • Land that could provide trail connections *Source: http://www.bouldercounty.org/os/openspace/pages/acquisitions.aspx*	**Site Suitability Assessment evaluates:** • Location and physical characteristics for intended purpose, environment around the site, hazards • Financial aspects - maximum benefit from money, consideration of ongoing maintenance • Community support - knowledge of community interest • Amenity - provide opportunities for rest and relaxation • Planning and legal restrictions - encumbrances that influence what could happen on the property *Source: Parks and Open Space Acquisition Policy, 2013, p.22-23*
Evaluation Criteria for Assessing Potential Regional Trails		1. Connectivity 2. Visitor Experience 3. Active transportation 4. Linking with other trails 5. Natural Area corridors 6. Connect natural areas 7. Municipal Planning 8. Regional Growth Strategy/Draft Regional Sustainability Strategy 9. Partnerships *Source: CRD Regional Parks Land Acquisition Strategy 2015 to 2017*								
Parkland Classification	**Regional Preserve** - protect/enhance sensitive ecosystems and landscapes; limit activity, only hiking/nature viewing **Regional Nature Parks** - protect areas that are not as ecologically sensitive; provide low-intensity recreation **Regional Multi-use Parks** - accommodate passive outdoor recreation **Regional Trails** - walking, hiking, cycling *Source: MV Regional Parks Services Review Report, p.49*	**Wilderness Area** - sustain wildlife and plants; provide wilderness outdoor experiences and activities **Conservation Area** - protect regionally significant nature environments that contain sensitive and threatened ecosystems; permit outdoor activities provided they have minimal impact **Natural Area** - protect the natural environment and provide opportunities for a range of appropriate outdoor experiences and activities; not as ecologically sensitive or diverse as conservation areas **Recreation Area** - provide opportunities for many outdoor experiences, activities and events; managed to accommodate a relatively high number of visitors *Source: Regional Parks 2014 Annual Report, p. 7*	**Regional Conservation Area** - Protection of the natural environment. Limited, low impact outdoor activities permitting but may be restricted to specific areas. Environmental interpretive facilities permitted provided they have minimal impact. **Regional Natural Area** - Protect the natural environment and provide opportunities for a range of appropriate outdoor experiences and activities. These areas protect key natural areas that are significant to the environmental character of the region. They are not as ecologically sensitive as RCAs, but may contain some sensitive ecosystems. **Regional Recreation Area** - Provide opportunities for a wide range of outdoor experiences, adventure activities and events; managed to accommodate a relatively high number of visitors. **Regional Trail** - Connect regional parks to other parks and trails, key points of interest (natural and cultural) and communities. In or near urban areas to encourage non-vehicular modes of transportation. *Source: RDN Regional Parks and Trails Plan, p.26*	**Regional Conservation Parks** - Protect and enhance habitat values for vegetation and wildlife **Regional Natural Area Park**- Provide opportunities for increasing awareness and knowledge of the natural environment of the Okanagan Valley **Regional Recreation / Cultural / Waterfront Park** - Provide various forms of more active recreation. Focus on aquatic recreation needs and preserve unique cultural landscapes **Regional Trail (Greenways)** - Link provincial, regional and major municipal parks throughout the Central Okanagan *Source: Regional Parks Plan 2000,p.18-19*		**Regional Park** - 500 acres or more, have scenic or natural areas in at least 70% of its area. Accommodate a variety of recreation activities which does not take up more than 30% of its area. **Regional Preserve** - features may be open space (wilderness, flora and fauna, scenic beauty) or archaeological, historical or geological resources. To preserve and protect significant natural or cultural resources. Has great natural or scientific importance. **Regional Recreation Area** - provides a variety of outdoor activities. At least 40 acres and have established regional recreation facilities or the potential to provide them. **Regional Shoreline** - must contain a variety of natural environments and manageable units of tidal, near shore wetland and areas that can be used for environmental, interpretive and scientific purposes. They must contain enough land and water to provide a variety of recreation activities. **Regional Trail** - connect regional parks or trails to each other. Multi-use. *Source: EBRPD Master Plan, p.89-92*		**Nature Parks** - Provide public access to a wide range of natural environments, including's visitor amenities, passive activities. **Recreational Facilities** - Active recreation sites that include amenities such as boat launches, swimming, playgrounds, sports facilities, golf, indoor facilities, etc. **Cemeteries** - Pioneer cemeteries that are managed as active facilities and allow picnicking in a natural setting. Most are also still active cemeteries. **Natural Areas** - Undeveloped lands that protect natural areas. Currently no public access. **Trails** - Metro doesn't own or maintain regional trails, but plays a major role in planning, funding and developing trails. *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.15-35*		**Class 1** - More natural, natural landscape. Emphasis on protection of natural and cultural landscapes, with recreation opportunities where appropriate **Class 2** - Range of visitor experiences, mix of natural environments with limited active and social experiences. Recreation activities balanced with sustainable management of natural and cultural environments **Class 3** - Active recreation and large group activities. Emphasis on providing recreation opportunities while protecting significant cultural and natural landscapes *Source: Regional Parks Management Plan 2010, p.24*
Current / Target Amount of Each Park Class				Regional Conservation Park - 18% Regional Natural Area Park - 25% Recreation / Cultural / Waterfront Park - 50% Regional Trail (Greenways) - 7% *Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.6*				Natural Areas - 72% Nature Parks - 24% Recreational Facilities - 4% Cemeteries - 0.5% *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.12*		
Estimate of Publicly Accessible Land						77.9% *Source: MidPen FOSM Report,p.31*	47.7% *Source: FOSM Report, p.31*	~ 33% *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.2*	60% *Source: http://www.bouldercounty.org/os/openspace/pages/posaces.aspx*	

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Funding										
Annual Budget	$33.4 M budgeted for 2015 *Source: 2015 Budget in Brief, Metro Vancouver*	$11.2 M total $3.9 M of that on land acquisition *Source: 2013 Regional Parks Annual Report*	$1.95 M tax revenues for Regional Parks proposed in 2014 *Source: Perspectives, 2014 Proposed RDN Budget Edition*	$7.3 M operating budget and $1.2 M capital budget for 2015 *Source: https://www.regionaldistrict.com/media/166196/bylaw1356.pdf*	$1.7 M allocated in 2014 to deliver the Greening Strategy. *Source: Environmental Land Protection and Preservation Program Overview, 2014, p.6*	$223 M budgeted in 2015 *Source: 2015 Budget Brief*	$35.6 M in expenditures in 2014, $8.0 M of that spent on land purchases and capital expenditures *Source: Annual Report, 2014-2015*	$52.5 M budgeted in 2015-2016 *Source: Metro Adopted Budget Summary, FY 2015-2016*	$34.8 M budgeted for 2016 *Source: http://www.bouldercounty.org/doc/government/res2015-124sum-exp-rev.pdf*	$156.7 M budgeted for operation; $63.1 M budgeted for capital in 2015/16 *Source: Auckland Council Long-term Plan 2015-2025, Vol.2, p.189*

Sources of Funding	Heritage Parkland AcquisitionFund
	• fixed amount $3.77M/year or approx. $1.50 per capita/year
	Source: MV Regional Parks Services Review Report, p.45
		Land Acquisition Fund established in 2000:
		• $10/average residential household assessment 2000 to 2009
		• Increasing $2/average residential household assessment until 2014 (max$20)
		• $20/average residential household assessment in 2014 until 2019
		• Funds generated in 2013: $3,635,016
		Source: Regional Parks 2013 Annual Report, p. 8
		• Funds generated in 2014: $3,805,155
		Source: 2014 Land Acquisition fund, bulletin #15, p.4
		Target 20% funding from other partners for acquisition. Between 2000-2014:
		• 72% contribution to acquisition by Regional Parks
		• 28% contribution by partners
		Source: Land Acquisition Fund Bulletin 15, p.3
			In 2005, only electoral areas were contributing tax dollars for acquisition of Regional Parks; municipalities were not. In 2011, the RDN went through an investigation of use of DCCs for Regional Parks, but it was not adopted by the board.
			Source: RDN Regional Parks and Trails Plan, p.66 and Marshall, 2015
			Prior to 2005, there was no Parks and Trails Acquisition Fund. In 2005, recommended 2% annual increase in requisition for regional park/trail acquisition. Annual acquisition forecasted to be $186,500/year by 2015 if increase occurred.
			Source: RDN Regional Parks and Trails Plan, p.66-68
				Acquisition Approaches:
				• Private Land Purchase (Immediate)
				• Private Land Purchase (5-10 Years)
				• Crown Lands
				  • Free Crown Grants / Nominal Rent Tenures
				  • Lease
				  • Crown Grant
				  • Crown Land Purchase
				• Donation / NGO Partnerships
				Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.16-17
				Legacy Fund
				• 2007 - started $0.02/$1,000 assessed value of residential property (generated between $650,000 to $705,000 annually 2007-2009)
				• 2009 - increased requisition to $0.055/$1,000 assessed value of residential property (generated between $1,23 M to $1.255 M annually 2009 - 2013)
				• 2014 - increased requisition to $0.09/$1,000 assessed value of residential property (estimated to generate $2.2 M to $2.5 M annually 2015 - 2019)
				Source: Governance & Services Committee Report: Proposed Regional Parks Capital Facilities Reserve Allocation 2015-2019, Feb. 18, 2015
				Recommended DCC of $100/unit for regional parks.
				• With estimated addition of 18,989 units between 2007-2017, $1.8M in park land acquisition funding would be generated (was not implemented)
				Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.23
					Under the umbrella of the Region's Greening Strategy (adopted May 2001) and the Regional Official Plan, the Securement Strategy committed to provide annual dedicated funding of $1.4 M to assist with land acquisition and securement initiatives.
					Source: York Region Securement Criteria, 2003, p.7
					Securement Strategy uses a hierarchy of securement tools:
					• Acquisition through donations, bequests, easements, purchase
					• Policy / Planning through regional / local / federal / provincial designations and tax incentives
					• Stewardship through education, rehabilitation, forest management
					Source: York Region Securement Criteria, 2003, p.8
					Partnering with other like-minded organizations to leverage additional funds
					Source: The Regional Municipality of York Greening Strategy
						• Bond Measures:
						  • Measure AA (1988 - 2008) was the first bond measure for EBRPD that financed $225 M in bonds adding 34,000 acres of park and 100 miles of trail. Financing was leveraged through dollar-for=dollar federal and state matching funds.
						Source: www.ebparks.org/about/planning/mp/measureaa
						  • Measure CC (2004 - 2020) is a $12-per-year parcel tax passed by voters, 15-year special tax ending in 2020 to fund critical infrastructure improvements including native habitat restoration, fire hazard reduction, facility upgrades. Raises $3 Mannually.
						Source: www.ebparks.org/features/All_About_Measure_CC
						  • Measure WW is a max $10/year per $100,000 assessed valuation for $500 M bond extension
						Source: www.ebparks.org/about/planning/ww
						• Grants totaling $22 M from 26 federal, state and local agencies
						Source: Community Report 2014-2015,p.3
						• Regional Parks Foundation - Fundraising to provide broader public access, resource protection, educational and recreational programs and acquisition
						Source: EBRPD Master Plan,p.119
						• 83.4% from Taxes and Assessments in 2013
						Source: EBRPD Master Plan,p.122
							2014 passed Measure AA bringing $300 M in bond capacity to implement 30-year Vision Plan. This money is provided for us in protecting natural open space, opening preserves, constructing public access improvements, and restoring and enhancing open space lands.
							Source: FOSM, p.11
							Tax rate will not exceed $3.18 per $100,000 of assessed property value within the District's jurisdiction.
							Property tax revenue is projected to total $36.305 M in 2015, an increase of 7.6% over the prior year.
							Source: Action Plan Budget FY15-16, Sec II, p.1
							Property tax revenues approximately $17/$100,000 assessed property value
							Source: Fact Sheet
								1995 bond measure of $135.6 M and 2006 bond measure for $227.4 M were approved. The 1995 bond measure identified 20 areas of interest; the 2006 measure 27.
								Funding to date has focused almost exclusively on acquisition.
								Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.6,10
								In 2002, Metro developed a $1-per-ton increase in the Solid waste tax paid by the region's haulers and increased in in 2004 to $1.50-per-ton to generate funding to develop regional parks.
								Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.8
								Local option levy of $0.096/$1,000 of home value to fund natural areas and parks to open more areas to the public, improve existing facilities, offer volunteer opportunities. Levy will raise $8 to $10 million/year for five years.
								Source: http://www.oregonmetro.gov/public-projects/natural-areas-bond-measures-and-levy/history
									• Four Open Space Sales and Use Taxes (0.25% to 2019, 0.10% to 2029, 0.10% to 2024, 0.15% to 2030) for a total of 0.6% on the sale of tangible personal property at retail or the furnishing of services in the County.
									• Property Taxes generate about $4 M annually for open space acquisitions and additional property tax funds for operations, maintenance and trail construction.
									• State Lottery Fund distributes all net lottery proceeds to local governments for parks, open space, and wildlife habitat purposes.
									• Occasional grants from Great Outdoors Colorado, the Land and Water Conservation Fund and the Federal Farmland Protection Program
									Source: http://www.bouldercounty.org/os/openspace/pages/openspacefunding.aspx
										Acquisitions may be funded through a combination of:
										• Loan funding
										• Direct Rate funding (fixed-rate funding)
										• Public Subscription (Local Authority Stock or Bonds)
										• Other Agency Contribution
										• Donations or Vesting
										Source: Regional Parkland Acquisition Plan, p.34

Partnerships	Pacific Parklands Foundation *Source: Regional Parks Services Review, p.62*	Pender Island Conservancy Association The Land Conservancy of British Columbia *Source: Land Acquisition Fund Bulletin 15, p.3*	RDN relies heavily on partnerships or leaseholder arrangements for land acquisition. Most parks are not "owned" by the RDN but under agreement with partners including: Private Landowners (forestry companies), Federal Government, Provincial Government, MOTI, Nature Trust, Municipal Government, Associations. *Source: RDN Regional Parks and Trails Plan, p.38-39*	Partnerships: • Central Okanagan Parks and Wildlife Trust • South Okanagan-Similkameen Conservation Program • The Land Conservancy of BC • Nature Conservancy of Canada • The Nature Trust of BC • Ducks Unlimited *Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.19*	York Region's securement partners include: • Local Municipalities • York Environmental Stewardship • Ontario Streams • Nature Conservancy of Canada • Oak Ridges Moraine Land Trust • Toronto and Region Conservation Authority • Lake Simcoe Region Conservation Authority • The Province • University of Toronto • Oak Ridges Moraine Foundation • Natural Resources Canada • GTA Clean Air Committee *Source: York Region Official Plan, 2010, p.12*	Actively works with cities, counties, districts and other governmental agencies Donations Grants and Endowments from: • California Coastal Conservancy • California Department of Boating and Waterways • California Department of Parks and Recreation • Contra Costa County Fish and Wildlife Committee • Contra Costa Transportation Authority • East Contra Costa County Habitat Conservancy • Federal Emergency Management Agency • Federal Highway Administration • Gordon and Betty Moore Foundation • Regional Parks Foundation • Alameda County Transportation Commission • Altamont Landfill Open Space Fund *Source: EBRPD Master Plan,p.125*	Peninsula Open Space Trust (POST) founded in 1977 is a complementary private non-profit organization that can negotiate quickly and privately with sellers to purchase open space land. *Source: Strategic Plan Summary Report, p.3*	In 2007, "The Intertwine Alliance" was established comprised of public and private partners with Metro in a central role as a founding member and largest financial contributor. The alliance has five key initiatives: • Conservation (protecting biodiversity) • Conservation Education Leadership • Acquisition • Regional System • Active Transportation *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.10*		
Delivery										
Governance / Management Structure		Regional Parks are governed by the CRD Board through the Regional Parks Committee. The Chair, Vice Chair and members are appointed annually by the Chair of the Board. *Source: CRD Regional Parks Committee 2015 Terms of Reference*	The Regional Parks & Trails Select Committee is made up of Board and Community representatives. Currently there are 8 committee members. *Source: http://www.rdn.bc.ca/cms.asp?wpID=418*			East Bay Regional Parks District is politically defined as a Special District, taking the place of a county park system for Alameda and Contra Costa counties. The EBRPD Board is comprised of 7 elected directors each serving four-year terms and each representing one of seven wards in the EBRPD. *Source: EBRPD Master Plan, 2013,p.23*	Seven-member elected Board of Directors. Each director is elected for a 4-year term and represents a geographic ward. Over 100 employees including administration, natural resources, operations, planning, public affairs and real property. *Source: www.openspace.org/about-us./faq*	Represented by Metro Council, which is a 7 member Board representing 6 Districts. *Source: Open Spaces. Treasured Places, 2005 .*	9-member Parks & Open Space Advisory Committee reviews proposals and advises the Boulder County Planning Commission, the County Commissioners and staff on issues related to open space, county land acquisitions and maintenance *Source: http://www.bouldercounty.org/gov/boards/pages/posac.aspx*	Auckland Council's decision making responsibility is shared between the governing body and 21 local boards. The governing body focuses on issues, decisions and strategies affecting the whole region while local boards represent their communities and make decisions on local issues. The governing body determines the general direction and priorities for acquiring parks and open space and local boards consider opportunities that align with the acquisition criteria and set local priorities. The governing body approves acquisition proposals. *Source: Parks and Open Space Acquisition Policy, p.9*
Public Participation		During Strategic Plan development: 2 phases of engagement with stakeholders, public, government, First Nations and other parks agencies *Source: Regional Parks Strategic Plan, 2012-2021*	During Parks and Trails Plan development: 2 phases of engagement with public and stakeholders *Source: RDN Regional Parks and Trails Plan 2005-2015, p.5*				Vision Plan led by a Community Advisory Committee of 32 volunteers comprising stakeholders, community leaders, representatives from partner organizations, agencies and the local community. Held two rounds of public engagement during the vision plan development. *Source: 2014 Vision Plan,p.9-10*			
Volunteers	In 2014 - 3,780 volunteer instances, 23,977 hours *Source: Regional Parks by the Numbers, 2014, p.9*	In 2014 - 646 volunteers, 4,700 hours *Source: 2014 Regional Parks Annual Report, p.19*				8,048 volunteers, 115,754 hours of service in 2011 *Source: EBRPD Master Plan 2013,p.33*	Over 500 volunteers annually *Source: Midpen Fact Sheet*	More than 2,500 people volunteer annually *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.55*	Created Boulder County Youth Corps in 1996 - 155 youth members in 2015 *Source: https://bouldercountyopenspace.org/40/img/presentation.pdf*	65,000 hours annually *Source: Regional Parks Management Plan, 2010, p.5*

Performance Measures	MV Monitors:
	• Park visits
	• Program attendance
	• Day use bookings
	• Volunteering
	Source: Regional Parks by the Numbers, 2014
		CRD Monitors:
		• Cost per average household (based on requisition budget)
		• Core Services Operating Budget per visitor
		• Core Services Operating Budget per hectare
		• Visitor's satisfaction with facilities and services
		• Environmental education participants' satisfaction with programs
		• Visits to Regional Parks and Trails
		• Volunteer satisfaction with their experience
		• Number of views to Regional Parks home page
		Source: Service Plan for Regional Parks, p.12
					Sets Targets within the Greening Strategy. 2012 Targets:
					Environmental Land Securement: Pursue a minimum of six sites or 65 ha secured annually
					• Leadership, Innovation and Knowledge:
					  • Coordinate four information sharing forums annually
					  • Present at two conferences annually
					  • Submit three funding applications annually to leverage funding
					Enhancement and Rehabilitation: A minimum of 70,000 trees and shrubs planted annual
					• Stewardship and Education:
					  • Annually coordinate 60, support 25 and actively participate in 15 partner-led events
					  • Target outreach to 50,000 people annually through programs and communications
					Source: Greening Strategy, 2012,p.9-12
										ACR sets performance measures in their 10-year budget plan.
										Source: Auckland Council Long-term Plan 2015-2025, Vol.2, p.185

Park Agency	Metro Vancouver(MV)	Capital Regional District (CRD)	Regional District of Nanaimo (RDN)	Regional District of Central Okanagan (RDCO)	Regional Municipality of York, ON (York Region)	East Bay Regional Park District, CA (EBRPD)	Mid Peninsula Regional Open Space District, CA (Midpen)	Metro Portland, OR (Metro)	Boulder County Parks and Open Space, CO (BCPOS)	Auckland Council Regional Parks, NZ (ACR)
Delivery										
Primary Current Documents	Regional Parks Service Review - 2014 draft Regional Parks Plan - 2015 Metro 2040 - Regional Growth Strategy	Regional Parks Strategic Plan - 2012-2021 Land Acquisition Strategy 2015-2017 Service Plan for Regional Parks 2013-2015 2012-2016 Financial Program to Implement the Regional Parks Strategic Plan	RDN Regional Parks and Trails Plan - 2005-2015	RDCO Regional Growth Strategy - 2013 A Central Okanagan Parks Legacy Program - Ten Year Park Land Acquisition Strategy (2007-2017) Our Regional Parks: The Central Okanagan's Official Plan for the Regional Park System - 2000	York Region Greening Strategy - 2004, 2012 York Region Official Plan - 2010 York Region Securement Criteria - 2003	East Bay Regional Park District Master Plan -2013 East Bay Regional Park District 2015 Budget Brief	2014 Vision Plan Financial and Operational Sustainability Model - 2015 Adopted Fiscal Year 2015-16 District Action Plan and Budget	Metro's portfolio of natural areas, parks and trails: opportunities and challenges - 2011 Metropolitan Greenspaces Master Plan - 1992 Metro Urban Growth Report - 2014	Acquisition Goals -2015 Boulder Comprehensive Plan - 1999	Parks and Open Space Acquisition Policy - 2013 Parks and Open Space Strategic Action Plan - 2013 Regional Park Management Plan - 2010 Regional Parkland Acquisition Plan - 1999
Contact		Lynn Wilson Park Planner T: 250-360-3369 E: lwilson@crd.bc.ca	Wendy Marshall Manager of Parks Services T: 250-248-3252 E: wmarshall@rdn.bc.ca	Wayne Darlington Manager of Park Planning / Capital Projects / Visitor Services T: 250-469-6200 E: Wayne.Darlington@cord.bc.ca	Barb Davies Regional Greening Coordinator, Environmental Promotion and Protection Branch T: 905-830-4444x75336 E: Barbara.Davies@york.ca	Liz Musbach Manager, Land Acquisition T: 510-544-2610 E: Lmusbach@ebparks.org		Kathleen Brennan-Hunter Director, Parks & Nature T: 503-797-1948 E: Kathleen.Brennan-Hunter@oregonmetro.gov	Janis Whisman Real Estate Division Manager T: 303-678-6263 E: jwhisman@bouldercount.org	Andrew Beer Principal Policy Analyst, Parks and Recreation Policy T: 021-853-357 E: Andrew.Beer@aucklandcouncil.govt.nz
Notes		Some land is held as regional park reserve until such time the land is needed for recreation and/or funding is available for development of amenities. *Source: Regional Parks Strategic Plan, p.101*		The RDCO acquisition plan includes Biogeoclimatic Gap Analysis and strives to ensure all of the 18 Biogeoclimatic zones within the Regional District Boundary are represented. *Source: A Central Okanagan Regional Parks Legacy Program, 2007, p.19*	York Region relies heavily on partnerships for land protection in the region. For example the Oak Ridges Moraine Land Trust currently protects 1,575 ha of land. *Source: http://www.oakridgesmoraine.org/*	The District uses "land bank status" for lands that are not suitable for immediate use due to lack of public access, unsafe conditions, protection of resources, need to acquire contiguous lands. When in land bank, property is maintained at minimum level necessary. *Source: EBRPD Master Plan, p.85* All residents can find a regional park within 15 minutes of their homes (in discussion with parks staff, it was suggested this parameter would be measured by car). *Source: EBRPD Master Plan 2013, p.52, interview with EBRPD Staff*	Measure AA brought $300 M in bond capacity to MidPen, significantly increasing their growth. A Financial and Operational Sustainability Model was completed to anticipate and plan how to respond to this change. *Source: FOSM* In the Past the District has historically only expended about 50% to 70% of its planned annual capital expenditure budget due lack of capacity. *Source: FOSM, p.12*	Metro takes a very active role in managing natural areas developing short-term and long-term plans for each property to look at alternatives for the future based on ecology and available resources. The costs of restoration and maintenance are high which is challenging Metro now to decide which properties to restore and how to care for them overtime. *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.41-46* Currently demand hasn't been quantified, but Metro's experience is when parks are opened, people use them. • Nature Parks - anticipates greatest use and provide facilities including trails, restrooms, parking, camping, cabins, boating, events • Natural Areas - Fewer facilities, but accommodates trails and some potential parking or restrooms, non-motorized boating • Habitat Preserves - Areas with sensitive species and fragile habitats that preclude almost all access by people. *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.57-58* Metro sets aside about 2% of asset value for renewal and replacement. *Source: Metro's portfolio of natural areas, parks and trails: opportunities and challenges, p.65*	BCPOS owns 25,000 acres of farms and ranches fee simple. The have 90 lessees. Created a goal of 20% organic by 2020. *Source: https://bouldercountyopenspace.org/40/img/presentation.pdf*	

APPENDIX D
Summary of Discussions with Park Agency Representatives

All parks agencies profiled in the research were contacted to request input. This summary summarizes interviews conducted with the agencies who were able to provide responses.

Auckland Council Region

Interview Date:	October 7, 2015
Agency Representative:	Andrew Beer Principal Policy Analyst, Parks and Recreation Policy
Contact:	T: 021-853-357 E: Andrew.Beer@aucklandcouncil.govt.nz

Overview

- Most Regional Parks are quite far from the metro area due to urban limitations, especially those being acquired recently.
- The service often undertakes enhancement and restoration of natural features and development of passive recreational facilities within Regional Parks.
- ACR does acquire sites that are currently agricultural lands with active farming as a means of securing these lands before opportunity is lost.
- Most Regional Parks are over an hour drive from urban populated areas.
- Auckland has a similar hierarchy of parks to Metro Vancouver – including a National level focused on preservation of nationally significant landscapes and a local level focused on recreation services. There is also a National Department of Conservation that administers reserves focused mainly on conservation of natural areas.

Approach to Acquisition

- At the Regional Parks level, ACR intentionally does not set an amount of land to acquire. They follow a regional vision that seeks to create a better network between parks.
- Typically, the Council seeks opportunities to acquire sites with high ecological or recreational values.
- ACR did formerly use a target metric for Regional Parks, but have stopped in recent years due to challenges in achievability. For local parks (also administered by ACR), they are currently testing a distance measurement target (how far it is to walk to a park).
- A recent focus has been to improve Regional Parks to make them more relevant to current population needs and to promote more use.
- When seeking acquisitions, ACR prioritizes properties that improve existing parks.
- ACR uses an opportunistic approach – generally trying to be responsive when an opportunity arises.

- ACR's acquisition strategy is developed at a high level, indicating general desires (e.g. type of park, general location), but avoiding extensive detail so the plan can remain relevant and responsive.
- Auckland is seeing a lot of current development and has recently confirmed a new greenfield development site. As part of the planning for the greenfield development, they are creating a District Plan and as part of that plan will identify spaces to acquire large, significant parks before development occurs.
- Regional Parks acquisition is a very long-term process. Often negotiations for desirable lands can go on 5-10 years.
- ACR typically does not use compulsory acquisition for parks.

Park Planning

- ACR takes a two-tier approach to parks planning:
  - Development of general provision guidelines for the entire region.
  - Creation of Open Space Network plans for all local board areas that respond to the provision guidelines, but focus on local needs.

Climate Change

- Currently Regional Parks are not recognized as playing a role in climate change adaptation.
- ACR are seeing impacts related to Sea Level Rise. National Planning Policy created in 1991 requires all new development on the coast to provide 20 m of foreshore to the Council, which has resulted in a network of shoreline reserves being established. The benefit is a connected shoreline parks network; however, the ACR is now seeing impacts of inundation and erosion within the 20 m buffer and in some cases 20 m may be insufficient to manage the impacts of coastal erosion. However, at this time, land acquisition beyond 20 m is at market value, making much of it unaffordable.

Funding

- Funding for larger parks (i.e., Regional Parks) typically is generated by general rates (taxes).
- Other parks funding is obtained through Development Contributions (DCs) from subdivision (used for both local and Regional Parks). This funding yields about 90% of parks acquisition costs.
  - ACR must link development contributions and the need for parks acquisition, so most often the money is spent in growth areas.
  - Currently DCs are about $7,000/new house for parks acquisition.

Regional District of Nanaimo

Interview Date:	October 9, 2015
Agency Representative:	Wendy Marshall Manager of Parks Services, RDN Recreation and Parks Department
Contact:	T: 250-248-4744 x653 E: WMarshall@rdn.bc.ca

Approach to Acquisition

- RDN does not use a set target for parkland acquisition.
- Through the Regional Parks Planning process, desirable areas have been identified based on community interests. RDN's focus has been to respond to publicly identified desires and board direction, as funding and opportunity permits.
- When the 2005 Regional Parks Plan was developed, there was a strong desire for acquisition. As acquisitions have been rapidly completed, the RDN has seen significant increases in operational costs. This has led to the Board being more cautious about properties being acquired. New acquisitions are carefully analyzed to understand the costs of additions to the parks system.
- RDN uses a set of criteria and a rating framework to evaluate potential acquisition properties. A key criterion added to that framework is operational costs. Natural lands are much more favourable than those with infrastructure that requires management.
- For the RDN, acquisition is strongly connected to opportunity. They do look closely at availability of lands – if lands appear to be too costly or difficult to acquire, often these will not be pursued, even if they are desirable.
- As opportunities come up, RDN uses their ranking framework to evaluate each opportunity.
- Often a focus for acquisition is expansion of existing parks, including parks under other ownership that would benefit from expansion.
- An issue that RDN has encountered during acquisition is access limitations to Regional Park sites (e.g., Mount Arrowsmith Massif Regional Park is surrounded by private forestry lands, requiring negotiation for access). This is now a primary consideration for acquisition.
- An observation RDN has made is that when a park is acquired, there is an expectation from the public that it will be immediately opened for public use.

Park Planning

- Generally, the RDN's services do not overlap with other levels of parks providers. Most Regional Parks are located outside urban areas, so there is a clear distinction between local and Regional Parks.
- The RDN does evaluate "duplication" as part of their rating framework to decide whether to pursue land that may be protected by other means.

Climate Change

- The region has not yet requested Regional Parks' involvement on regional issues such as climate change or water source protection.
- Regional Parks do consider these aspects as part of their rating framework, but they don't have a direct mandate.
- There is potential this could evolve in the future, with Regional Parks making greater contributions to the protection and management of resources (e.g. water).

Funding

- RDN did go through an extensive process of considering DCCs for Regional Park acquisition. RDN worked with municipalities to determine how DCCs collected from a city would be applied in the region. The outcome was an approach that would have used DCCs to fund "regional-scale local parks." In the end the bylaw was not approved, partly due to concerns about development impacts.
- RDN uses a parcel task for acquisition – currently $13/property is levied on residential properties in the region. Property tax is collected to fund operations.
- RDN relies heavily on land leases and other procurement methods due to limited funds for acquisition.
- This approach results in challenges related to uncertainty about renewal. For example, RDN maintains several 30-year (or more) leases. During the tenure, RDN can make improvements; but if the tenure is not renewed, investments are lost. This is a particular risk for Crown Lands or lands obtained in partnership.
- The leasehold approach helps manage costs, but requires significant staff time for monitoring and responding to land lease issues.

Regional District of Central Okanagan

Interview Date:	October 14, 2015
Agency Representative:	Wayne Darlington Manager – Park Planning/Capital Projects/Visitor Services
Contact:	T: 250-469-6200 E: Wayne.Darlington@cord.bc.ca

Approach to Acquisition

- When RDCO completed the Land Acquisition Strategy they looked at the current practices of Metro Vancouver, RDN, CRD, CVRD, and other similar agencies.
- Through these reviews and workshops with the Board, RDCO did end up setting a quantifiable target for land acquisition which was 12 ha / 1,000 population. Largely this number was based on benchmarking of what other agencies were delivering or planning to deliver.
- Over the years RDCO has recognized challenges in meeting a high target. When looking at protected lands within the region as a whole, it is an easily achieved target; but at the Regional Parks level it is more challenging.
- Likely during future planning RDCO will review the number and consider an updated target.
- RDCO has found the target useful in having something to aim for. Linking it to population growth shows that as the population grows there will be need for more park space.
- Generally, acquisition is based on availability of funding. The 2007 Land Acquisition Strategy included a very long and expensive list for consideration. In 2008, acquisition plans were slowed, but there are opportunities to increase the pace over time.
- RDCO seeks partnerships as a way of growing the system.
- When they completed the Land Acquisition Strategy, RDCO based identification of potential properties on the criteria identified in the 2007 plan, then had Board input to set priorities.
- Gaps in biogeoclimatic zones were identified as a priority for the RDCO, so many of the acquisitions focused on acquiring lands to fill these gaps.

Park Planning

- RDCO looks to the Sensitive Ecosystems Inventory and Conservation Database Centre, along with Forest Cover mapping to identify potential sites of interest. They overlay this with existing parks system and look for connections and gaps.
- RDCO has good partnerships with other levels of government. There is some lack of clarity between the roles of the Regional District and local government, but generally they work through the best approach on a case-by-case basis. There are cases where operational services are offered by one agency within the other's park for convenience.
- A key recent focus for Regional Parks has been linear trails and pathways.
- RDCO follows a balanced approach to park acquisition – seeking lands that conserve natural values while offering passive recreation opportunities.

Climate Change

- Currently the RDCO planning documents do not incorporate climate change, although it is something that has been discussed.
- Regional Parks is currently not anticipating funding streams directly related to climate change at this time.

Funding

- RDCO has considered a DCC approach, but has not pursued it.
- A challenge to implementing the Land Acquisition Plan has been the four-year political cycle which affects priorities in the plan.
- A recent priority has been funding for development of parklands (e.g. trails, parking lots). There is often demand from the community for a park to be operational right at its inception.

Metro Oregon

Interview Date:	October 23, 2015
Agency Representative:	Kathleen Brennan-Hunter Director, Parks & Nature
Contact:	T: 503-797-1948 E: Kathleen.Brennan-Hunger@oregonmetro.gov

Approach to Acquisition

- Acquisition is funded through a capital bond measure. Once the bond measure is set, it guides how much land will be acquired within a given timeframe. The current bond measure was passed based on planning done on habitat values in the early 1990s.
- Metro is currently in the process of considering what their next acquisition needs will be, but it is unlikely there will be an identified quantifiable target.
- Metro does consider using benchmarks to track their progress.
- Metro's approach is based on landscape ecology – seeking core habitat then connecting these cores by linkages. It is very difficult to determine upfront exactly how much will be needed to achieve these cores and connections, as there are many factors to consider and the area is changing very rapidly.
- Where possible, Metro endeavours to balance the region's needs, so there is acquisition in various parts of the region.
- Council has delegated authority for acquisition to staff which allows land negotiations and closure without political process. Council does not get involved in land negotiation. This provides staff the confidence that they can deliver on a negotiation and they are able to keep negotiations confidential.

Park Planning

- Metro is currently developing a system plan based on parkland classifications and will define a level of service based on these classifications.
- Metro does encounter issues with perceived duplication of services between regional and local functions. As part of Metro's system plan, they have developed a very clear operating model that defines the role of Regional Parks, which is access to nature in an urban environment. This may not resolve all issues, but does provide additional clarity.

- They do still partner with other levels and agencies in acquiring parkland. Bond measures include support for local jurisdiction acquisition in urban areas.
- Metro tries to balance between spending on acquisition of small parcels within urban areas and acquisition of larger parcels in rural areas. They've tried to strike a balance between how much they spend on each, though they can acquire much more land in rural areas.

Climate Change

- The public is strongly supportive of Metro acquiring upland areas that protect drinking watersheds, benefitting the entire region.
- There is also support for acquiring upstream floodplain and habitats to contribute to protection of urban areas from climate change and risk of flash flooding.
- It is important for Metro to maintain a firewall between land acquisition planning and regional planning related to the growth boundary to ensure they don't have "insider information" when planning acquisitions.

Funding

- Typically, Metro sets 10-year bond measures. The first was done in 1995 and a second in 2006. The recession has slowed land acquisition since then.
- As part of their bond measure, they are able to use some bond funds for immediate "stabilization" of parks, including ecosystem or infrastructure improvements to manage potential degradation. As part of the acquisition process, they complete an assessment to determine what these stabilization needs will be. They have a very clear framework of what can be funded and supported by the bond measure requirements.
- Metro did have an excise tax in the past and looked at raising it; however, this was not pursued due to other financial challenges at the time.
- There is a local option levy that provides $10 M/year over a five-year term for restoration and maintenance and some "access to nature" improvements in Regional Parks. This funds the majority of Metro's current parks improvements.

Capital Regional District

Interview Date:	October 30, 2015
Agency Representative:	Lynn Wilson Park Planner, Parks and Environment Services
Contact:	T: 250-360-3369 E: lwilson@crd.bc.ca

Approach to Acquisition

- The CRD does not set a quantified acquisition target – it is considered too restrictive and may be seen as arbitrary. For example, in the context of the 12% Protected Areas Strategy, it could be stated that the CRD has already achieved this, but the CRD is not done land acquisition for Regional Parks.
- The Land Acquisition Strategy is completed on a three-year basis and reported on annually. The three-year strategy provides flexibility for staff to negotiate on lands that are within the strategy without having to go back to the Board.
- The current strategy is focused on lands in the east to complete existing park boundaries. The CRD, and other agencies, are now protecting a large amount of the land East of Sooke River (40% of the land is under protection).
- CRD does have evaluation criteria, but not sure how rigorously these criteria are applied. CRD also is open to opportunities that fit the system.
- During the first Land Acquisition Strategy, CRD completed a resident survey that helped inform the priority acquisitions.

Park Planning

- A challenge for the CRD is that there is limited information about biological diversity in the western areas of the region. Much of this land is Crown or forestry lands, it has not been studied extensively.
- The CRD is gathering information about these lands now, so that they may be considered within the next Land Acquisition Strategy. The CRD anticipates shifting their focus to the west where there is relatively little secured parkland to date.
- Generally, the CRD does not overlap with other levels of parks services. There is a clear definition of the role of Regional Park in the Regional Parks Plan. Generally, CRD focuses on large, natural landscapes that complement the local parks systems.

- The CRD is seeing fewer opportunities in areas of the region that are very developed, but there remain good opportunities in areas that are still nearby urban populations.
- A recent focus has been on Regional Trails as a way to connect people to the Regional Parks system.
- The Gulf Islands are the most challenging component of the system and they are not as well represented yet.
- The "nature needs half" concept was brought forward in the CRD through a citizen advisory board. It connected with the WILD foundation movement "Nature Needs Half".
- Given the high-level nature of the concept, people may not have fully connected with it, but it is incorporated into multiple strategies including the Regional Sustainability Strategy as a visionary concept.
- The concept has contributed to some big picture thinking for the region such as the "Green and Blue Belt".

Climate Change

- CRD does look at potential impacts to Regional Parks through a climate change lens. The Regional Parks function is well aligned with the protection of lands. When the CRD acquires land in the future, climate change adaptation will be a consideration.
- CRD is seeing issues with some existing waterfront properties – where climate change will likely lead to the need to consider shoreline improvements related to potential flooding.

Funding

- CRD used to purchase parkland through borrowing, but now prefers a pay-as-you-go approach.
- CRD does look for partners for land acquisition – typically the CRD seeks to contribute up to 70% of a Regional Park acquisition, with partners funding at least 30%.
- CRD has also received lands through provincial transfer.
- Some pieces have been 100% purchase by CRD.
- The current $20/$100,000 property value levy generates about $3.7 M annually for acquisition.

East Bay Regional Parks District

Interview Date:	November 6, 2015
Agency Representatives:	Liz Musbach, Manager, Land Acquisition Bob Nisbet, Assistant General Manager Larry Tong, Chief of Planning/GIS Matt Graul, Chief of Stewardship Jeff Rasmussen, Assistant Finance Officer
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Overview

- The EBRPD has evolved over time – the area covers two counties with multiple urban areas.
- There are seven wards and each ward is represented by a director on the Board. The director is elected by each area.
- It was surplus lands from the area's utility district that initiated the start of the EBRPD in the 1930s.

Approach to Acquisition

- EBRPD does not develop an additional Land Acquisition Strategy beyond their Parks Plan.
- Acquisition priorities are reviewed through an annual session with the Board. There is an annual session document created for this.
- When looking for acquisition priorities, EBRPD overlays:
  - Information from the Bay Area Open Space Council
  - Conservation lands network
  - Natural lands information
  - Value of the land
- The Principal of Balanced Parkland Distribution was first considered in the 1930s and written into the first master plan in 1973. It has been part of the EBRPD for a long time.
- EBRPD finds the principle useful guidance for being "fair" with resources. The area is divided into three areas based on geography. Funding for each of these areas is based on population. Long-term goals, opportunities, and financing are also considered, but over time the EBPRD strives to always return to balance. It's not an exact balance, which at times can be a point of contention.
- There is one area that has higher land costs than the other areas, making it much more difficult for land acquisition. The policy is based on cost,

not area of land, so less Regional Park can be acquired in this area. One way EBRPD is addressing challenges of acquisition in urban areas is to focus on the trails network.

- EBPRD does not use a numerical target – the Master Plan shows the general geographical areas where parkland is desired, which guides where they focus their efforts. Because the focus is open space protection, it is too complex to set a target.
- Likely there isn't a point where EBRPD will have "enough" parkland, although theoretically it would be when they've acquired so much it limits taxation to pay for parks.
- If one looked at it from a population perspective, one might assume that if population increases by 40%, so too should parkland area; however, land is finite.

Park Planning

- EBRPD has a dual mission:
  - Providing recreation opportunities in parks; and
  - Protecting open space.
- EBRPD is opportunistic. The recession opened up opportunities by reducing land costs.
- The EBRPD takes the place of a county park system and bridges the gap between State Parks and City parks. There are limited State Parks in the EBRPD, mostly small, specialized facilities. EBRPD operates three state parks because they are more experienced at managing parks in urban areas.
- Land use plans are created for all parks to analyze resources, opportunities, and constraints, land use alternatives, environmental review process, etc.
- Over time, user needs have changed. Previously there was a greater focus on active recreation, which resulted in the EBRPD acquiring properties that include golf courses, pools, and a gun club. The pendulum has now shifted to focus more on passive recreation
- All trails in Regional Parks are non-motorized – these are among their most popular facilities. Many people visit Regional Parks accessed through the Regional Trails network.

Climate Change

- EBRPD does have plans to expand shoreline parks to meet demand and offset impacts from levies in the region. Shoreline areas have high demand, but are very expensive.

- As part of EBRPD's mission, there is a policy to monitor the effects of climate change on resources to preserve their value. How this policy will be implemented is still under development.
- Currently EPBRD has 40 miles of shoreline that would be subject to Sea Level Rise.
- It is very difficult to justify acquisition costs for purchasing land at a high cost / acre if it is solely going to be for climate change mitigation or protection. The Board prefers some level of recreational access to all Regional Parks.

Funding

- There is a conservancy agency that is very generous with their funding, but because they place very restrictive covenants on the land which limit recreation opportunities, these lands are not always appropriate for Regional Parks.
- EBRPD does actively seek opportunities to acquire land at reasonable costs, recognizing land values will continue to increase.
- EBRPD looks very carefully at what people are seeking for recreational opportunities and targets acquisition of lands that support these desires to help ensure support for bond measures.
- When a bond measure goes through, EBRPD is careful deliver on the plan for the allocated funding and ensure people can see that it is followed through on. Living up to their promises has contributed to EBRPD's success.
- EBRPD has a very sophisticated public affairs department which has helped with a good track record for gaining support for land acquisition.
- Providing public access to Regional Parks has been a key part of gaining support as well – people enjoy that they get to use what their money is paying for.
- EBRPD does use part of their bond funding for grants for City parks which helps to create political good will.

APPENDIX E
Discussion Paper on Models and Principles

The following paper was developed as a starting point to the literature review in support of the Parkland Supply Standards Research. Many of the concepts in this section have been brought forward to **Section 3** of the document, and this information is presented in an appendix as background information.

E.1 Planning Models

A summary of recent academic and practice of open space planning is provided in *Open Space Planning Models: A Review of Approaches and Methods* (Maruani, 2007). Maruani divides the models of open space planning into two broad categories:

- Demand-approach models focus on providing a response to human demands for recreation, amenities, and environmental quality. This includes models that allocate a certain amount of space per population, and tends to focus on urban or near-urban settings with intervention in the space for public access and recreation to suit the size, demographic variable, values, and preferences of the target human populations.
- Supply-approach models focus on open space conservation to protect ecosystems and habitat. The aim is to identify and conserve high-quality natural and landscape values, based on visual, spatial, and in particular, ecological attributes of the existing natural environment.

The dichotomy of planning principles between the demand and supply models is illustrated in **Figure 6** (Maruani, 2007).

Planning aspect	Examples of guiding planning principles	
	Demand approach	Supply approach
Site selection	Proximity to users Accessibility (e.g. mild topography, no obstructions) Visibility Relation to other open spaces	Presence of high-quality natural values Uniqueness of natural values Sensitivity or vulnerability of natural values Visual quality Integrity of ecosystem Vital ecological processes
Quantitative measures	Size of each open space unit Total amount of open spaces	Preferably defined by natural features or ecosystem boundaries (e.g. drainage basin)
Types of activities	A variety of recreational activities Activities fit for different groups Suitability to special needs and preferences	Limited outdoor recreation (e.g. hiking) Activities compatible with conservation goals
Site design	Design for intensive use High maintenance Wide selection of facilities	Minimal intervention Limited access Few facilities Low maintenance

Figure 6: Maruani "Examples of Guiding Planning Principles"

Maruani's review of open space planning identifies nine general models for open space planning, as shown in **Figure 7** (Maruani, 2007).

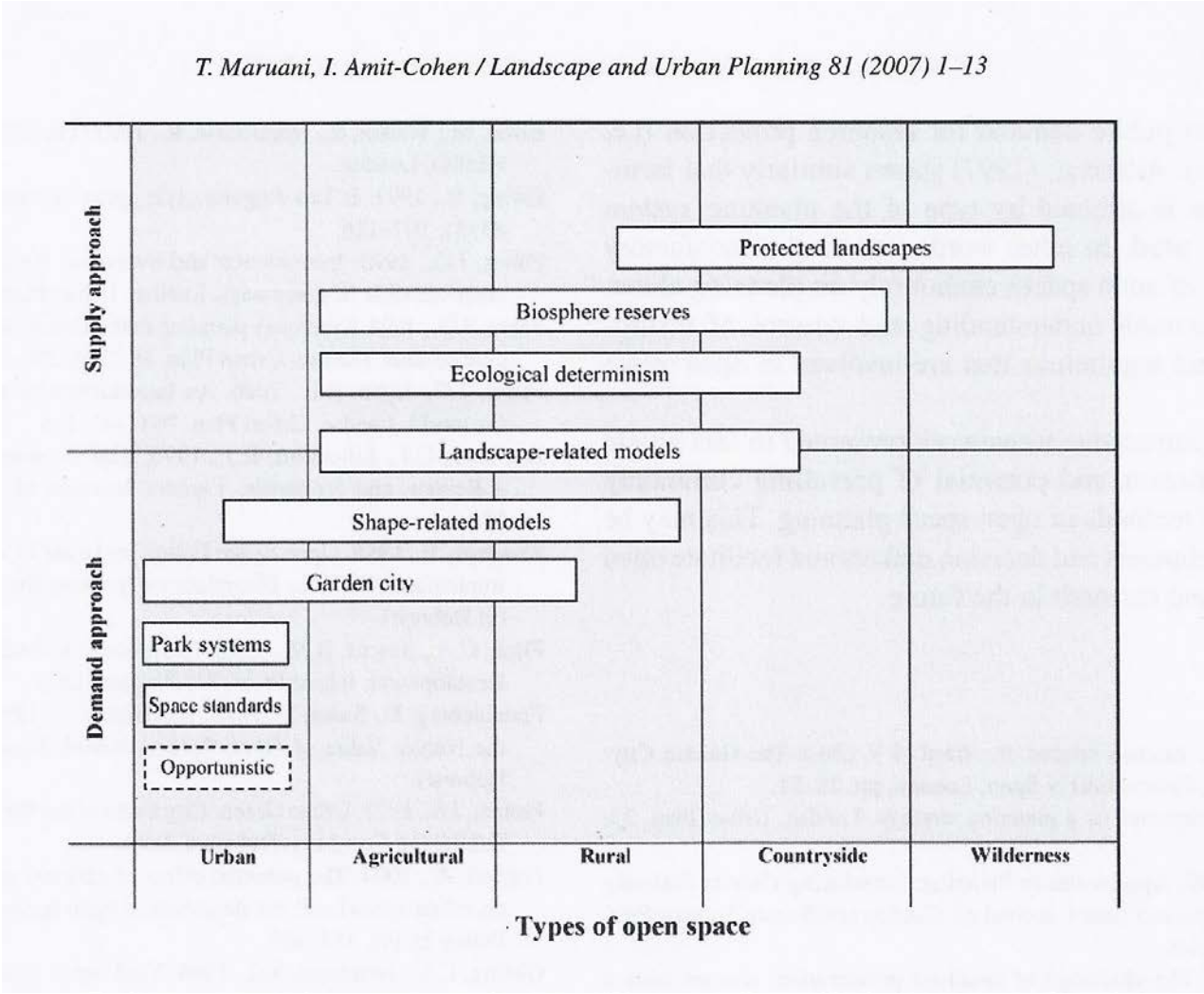

Figure 7: Maruani "Models of Open Space Planning – a classification framework"

The nine models diagramed in **Figure 7** span variations of practices commonly used in areas that are already highly urbanized (e.g. opportunistic or space standards) to those used in largely undeveloped areas (biosphere reserves or protected landscapes). Not all of these models are appropriate for the Regional Park Scale, but provide context for identifying where Regional Parks may sit within this range.

In summary, the nine models include:

- **Opportunistic Model:** where open spaces and parks are the result of unorganized donations from senior governments or benefactors. This has led to magnificent legacies (e.g. Stanley Park, Nature Legacy in

Metro Vancouver); however, it is a casual approach that does not typically form a systematic or planned open space system.

- **Space Standards:** providing a certain minimal area size of open space for a given population. Because this quantitative measure is easy to use, it has been applied extensively around the world. However, space standards alone do not ensure conservation of high-quality landscapes and disregards potential ecological and environmental uses and benefits (Maruani, 2007).
- **Park System Model:** a famous example is the Emerald Necklace in Boston, or the riverfront systems of Edmonton or Ottawa, which include a system of open spaces connected by green trails. A hierarchy of park sizes and functions is often associated with various neighbourhoods. This systems model is often applied in rapidly growing suburbs, but does not necessarily focus on protection of environmental features.
- **Garden City Model:** influenced by the turn of the 19th century book *Garden Cities of Tomorrow*, Ebenezer Howard integrated open space planning with broader city and socio-economic planning. His plans envisioned open space as a form-defining element of city planning, as well as buffers between land uses (Howard, 1902, 1946). This concept is credited as the origin of shaped-based models below, including greenbelts and green fingers.
- **Shape-based Models:** include greenbelt, green heart, green fingers and greenways. The shapes vary from very broad bands (greenbelt) to more spherical large areas (green heart), to linear open space that connects larger parks or features (green fingers or greenways).
- **Landscape-related Models:** interpreted here as based on the visual landscape, includes models which have protected landscapes valued as scenery – mountaintops, ridges, river valleys, and more recently, cultural landscapes such as farmland.
- **Ecological-determinism Models:** conserving open space based on the natural or ecological characteristics of the land. Areas that are highly valued for ecological function, or that are also hazardous to development, are set aside for open space uses, with remaining lands established for community development (McHarg, 1969).
- **Protected-landscape Models:** focused on conservation of outstanding, unique or endangered values of landscape, nature or heritage on a national scale. These areas tend to be large and located in primarily undeveloped areas, with a focus on limiting further development.
- **Biosphere-reserve Models:** where three concentric zones: core conservation area, buffer of natural and agricultural areas, and peripheral transition zone intersect with various uses and small

settlements. A key concept is protection of the core while allowing improvement of a local population's economic conditions through ecotourism, agriculture, or other uses in the buffer zone.

Maruani suggests the models may be classified by their main focus into three categories:

a) Focus on recreation (representing a demand approach);
b) Focus on conservation (representing a supply approach); and
c) Focus is variable (emphasizing either recreation or conservation according to circumstances, such as site attributes or planners' inclinations) (Maruani, 2007).

E.2 Discussion on Planning Models

In considering the application of these models to the Metro Vancouver Parkland Supply Standards Research, it is apparent that a blending of approaches may warrant consideration. Given the stated objectives of Metro Vancouver to conserve the natural environment while providing low-impact opportunities to connect with nature, the approaches that appear to relate most closely to the Regional District level are those in the middle of **Figure 7**: ecological-determinism, landscape-related models, and shape-related models. All of these include a recognition of conservation of natural ecosystems (a supply approach), but allow for a measure of public access.

The more "demand-based" models, such as space standards, have been applied traditionally to more human or recreation-focused open spaces such as local parks. At the other end of the spectrum, the "protected landscapes" model is more applicable to national parks or watershed conservation areas, where human access is limited by regulation.

Like all levels of parks would gain from seizing open space opportunities as per the opportunistic model, although acting on these should consider the fit within the broad objectives of a park agency's mandate.

Different types of agencies likely favour different models. For instance:

- Urban municipalities, in pursuing a social and recreation agenda, will likely find utility in a **Space Standards Model**.
- The Metro Vancouver Regional Growth Strategy, in combination with the Agricultural Land Reserve, has incorporated a green zone framework that defines the land available for urban development. This approach is similar to the **Garden City Model**, although with a greater focus on agricultural and ecosystem values than envisioned by Howard.
- The combination of Metro Vancouver drinking watersheds / reservoirs, major mountain provincial parks and the UBC Research Forest protects

much of the north shore mountain landscape. In addition to the providing the ecological and water-protection benefits of the **Landscape-related Model**, it also meets the key criterion of the protection of the dominant visual landscape backdrop and scenic features. These areas, however, do not support recreational access.

Understanding this context helps the Regional Parks service position itself in a complementary role in the network. For Metro Vancouver Regional Parks, this work by other agencies has provided a major component of protected lands; land that could be considered "core priorities" for Regional Parks within jurisdictions with more limited protected areas.

The examples above raise two matters that are topical in considering the future of Metro Vancouver Regional Parks:

a) Regional Parks are an institutional designation. They are one level of institution among many that contribute to the open space network. Others include the federal and provincial parks and environment agencies, Metro Vancouver Water District, UBC, ALR, conservation agencies, and local governments. Each level of institution is likely focused on a different open space planning model to suit its primary objectives.

b) Undeveloped areas have a greater remaining capacity for ecological function than urbanized area, due to the predominance of pervious soils, vegetation cover, and related functioning water and nutrient cycles. Un-paved farmland may be considered open space with many of these properties. Where native vegetation and/or estuaries are remaining or restored, the values of open spaces as habitat and sources of abundant biodiversity are increased. These ecosystems do not need to occur in Regional Parks to function; but they do require proper management to provide the clean water, land, air, and appropriate vegetation succession, to optimize biodiversity and ecosystem function.

The two matters lead to restating the key questions for the Metro Vancouver Parkland Supply Standards Research: "*How much Regional Parkland needs to be acquired? How much Regional Parkland is enough?"* into four more refined queries:

1) *How much ecosystem conservation is enough to support critical ecosystem functions in Metro Vancouver?*
2) *How much of the required ecosystem conservation needs to be under institutional (public) direct ownership or control, as opposed to regulated or voluntary stewardship in private hands?*
3) *How much of the institutionally-owned or managed open space needs to be in the Metro Vancouver Regional Parks system?*

4) *How much public access within Metro Vancouver Regional Parks are compatible with the agency's ecosystem conservation objectives?*

These four questions imply that it is important to understand ecosystem management principles, as well as define a clear distinction of the role of Metro Vancouver Regional Parks versus other public and private open space managers.

E.3 Regional Parks & Ecosystem Protection

The reframing of the questions above leads to an introduction to concepts of ecosystem functions in a metropolitan environment.

The evolving field of landscape ecology has been attempting to integrate the science of ecosystems with management of the landscape as human settlement and development alter the landscape. A key early reference was *Landscape Ecology* (Forman & Godron, 1986).

The relationship of landscape ecology principles to open space planning is highlighted in *Ecology of Greenways* (Smith, 1993). Chapter 2 by James F. Thorne summarizes Landscape Ecology as a foundation for greenway design. Key concepts include the landscape of "matrix, patch and corridor". These concepts are applied practically in the Lanarc publication *Community Greenways* (Lanarc Consultants, 1995).

In landscape ecology:

- A "patch" is a non-linear area that differs from its surroundings, e.g. a wetland, or a remnant stand of old growth, or a distinct areas of clear-cut timber in various stages of regeneration.
- A "corridor" is a linear connection between patches that has defined characteristics. An example may be a watercourse with riparian vegetation, or a hedgerow or wildlife corridor that connects forest patches through agricultural lands. These corridors are often called "greenways" or "ecological greenways."
- Both patches and corridors exist within a "matrix" which consists of land cover different from the patches or corridors. Often this may be an agricultural landscape, but could be a suburban or urban area.

The Community Greenways Guide takes this very broad "landscape ecology" approach under the term greenways. A much broader definition than simply a linear corridor, Community Greenways recognizes the value of a "matrix" of watersheds, agricultural lands, forest lands, and urban lands that provide ecological functions to support more habitat-oriented patches and corridors.

BC Environment and related scientists have used the supporting concepts of wildlife and biodiversity management in their work. *The Habitat Atlas for Wildlife at Risk* (BC Ministry of Environment, Lands and Parks, 1998) for South Okanagan and Lower Similkameen provides a map and written summary of the habitat needs of species at risk. Embedded in the document is an adaptation of a paper by Dr. Geoff Scudder. In addition to providing strong arguments for Biodiversity Conservation, Scudder comments on the sustainability of ecosystems:

> "Once formed, an ecosystem has a certain amount of integrity. That is, it is able to successfully survive in spite of various changes. However, there are limits to this ability…We know that in the conservation or mature stage of an ecosystem (what used to be called the climax state) most of the nutrients and energy are locked-up in the biomass, and the system gradually becomes 'brittle'. Key elements become risk prone, waiting for an 'accident' to happen. 'Accidents' are normally fire, windstorms, and pest-outbreaks, but now include over-grazing, over-hunting, and over-harvesting…All of these pressures can lead to the relatively fast, downward process of release, a process that usually occurs in patches. Ecological integrity requires patchiness, where different parts of the structure are going through different life stages. (Just as healthy populations must have individuals of different ages). But the ecosystem must be large enough to accommodate patchiness. With man-made as well as natural perturbations affecting an ecosystem, you need large areas to maintain ecosystem function and integrity over the long term (BC Ministry of Environment, Lands and Parks, 1998)."

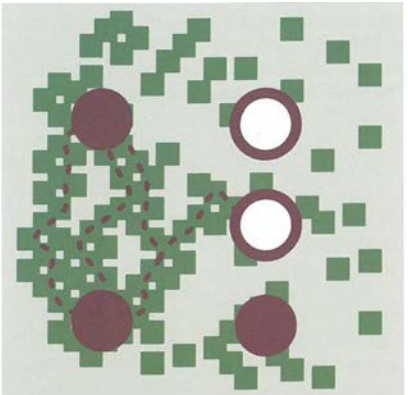

Figure 8: The Consequences of Habitat Fragmentation

The 1993 Provincial Government Protected Areas Strategy (PAS) was developed to realize a network of protected areas that would total 12% in each region of the province. However, research has shown that much additional functional ecosystem in additional to this 12% will be required for biodiversity conservation.

Regarding biodiversity conservation, the *Habitat Atlas for Wildlife at Risk* states:

> "How do you conserve biodiversity? The simple answer is that you save species, rare and otherwise. To save species, you must save and protect habitat. Universally it is the loss of habitat that has led to modern species extinction and endangerment (with a few exceptions caused by over-hunting). To protect a species, there is…a minimum population that is required for long-term

survival. Habitat fragmentation not only results in populations reductions but the reduction in animal density can also lead to population decline (BC Ministry of Environment, Lands and Parks, 1998)."

Figure 8 reproduces an illustration of the consequences of ecosystem fragmentation from the *Habitat Atlas for Wildlife at Risk*. The atlas states, "for a functional biodiversity strategy, areas of similar terrain should link the core reserves…We must also maintain intact elevational landscape connections from low-elevation grasslands, lakes, and wetlands up to forests, rugged terrain, and subalpine areas…The elevational landscape connections could also permit altitudinal movement of plants and animals with climate change" (BC Ministry of Environment, Lands and Parks, 1998).

BC Environment also published *Develop with Care* (BC Ministry of Environment, 2014) which includes Regional Information Packages. The South Coast Region encompasses the Greater Vancouver area plus Sunshine Coast, Squamish-Whistler Corridor, and Lower Fraser Valley. Important ecosystems named in this document include:

- Estuaries, including the Fraser Estuary which is recognized as a globally significant centre of biodiversity and the greatest salmon-producing river on earth. 70% of Fraser Estuary wetlands have been destroyed by land "reclamation" and the remaining estuaries and wetlands are subject to invasive plants (e.g. purple loosestrife and reed canary grass, Japanese knotweed), exotic marine animals (e.g. green crab) and amphibians (e.g. bullfrog), and pollution releases.
- The Conservation Data Centre identifies 67 Red-listed ecological communities on the South Coast, including at low elevation Douglas-fir/Dull Oregon-grape, Western Red Cedar-Douglas-fir/Vine Maple. Old growth stands of these communities are rare and at-risk.
- Regionally Significant Species in the South Coast Region include Coastal Cutthroat Trout (blue-listed) with concern about Coho Salmon – both which use small streams that are affected by development.
- Important Bird Areas in Metro Vancouver include Fraser Delta-Boundary Bay, English Bay-Burrard Inlet, Pacific Spirit Park, and Greater Vancouver Watershed. Great Blue Heron is listed as a "Special Concern." Bald Eagle are common, but the tall, old Douglas-firs that they prefer are under pressure to be cut down because they may become hazards to nearby houses.
- Gopher Snake has been extirpated from the region. Tailed Frog and Red-legged Frog are listed as "Special Concern" under the Canada *Species at Risk Act.*

- Pacific Water Shrew, a mammal that lives in aquatic and riparian habitats, is found only in the South Coast region, and is designated Threatened by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) and is Red-listed in BC. It is threatened by habitat fragmentation and decline in quantity and quality of its habitats (BC Ministry of Environment, 2014).

This, and similar science-based information, may be useful during the development of a Land Acquisition Strategy as resources for identifying potential criteria for consideration when selecting and evaluating potential Regional Parklands.

Mitigating the effects of habitat fragmentation is one of the purposes behind the rise in popularity of "greenways." In *Greenways: The Beginning of an International Movement* (Fabos, 1996), a variety of authors describe principles and case studies in greenway planning and implementation. The scope of greenways covers both ecological corridors and recreational corridors, and mixes of the two objectives. The scale of greenways varies from broad river valleys or mountain ridges, down to the width of a roadside parkway or hedgerow.

Greenways, A Guide to Planning, Design and Development (Flink, 1993) summarizes a process for envisioning, developing a plan and public support, funding, implementing, and managing a greenway system. The scope of greenways envisioned include upland habitat (both edge and forest interior), watercourses and riparian habitat, and cultural heritage. Recreational greenways are also included, with stated functions as "accessible alternatives to those who don't live near traditional parks. A greenway is ideally suited to such popular outdoor activities as jogging, walking, biking, fishing, and canoeing. Greenways provide safe, alternative, non-motorized transportation routes for commuters going to work and children traveling to and from school. Greenways link us to our communities, and by lessening our dependence on the automobiles, can improve air quality and reduce road congestion" (Flink, 1993).

A conceptual application of these concepts was applied to GVRD (Metro Vancouver) in the late 1990s in the GVRD Regional Greenway Vision (Lanarc Consultants, 1997). The map shows conceptual locations of Habitat Reservoirs (large ecosystem patches), Habitat Refuge (smaller patches surrounded by urban development and too small to be self-sufficient), Environmental Corridors (upland ecological greenways), and Conservation Corridors (fish bearing watercourses and riparian areas) to connect the patches within the matrix of agricultural lands and urban lands. Water and Water-Habitat Reservoirs (e.g. estuaries or mudflat habitat) are also mapped.

E.4 Discussion on Regional Parks & Ecosystem Management

The discussion below addresses each of the four previously asked queries within the context of the above research.

1) ***How much ecosystem conservation is enough to provide critical ecosystem functions for Metro Vancouver?***

At a larger scale, the Province committed to protecting a minimum of 12% of the land area for habitat conservation. Wildlife scientists note that this is not a science-based number and that other lands will be required to support wildlife biodiversity (BC Ministry of Environment, Lands and Parks, 1998). In Metro Vancouver, the very large areas that are "conserved" in Provincial Parks and watershed areas on the North Shore Mountains contribute strongly to the region's quantity of protected area and its biodiversity.

However, if one were to remove the North Shore Mountain protected area from the Regional Parks mandate, how would the remainder of the "settled" parts of Metro Vancouver perform against a 12% conservation area target? Today, Regional Parks cover 4.5% of the region's land base.

The philosophical question is whether biodiversity conservation is an appropriate goal for the "settled" parts of Metro Vancouver, as a complement to the large mountain conservation areas. Expectation is that the majority of the public would support biodiversity conservation throughout the Lower Mainland. If that is true, then a minimum target of 12% of land area in biodiversity conservation in the settled area may be in keeping with senior-government practice.

With agricultural lands and other "developed" lands that support biodiversity, Metro Vancouver would be over and above the target for 12% biodiversity conservation areas, but without guaranteed protection, it is difficult to calculate what is available to contribute to long-term biodiversity.

Landscape ecology approaches require a linked system of natural areas, including habitat reservoirs or patches large enough to be self-sustaining, with these and smaller patches linked by effective wildlife and aquatic corridors to allow for species diversity and genetic diversity (Smith, 1993; Forman & Godron, 1986; BC Ministry of Environment, Lands and Parks, 1998; BC Ministry of Environment, 2014; Lanarc Consultants, 1997; Lanarc Consultants, 1995). Using these principles, the biodiversity conservation areas should be structured in a linked system that connects large and medium habitat patches with habitat corridors. It is not only the quantity of biodiversity conservation areas that is important, but the connectedness among them with effective habitat linkages.

The Capital Regional District has calculated their land base under park or protected status area within the greater Victoria water supply area. The results showed that 11.03% of the CRD's land base was protected through National Parks, Provincial Parks and Ecological Reserves, Regional Parks, Municip (Lanarc Consultants, 1995)al Parks, Islands Trust and Land Trusts. Regional Parks contributed 5.17% of this protection. With the addition of the Greater Victoria Water Supply Area, the amount of protected area increased to 19.43% (Capital Regional District, 2012).

2) *How much of the required ecosystem conservation needs to be under institutional (public) direct ownership or control, as opposed to regulated or voluntary stewardship in private hands?*

Greenway case studies (Fabos, 1996) (Maruani, 2007) have shown a strong correlation between effective open space institutional jurisdiction and the amount of open space protected. The corollary is that when open space is not under a jurisdiction where biodiversity and environmental management is a primary objective, it is likely that high land values and competition for economic land use will lead to eventual degradation of the habitat if left to purely market forces.

Regulation has been employed by Canada, BC, and local Metro Vancouver governments to require and promote stewardship of biodiversity on private lands. This has been most prevalent through the protection of watercourses and riparian areas through the *Water Act* and the *Riparian Area Regulation*, as well as tax incentives for voluntary stewardship. The Agricultural Land Commission (ALC), though not focused on ecological protection, protects agricultural land through the Agricultural Land Reserve (ALR). These regulations are partially effective, but face incremental decline in ecosystem function if monitoring and enforcement is not ongoing.

Upland habitat areas and corridors are generally not protected by current biodiversity regulation in BC. Local governments could choose to protect upland corridors through the powers of Development Permit, but this practice is used only in limited cases at present.

In this context, a primary focus for biodiversity conservation protection may be the remaining large or medium "patches" of valuable habitat and connections that would not be protected by regulation.

The Boulder County Parks and Open Space agency is unique in its decision to participate in the protection of prime agricultural lands through its Regional Parks function, because conservation of these lands were not offered through an alternate function and their longevity was threatened. Conservation easements are established on agricultural lands to ensure their protection and support sustainable agricultural practices. About one-quarter of the over 41,500 ha of land protected by the BCPOS is active agricultural land (Boulder County Parks and Open Space, 2011).

3) *How much of the institutionally-owned or managed open space needs to be in the Metro Vancouver Regional Parks system?*

The specific role of Metro Vancouver Regional Parks may be driven by gap analysis. What important natural environment and associated recreational areas are not protected by other jurisdictions? This will help define a "regional role" in the context of parks.

Considerations of a regional role could include:

- Is the potential Regional Park significant at the regional scale?
- Is the asset already protected by senior government or other programs or agencies?

- Is the asset unique, rare, or recognized by scientists and the public across the Metro Vancouver Region? Although generally areas of regional interest will be large in size, there are exceptions where a small site could have unique qualities or regional significance.
- Does the asset cross municipal boundaries, or other jurisdictional boundaries? Several local governments, including Surrey and Richmond, have undertaken "Green Infrastructure" or "Green Network" studies, and are considering ongoing protection of habitat patches, sites, and corridors within their boundaries. There are, however, many cases where these local systems need to connect across a local government boundary into a larger ecological network or to a nearby habitat reservoir outside the boundary. Metro Vancouver Regional Parks may have a role to play in facilitating some inter-boundary connections, either by facilitation or in some cases by direct ownership of a cross boundary asset or connection.
- Is there an opportunity for public access to parts of the proposed site? To meet expectations of being a "park," as opposed to a "conservation area," it is likely that some public access for low impact uses and for public education and awareness of the natural environment should be expected.

4) How much public access within Metro Vancouver Regional Parks are compatible with the institution's ecosystem conservation objectives?

Figure 9 demonstrates the growing popularity of Regional Parks in Metro Vancouver, emphasizing the need to consider how to manage ecosystem conservation and public recreation.

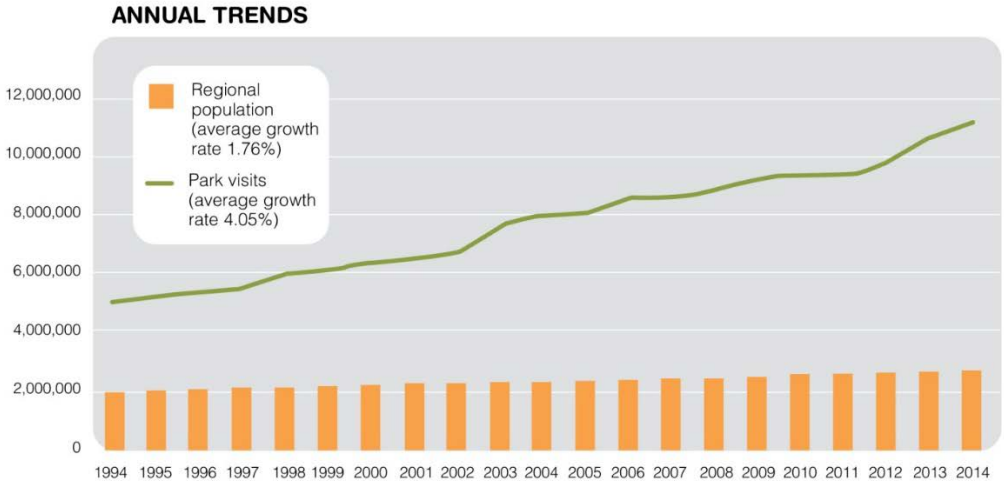

Figure 9: Trends in Park Visitation

The concept of "limits of acceptable change" applies to the amount and location of public access and facilities in Regional Parks. Each natural area would benefit from environmental inventory and ecosystem interpretation to identify areas of high biodiversity and conservation value. The potential effects of public access to or near various areas of the asset would be a key consideration.

Limits of acceptable change is also applicable to recreation environments. At what point does public use of a facility become overcrowding? What are the indicators that more space is needed to accommodate human population pressures, and how is this pressure addressed within limits of acceptable change to natural ecosystems?

However, it is suggested that in all Regional Parks, there would be some public facilities such as a trailhead, interpretive facilities, and limited trail access to part of the asset, or potential for these facilities to be accommodated in the future as budgets allow and demand grows. Selecting where these facilitiates are appropriate during early planning stages will be important.

Auckland Regional Council has set policies around research, monitoring, and benchmarking their parks to understand the values of their parks and impacts of activity on these values. Recognizing it is difficult to define acceptable levels of activity in terms of their potential impacts on values, Council adopts a cautious approach to avoid adverse impacts through considerations for limiting or reducing visitor infrastructure and completing long-term monitoring to document changes (Auckland Regional Council, 2010).

E.5 Regional Parks & Climate Change

The likelihood of ongoing climate change is a new lens to Metro Vancouver Regional Parks planning.

Reports by the Intergovernmental Panel on Climate Change (IPCC) are pointing to likely increases in temperature over the coming decades and centuries. Canadian and BC West Coast impacts of the temperature increase include rising sea levels, increased periods of summer drought, as well as undefined risk of extreme weather events including wind and heavy rainfall (Bush, 2014).

The changes above are likely to have consequences of increased wildfire hazard in natural areas, increased risks of river and coastal-based flooding, and increased risks of landslide related to saturated ground.

The pace of sea level rise is not known with accuracy. However, for planning purposes, the Province of BC (Ausenco Sandwell, 2011) issued draft guidelines that encourage preparation for approximately 50 cm by Year 2050 and 1 m by Year 2100. Local governments and diking authorities are encouraged to use these allowances in planning. The concept of "Sea Level Rise Planning Areas" is tabled, which would allow planning to adapt both land use and environmental features to gradual sea level rise.

The Province is also reviewing its policy guidelines for dikes, including new guidance for seismic stability. City of Richmond and other local governments

and diking authorities are undergoing phased reviews of their diking systems. In many cases existing dikes will need to be raised. Raising the dikes and making them stable will increase their footprint, making provision of adequate land space for dikes and associated drainage and habitat compensation a significant issue.

Local governments such as City of Vancouver and City of Surrey are active in considering how these threats may affect their infrastructure and land uses.

Increased height and stability of diking is not the only solution under consideration. Four broad strategies for planning for sea-level rise include:

- **Protect** – which is generally considered to include diking, but also can include beach nourishment (green shores) and soft-armouring.
- **Accommodate** – by adapting human activities or infrastructure to adapt to sea level rise. Examples might include retrofitting or designing a building to withstand flooding of lower floors (e.g. non-habitable uses) and use of structural fill locally at buildings.
- **Retreat** – involves withdrawal or relocation of private or public assets that are at risk to flood inundation. The retreat can be gradual, avoiding locating new structures in areas at risk, and eventually relocating or abandoning old structures as the risk increases over time.
- **Avoid** – means planning so development does not take place in areas potentially subject to future flooding (Arlington Group, 2013).

All of these tools are under active consideration by local governments and NGOs (e.g. Fraser Basin Council) in the Metro Vancouver area.

E.6 Discussion on Regional Parks & Climate Change

Climate change provides both threats and opportunities to Metro Vancouver Regional Parks.

Several Metro Vancouver Regional Parks are in lowlands, which are likely at risk of inundation by coastal or river floods (e.g. Surrey Bend, Burns Bog). Parts of the Metro Vancouver Regional Parks System also include dikes (e.g. Colony Farm, Barnston Island). Flood events could damage parks infrastructure such as trails, parking areas, and parks buildings. If the flooding is short-term, ecosystem components of the parks would likely adapt and recover quickly.

The relative significance in cost and danger to public life and property of a flood event in a Regional Park is small compared to the impact of a similar event on an urbanized area. Impacts on Metro Vancouver Regional Parks

would likely be viewed as an inconvenience, whereas urban flooding could constitute a disaster.

In this context, there may be a significant opportunity for Metro Vancouver Regional Parks to benefit from adaptation actions in the face of increased flood risk and sea level rise:

- Where protection is anticipated, and dikes need to be gradually raised, a Regional Park tenure in cooperation with local and senior governments and diking authorities could provide a protected site for gradual dike adaptation. The emergency access trail at the top of the dike can provide an excellent regional trails connection (as in the Matsqui system). Lands and waters in the riparian and flood fringe could provide excellent habitat, and prime locations for restoration of habitats.
- Where accommodate or retreat approaches to flood risk are taken, Regional Parks may be an ideal institution to hold floodable area. Much of this area could be suitable for either public trail or environmental uses. Limited facilities could be designed to provide local examples of best practices in being resilient to potential infrequent flooding.
- The waterfront and cross-boundary location of these protection or retreat parks provides opportunities to create a regional-scale waterfront system of open spaces. Most importantly, these patches and corridors could be planned to allow the slow up-slope migration of estuaries, wetlands, and species to respond to gradual climate change.
- A similar approach could be taken to other hazard lands (e.g. areas below unstable slopes), where good science could likely indicate conditions when a park facility would need to be closed to manage a landslide risk, but where temporary access between these periods would be reasonably safe.

Climate change may alter Metro Vancouver Regional Parks practices in other ways. There may be a need to restrict public access or increase enforcement of no smoking bylaws in extended periods of drought. Metro Vancouver Regional Parks may also be a showcase of current watershed and stormwater management best practices, including stormwater source control and rainwater capture and reuse.

In all of these responses to climate change, it is suggested that there is a major opportunity and role for Metro Vancouver Regional Parks to partner with emergency management agencies, senior, and local governments for mutual advantage in the protection and enhancement of public and ecosystem resilience.

E.7 Research Observations

This summary has reviewed research papers and publications from a wide range of disciplines and institutions that manage open space. It becomes evident from the review that a Regional Parks role is but one of many across the spectrum of agencies involved in delivering open space, recreation, and environmental management.

Given its stated mandate to protect regionally significant natural areas, and provide public access to nature, it may be appropriate to focus on open space planning models that consider "supply" of ecosystem and biodiversity conservation. The meeting of recreation "demand" of human populations may be an important but secondary consideration.

However, in order to warrant status as a Regional Park, rather than "conservation area," it is likely that Metro Vancouver Regional Parks will have at least some public access or potential for future public access, designed to offer a highly natural experience and increase appreciation of sensitive environmental areas in the Lower Mainland.

An interconnected system of habitat reservoirs, patches, sites, and corridors may be needed to meet the goals of ecosystem and biodiversity protection. Functions of the adjacent agricultural or urban matrix are also important to ecological success. The role of Regional Parks in protecting this system should complement the role of senior governments, drinking water watersheds, local governments, and other partners.

Adaptation to risks of climate change provides a need and an opportunity for Regional Parks to partner with other agencies to provide space for both protection and retreat – of both public assets and ecosystem values.

The observations of this research, in conjunction with review of current Regional Parks practices in similar jurisdictions that are highlighted in **Appendix F** are used to support a review of potential models for Park Land Acquisition which are the focus of this research.

APPENDIX F

Overview of Agency Practices

Through the research, a range of ancillary data was reviewed and documented. **Appendix C** and **Appendix D** document this data. This section compiles data about how various agencies approach the components of parkland acquisition planning and implementation. Key findings are brought forward to **Section 3** of the document and this information is presented in an appendix as background information.

F.1 Regional Parks Mandate, Mission & Vision

Parks agencies use a mission, mandate, and/or vision to describe their approach to Regional Parks. These statements provide important guidance to land acquisition by identifying the types of parks and functions that will occur in Regional Parks. When lands are considered for acquisition, they must align with this mandate, mission, and/or vision.

The roles of Regional Parks for the studied agencies are generally comparable to Metro Vancouver's mission and vision, with minor variations. Typical focal points for the mandate / mission / vision of the Regional Parks agencies studied are described in Table 14.

Table 14: Key Components of Agency Mandate, Mission, and/or Vision

Component	Description	Metro Vancouver Component	Frequency of Reference in Other Agencies Studied		
			All	Many	Some
Natural area protection / preservation	» Protection of landscapes, ecosystems, or features that are representative of the region or regional biodiversity » Protection of areas of environmental concern » Protection of scenic vistas or landmarks » Environmental services such as carbon sequestration and sea-level rise mitigation	✓	✓		
Access to Nature	» Passive, outdoor recreation » Focused on connecting people with the natural world	✓	✓		
Education & Programs	» Educational and stewardship programs » Ecotourism	✓		✓	
Linkages (Trails and Greenways)	» Linkages and connectivity for people and ecosystems » Encouraging non-motorized travel			✓	
Urban Shaping	» Separating development, limiting sprawl » Buffering				✓
Culture & History	» Protection of cultural and human history				✓
Perpetuity	» Protection of lands forever				✓

A nuance in these statements is the order in which the components are stated – typically with the first component being the primary focus for the parks service. Most agencies studied listed natural area protection or preservation as the first element in their statement.

F.2 Land Acquisition Strategies

The agencies studied vary on their approach to developing land acquisition strategies or policies. Acquisition strategies provide a roadmap for acquiring land that aligns with an agency's Regional Parks Plan.

Because private land acquisition has potential to affect property owners and land values, specific land acquisition priorities are confidential and cannot be publicly identified. Some agencies (e.g., CRD) use "large circles or blobs" to communicate desirable locations for parkland acquisition and others (RDN) document desirable vicinities in writing.

Table 15 provides an overview of the Land Acquisition Strategy types observed as being used by the agencies studied.

Table 15: Land Acquisition Strategy Types

Land Acquisition Strategy Type	Agencies using the Strategy Type									
	MV	CRD	RDN	RDCO	York	EBRPD	MidPen	Metro	BCPOS	ACR
Stand-alone Acquisition Strategy: Many of the agencies produce stand alone acquisition strategies that follow from the vision and high-level planning for the Regional Parks system. These strategies provide detail and guidance about where and when to invest in new lands. The timeframe of these strategies vary.	✓ 25 yrs	✓ 3 yrs		✓ 10 yrs				✓	✓	✓
Acquisition Priorities within Regional Parks Plans: Some agencies identify acquisition priorities within their Parks Master Plans, identifying general characteristics and approximate locations for future acquisition.			✓			✓	✓			
Acquisition Priorities within Regional Strategies: York Region outlines their acquisition plans within a region-wide Greening Strategy that considers acquisition of Regional Forest Areas as a component of other greening initiatives.					✓					

F.3 Acquisition Criteria

Acquisition criteria are used by many agencies to evaluate potential Regional Parkland. The approach agencies use varies – some use specific sets of criteria that form a "checklist" of features that are balanced; other groups prioritize key criteria above all others. Some agencies consider over twenty criteria; others focus on a select few.

An observation when reviewing parkland acquisition criteria is that evaluation may still requires some subjective judgment. Even when "ranking" systems are used (e.g. the CRD ranks each criterion on a scale of 1 to 5), a subjective evaluation of many of the criteria occurs.

Table 16: Summary of Acquisition Criteria

Criteria	Description	Agencies using the Criteria									
		MV	CRD	RDN	RDCO	York	EBRPD	MidPen	Metro	BCPOS	ACR
Nature-Based Criteria											
Connectivity of Natural Areas	Contributes to significant areas of contiguous park or open space		✓	✓	✓	Criteria not found		Criteria not found	✓		✓
Unique Ecological Features	Has features with limited presence elsewhere or captures a key ecological attribute	✓	✓	✓					✓		✓
Landscape Feature	Represents the natural environment of the region or specific ecosystems	✓	✓	✓	✓						
Endangered Species	Contains rare or threatened ecological values including flora, fauna		✓	✓							
Environmental Function	Contributes to the larger ecological network (landscape ecology)		✓				✓				
Improving Existing	Improves functionality of an existing park or removes barriers	✓	✓	✓							✓
Naturalness	Has low disturbance (e.g. invasive species)		✓						✓		
Viability	Has long-term prospects for continued health of existing of natural features		✓								
Habitat Value	Has important values for native plants and animals		✓							✓	
Climate Change	May play a role in climate change mitigation and adaptation		✓								
Water Source Protection	Protects watersheds or aquifers that form part of a community water supply			✓							

Criteria	Description	Agencies using the Criteria									
		MV	CRD	RDN	RDCO	York	EBRPD	MidPen	Metro	BCPOS	ACR
Human-Based Criteria											
Accessibility	Public opportunities to access nature	✓	✓	✓	✓				✓		✓
Cultural or Historical	Contains historic or cultural values		✓	✓	✓				✓		✓
Opportunities to be Close to Nature	Provides regionally significant opportunities for outdoor experiences and activities	✓	✓		✓		✓				
Scenic Values	Provides significant views or backdrop		✓	✓			✓		✓	✓	
Education and Interpretation	Provides nature-based educational opportunities	✓	✓	✓	✓		✓				
Agricultural Values	Preserves prime agricultural lands									✓	
Trails											
Connectivity	Forms connections between public land	✓	✓	✓		Criteria not found	✓	Criteria not found		✓	
Experience	Provides a high-quality experience		✓	✓							
Active Transportation	Supports alternative modes of transportation		✓				✓				
Linking	Connectivity to other networks	✓	✓						✓		
Natural Corridors	Supports environmental corridor functions		✓								
Planning Criteria											
Fit with Planning	Fits with plans set by other levels of government or agencies	✓	✓						✓		
Level of Threat	Has potential risk of loss or compromise, potential development	✓	✓	✓	✓				✓	✓	
Conservation Alternatives	May be protected through other means		✓								
Geographical Equity	Supports representation of Regional Parks across all parts of a region			✓			✓		✓		
Ongoing Concern	Has been identified in past plans or other initiatives as being significant			✓							
Public Interest	Has been identified by the public as an area of interest			✓					✓		
Availability	There is willingness of landholder to sell, transfer, or donate the land			✓							
Purchase Cost	Potential cost to the region			✓	✓						
Maintenance Cost / Effort	Presence of infrastructure that has higher maintenance costs	✓		✓							
Size	Sufficient size to meet the goals of the Regional Parks system			✓	✓						

There are differences in approaches when it comes to prioritizing criteria. Some regions, including CRD and RDN, use a lengthy but balanced set of criteria to evaluate Regional Park potential. Other regions select one or a few key evaluation criteria that best fulfill their Parks Master Plan. For example:

- **Principle of Balanced Parkland Distribution:** The EBRPD prioritizes, above all other criteria, the principle of balanced parkland distribution. Allocations for parks acquisition are based on population projections for their three sectors with the ongoing goal of having equitable parkland distribution for residents. This approach is balanced with a variety of other factors including financing, long-term goals, special opportunities, and the unique characteristics of the sectors (East Bay Regional Park District, 2013).
- **Adjacency to Other Parkland:** Many agencies target large areas for Regional Parks and follow a policy of prioritizing parkland adjacent to existing Regional Parks or other protected lands. This supports the principles of landscape ecology. For example, MidPen has focused their Regional Parks land holdings into 26 open space areas with an average size of over 900 ha (Midpeninsula Regional Open Space District, 2011). Auckland identifies four key acquisition criteria in their Parks and Open Space Acquisition Policy (2013). Acquisition Criteria #4 is "Improving the parks and open space we already have" by acquiring new land to expand an existing park. Auckland has identified this as an effective way of increasing a park's potential and value to the community (Auckland Council, 2013).
- **Alternatives to Protection:** Auckland Council considers the benefits and costs of public ownership when there are alternative methods available for protecting lands (e.g. through planning regulations or partnerships). This is a key consideration when the primary reason to acquire land for open space is to protect and restore Auckland's unique features and meanings (Auckland Council, 2013).
- **Potential for Loss:** The RDCO gives high priority to potential natural landscapes threatened by development, choosing to ensure key lands are protected in the face of rapid development (Regional District of Central Okanagan, 2007).

F.4 Land Acquisition Methods

The agencies studied employ a wide variety of acquisition methods. While purchase of lands provides the most surety for the long term, many agencies face realities of limited budgets that require innovation when considering how to expand the parks base. Table 17 outlines common practices employed by parks agencies.

Table 17: Summary of Land Acquisition Methods

Type	Description	Strengths of Method	Challenges of Method
Fee Simple Ownership / Purchase	Purchase and full ownership of the lands by the agency	» Ensures protection » Best control over the land	» Cost, especially in the urban context
Conservation Easement	Voluntary agreement between landowner and agency that restricts how land can be used A CE remains with a property when sold	» Low cost to establish » Effective for protecting important environmental areas	» Limits control of the RD on management of the land » May restrict public access
Joint Purchase	Partnership with other agency to acquire parkland	» Limits initial capital investment » Leverages collective capital that may support larger or costlier acquisitions	» Management and management costs may be the responsibility of the RD » Potential conflicting agency vision and management approach » High degree of staff effort and coordination required » Potential risks if partner does not have financial stability
Long-term Lease	Provides rights to manage land as Regional Park for a period of time under agreements with the landowner	» Low cost to establish	» Risk of parkland being lost at lease expiration » Instability of tenure » Disincentive to invest
Donations	Donation of land May be used as a tax deduction	» Full ownership of land » Low cost	» May not result in acquisition of lands most needed for the system » May include restrictive or conflicting conditions

Type	Description	Strengths of Method	Challenges of Method
Purchase Leaseback Agreements	As part of purchase, an agreement to lease the land back to the seller for a specified timeframe	» Eventual full ownership of lands » May reduce overall purchase costs	» Limits control by the RD on management of land in the short-term » May restrict access until the end of the specific timeframe
Inter-governmental Transfer	Transfer of existing publicly-owned lands to be managed by the Regional District	» Full ownership of the land » Low cost	» Often this land is already protected, so may not increase overall protected land footprint » Competing interests in land
Subdivision Dedication	Dedication of lands for park during development (5% is permitted by the BC Land Act) Typically, applied in municipal settings in BC	» Potential to increase parkland during development	» Typically generates parkland for municipal park systems in urban areas » May generate small pieces of land » Competing interests in land

While the primary method for land acquisition for Regional Parks is fee simple purchase, several agencies employ a wide range of the practices listed. Notable ones include:

- BCPOS protects over one-third of its land base using conservation easements. This practice helps them protect scenic open space, working agricultural properties, mountain properties, buffers between municipalities, natural areas, historically important buildings, and pastoral character in rural areas (Midpeninsula Regional Open Space District, 2011).
- With a small population and limited resources, the RDN has a limited budget for acquisition. The agency uses acquisition funding as a leveraging tool, to catalyze and promote partnerships in acquisition projects and to find creative means of financing land acquisition. Partnerships and long-term leases are used frequently as an alternative to fee simple purchase (Regional District of Nanaimo, 2005).
- The CRD sets a target of 20% contribution of land acquisition funds from partners. Recent acquisition partners have included Pender Island Conservancy Association and The Land Conservancy of BC (Capital Regional District, 2015).

F.5 Funding Generation

The primary method of generating funds for Regional Parks is through taxation. All Regional Parks services obtain funds from general taxation to support the operation, development, and acquisition of parkland. Several other methods to generate funds specifically for acquisition and/or development are also used and may warrant consideration in the Metro Vancouver context.

In the US, general obligation (GO) bonds are used to support acquisition and development of parklands. GO bonds are issued by states and local governments to raise funds for public works. The municipality commits its full resources to paying bondholders, including general taxation and the ability to raise more funds through credit. Bonds are sold to investors and repaid by the government over a period of time as a way to turn a revenue stream into ready capital that can be used for the acquisition or improvement of parks. GO bonds must be approved by two-thirds of the electorate (Changelab Solutions, 2015).

- **Taxation:** Regional Parkland is part of property taxes paid by community residents to fund management, operations, development, and acquisition of Regional Parks.
- **Special Levies:** Several regions use special levies to increase funds available for specific components of the parks system – most commonly acquisition and development. Examples of these funds include Metro Vancouver's Heritage Parkland Acquisition Fund, the CRD's Regional Parks Acquisition Fund, and the RDCO's Regional Parks Legacy Program. In 2008, Seattle created their Parks and Green Spaces levy which is estimated to generate $146 M over six years for green space projects (Seattle Parks and Recreation, 2015). These funds are typically generated through property tax based on an assessed value of property or a parcel tax. Generally special levies have a limited timeframe and require the approval of the electorate.
- **General Obligation Bonds (US):** In the US, general obligation bonds are a tool used to provide access to ready capital to be paid back through taxation over time. Typically, repayment of the bond is completed through special taxation measures similar to those used in Canada.
- **Grant Funding:** Grant funding can be a powerful supplement to a Regional Parks program. Many government and non-government agencies provide grants for capital funding including acquisition. Regional Parks and Trails can secure funds related to active transportation, environmental preservation, sustainability initiatives, infrastructure, climate change, and more. The CRD has secured substantial grant funding for the development of the E&N Regional Trail (Capital Regional District, 2013). The challenges of grant funding are that it can be unpredictable, especially during times of economic uncertainty, and often requires substantial time investment by staff.
- **Donations:** Regional Parks programs can be benefactors to donations from organizations and individuals. The development of a strong and well-supported Land Acquisition Strategy may generate interest from potential donors.
- **Partnerships:** Effective partnerships are commonly used by agencies to increase ability to plan for expansion and respond to opportunity.

MidPen helped to found the Peninsula Open Space Trust (POST) in 1977 as a complementary private non-profit organization that can negotiate quickly and privately with sellers to purchase open space land. Lands may be purchased from POST by MidPen as additions to the Regional Parks system (Midpeninsula Regional Open Space District, 2011).

- **Development Cost Charges (DCCs):** While not known to be currently used in any Regional Parks services in British Columbia (Neilson-Welch, 2014), DCCs represent a potential funding mechanism for the future. As population increases there is a potential need for new population to contribute to the increasing demand placed on Regional Parks.

  The EBRPD implemented a Habitat Conservation Plan / Natural Community Conservation Plan which is similar to the DCC program in BC. The plan calls for fees paid by developers for approval of their projects. Funds generated are used to purchase and preserve wildlife habitat to replace open space lost to the development (East Bay Regional Park District, 2013).

- **Sales Tax:** In a unique approach, Boulder County voters approved three open space and use sales taxes that total 0.60% and apply to the purchase of goods within the county (Boulder County Parks and Open Space, 2012).

- **Lottery funds**: BCPOS also has access to lottery funds for parks, open space, and wildlife habitat purposes. In 1992, Colorado voters passed a constitutional amendment stating that all net lottery proceeds would go to a parks program called Great Outdoors Colorado (GOCO). BCPOS, along with other parks agencies in Colorado, have opportunity to access these funds for park and trail development and planning (Great Outdoor Colorado, 2015).

- **Solid Waste Tax**: In 2002, Metro developed a $1-per-ton increase in the solid waste tax paid by the region's haulers and increased the amount in 2004 to $1.50-per-ton to generate funding to develop Regional Parkland (Oregon Metro, 2011).

F.6 Land Acquisition Funds

Land acquisition funding through special levy is typically established based on an agreed amount that is needed to fund land acquisition for a period of time. The typical process used to reach these estimates is as follows:

- Development of a system-wide Regional Parks Plan in consultation with public, stakeholders, and the regional district membership that includes or is followed by acquisition planning and costing.
- Identification of an estimated timeline for implementation. Most often implementation is phased for affordability.
- Estimate of funding needs and identification of potential funding sources to achieve the plan.
- Vote by the community to implement the levy for the land acquisition fund.

Previous investigations during the Regional Parks Service Review suggested that Metro Vancouver's funding through its Heritage Parkland Acquisition Fund is lower than other similar funding programs (Neilson-Welch, 2014). Table 18 provides an overview of Metro Vancouver within the context of parks agencies included in this study.

Table 18: Summary of Land Acquisition Funds[11]

Agency	Fund	Dates		Rates		Approx. Annual Funding	
		Est.	End	Start	Current	Total	Cost/ Resident
MV	Heritage Parkland Acquisition Fund	1994	-	$2/capita	$3.77M total/yr	$3.77 M	$1.44
CRD	Regional Parks Lands Acquisition Fund	2000	2019	$10/parcel	$20/parcel	$3.6 M	$9.58
RDCO	Regional Parks Legacy Program	2007	2019	$0.02/$1,000 assessed value	$0.09/$1,000 assessed value	$3.0 M	$16.68
EBRPD	Measure WW – Regional Open Space, Wildlife, Shoreline, and Parks Bond Extension	2008	2028	$10/ $100,000 assessed value	$10/ $100,000 assessed value	$45.7 M	$16.78

[11] Parks agencies use variable approaches to determining allocation amounts (e.g. parcel tax or $/$ assessed value). For comparison purposes, contributions have been converted to approx. cost/resident to allow comparison. Numbers provided are estimates based on current data.

Agency	Fund	Dates		Rates		Approx. Annual Funding	
		Est.	End	Start	Current	Total	Cost/ Resident
EBRPD	Measure CC – Park Access, Wildfire Protection, Public Safety and Environmental Maintenance Measure	2004	2020	$12/parcel	$12/parcel	$12.0 M	$4.40
MidPen	Measure AA – MidPen Parks Bonds	2014	2034/ 2044		$3.18/ $100,000 assessed value (max)	$5.3 M	$7.15
Oregon Metro	Measure 26-26 – Purchase of natural areas	1995	2015	$0.07/ $1,000 assessed value	$0.07/ $1,000 assessed value	$12.9 M	$7.43
Oregon Metro	Measure 26-80 – Continued purchase of natural areas	2006	2026	$0.12/ $1,000 assessed value	$0.12/ $1,000 assessed value	$22.1 M	$12.74

It is notable that Metro Vancouver's Heritage Parkland Acquisition Fund is the only Land Acquisition Fund in the above table that does not have a defined end date. Many of the listed acquisition funds have an end date that coincides with a Land Acquisition Plan timeframe, at which time levies may be re-evaluated and increased, decreased, or removed based on upcoming acquisition plans.

F.7 Development & Operation of Acquired Lands

Initial costs are not the only consideration for Regional Districts as they consider land acquisition. As new parkland is acquired, costs to operate and maintain the Regional Parks system increase concurrently. In systems where land acquisition has occurred rapidly, deferred maintenance is often identified as a challenge, if Regional Districts do not have the capacity or funding to keep up with operational needs as new parkland comes online.

It can be more challenging to obtain funding for Regional Parks maintenance than for initial acquisition and development. This is partly attributed to the greater range of funding mechanisms for park acquisition and partly to the positive attention that new parkland generates. It is more desirable to fund new parkland than to fund a park's ongoing maintenance (Changelab Solutions, 2015).

One approach that is commonly used to support rapid acquisition in the absence of funding for development and maintenance of new parkland is Regional Parkland reserve or land banking. This approach allows parkland to be acquired in the short-term before opportunities are lost, without adding significant burden to operational requirements. CRD identifies land banking of new parkland as a principle, holding this parkland as Regional Park Reserve (Capital Regional District, 2015). A challenge identified with land banking is the public expectation that new parkland that is acquired will be opened for public use and enjoyment immediately (Darlington, 2015; Marshall, 2015). If land banking is considered, there may be rationale to develop Interim Management Plans that identify required short-term maintenance activities while land is in "banked status," how the park eventually will be developed to fulfill the parks goals, and preliminary costing for managing the park. This information will help frame future planning and acquisitions with an understanding of what parks acquisition needs have been met.

Of the US agencies studied, those that were formed in response to development pressures in later half of the 20th century – MidPen, Metro, and BCPOS – all demonstrate relatively low levels of publicly accessible lands within their Regional Parks systems – 47.7%, 33.0% and 35.4% respectively (Management Partners, 2015; Oregon Metro, 2011; Boulder County Parks and Open Space, 2012). During this time, these regions prioritized securing land before opportunities could be lost. In recent years these agencies are now increasing park development as a priority, taking a more balanced approach to acquisition and development. Metro uses a scientific analysis approach to planning development of their lands, creating short- and long-

term plans for each property that look at alternatives based on ecology and available resources (Oregon Metro, 2011).

EBRPD, with the benefits of maturity as a parks system, has developed a "Pipeline Program" to support full-cost accounting of new assets prior to acquisition (see box below).

The EBRPD Pipeline Program

To ensure ongoing financial sustainability, EBRPD has developed its "Pipeline" program to carefully forecast future operating costs to ensure that the district can support its modest but active efforts to acquire and develop new park assets in the long term. In addition to listing the potential funding source for each active project in the active capital improvement plan (CIP) project schedule, the pipeline program requires that staff develop estimates for:

1) **Start-up costs** – estimated costs for vehicles, office, or maintenance equipment necessary to purchase at completion of project.

2) **Personnel requirements** – estimated number of full-time equivalent (FTE) employees required to support assets upon completion of project, including a combination of Operations, Public Safety, and Maintenance employees.

3) **Total wages** – estimated annual salary cost to be incorporated into base budget appropriations.

4) **Total base supplies and services** – estimated cost associated with maintenance of the new facility on an ongoing basis to be incorporated into the base-budget appropriations.

5) **Revenue** – estimated new revenue to be collected from assets, if significant.

Adding pipeline estimates to the CIP project schedule allows the Board to consider future land acquisitions and development projects in relation to their anticipated long-term effect on the organization. Pipeline projects are only identified as priorities for funding when financial capacity is available and the project is considered in the context of all budget requests. As part of its annual budget, EBRPD performs a five-year forecast that integrates pipeline estimates for each active capital improvement project, making the forecast much more realistic (Management Partners, 2015).

F.8 Parkland Classification

Parks classification is important to guiding how parkland will be developed and used. Table 19 demonstrates consistency among how Regional Parks agencies are classifying their parkland.

Table 19: Summary of Parkland Classification

Parks Class (Agency)	Purpose
Regional Preserve (MV) Wilderness Area (CRD) Regional Conservation Area (RDN) Regional Conservation Parks (RDCO) Regional Preserve (EBRPD) Natural Areas (Metro) Class 1 (ACR)	» Protection and enhancement of sensitive ecosystems, habitat values, wildlife, and plants » Limited or no human access
Regional Nature Parks (MV) Conservation Area & Natural Area (CRD) Regional Natural Areas (RDN) Regional Natural Area Park (RDCO) Regional Park (EBRPD) Nature Parks (Metro) Class 2 (ACR)	» Protect and sustain natural areas while accommodating human use » Typically includes less ecologically-sensitive areas » Accommodates access for nature-based recreation
Regional Multi-Use Parks (MV) Recreation Area (CRD) Regional Recreation Area (RDN) Regional Recreation / Cultural / Waterfront Park (RDCO) Regional Recreation Area (EBRPD) Recreational Facilities (Metro) Class 3 (ACR)	» Focus on provision of outdoor recreation » Accommodates higher number of visitors and a variety of outdoor experiences
Regional Trails (MV) Regional Trail (RDN) Regional Trail (Greenways) (RDCO) Regional Trail (EPRPD) Trails (Metro)	» Trail connections for non-motorized uses
Regional Shoreline (EBRPD) Cemeteries (Metro)	» Other categories particular to specify agencies

A notable absence in the description of parkland classes was the reference to regional level habitat corridors such as greenways intended to provide linear passive outdoor recreation and natural area corridors. It could be assumed that this ecological component could fit within other categories such as Regional Trail.

F.9 Monitoring

There is much to be learned from successes and disappointments in a Regional Parks system. Monitoring allows observation about the performance of the system and plan adjustments to support a cycle of continuous improvement. Monitoring may provide insights into Regional Parks needs based on how much demand or impact is observed. This information would support adaptive management of the Land Acquisition program in response to findings.

ACR sets performance measures for all components within their planning control. While ACR's Regional Parks program is more varied than Metro Vancouver's (e.g. sports parks are included), there are numerous measures that could have applicability in Metro Vancouver's context. The following excerpt from ACR's Long-Term Plan demonstrates their approach (Auckland Council, 2015).

Table 20: Relevant Targets set by ACR

Level of Service Statement	Performance Measure	Actual (2013/2014)	Annual Plan Target	Long-term Plan Targets
		2013/2014	2014/2015	2024/2025
Preserve, protect, and enhance the cultural and natural values and activities of Auckland's Tupuna Maunga and other volcanic heritage	Number of key sites of significance on Tupuna Maunga with mitigation measures to improve or maintain their condition	Not Available	New Measure	30
Manage Regional Parks as part of the open space network for the use and enjoyment of the community	Percentage of the public who have used a Regional Park in the last 12 months	76%	80%	76%
Provide, protect, conserve, and enhance the natural and cultural features in Regional Parks	Number of counter hours worked in Regional Parks each year	79,013	92,000	82,000
	Number of formalized arrangements with Maori (per annum) that provide for the management of specific cultural sites within Regional Parks	Not Available	New Measure	3
Manage quality and financially prudent city park services	Percentage of city park service requests completed on time	90%	90%	90%

Similarly, through its Green Strategy Action Plan, York Region sets a series of measurable targets for its Greenlands system. The following excerpt from York Region's Long-Term Plan demonstrates their approach (The Regional Municipality of York).

Table 21: Relevant Targets set by York Region

Service Area	Target
Natural Environment Land Securement	Pursue a minimum of four secured sites or 60 ha annually
Agricultural land natural feature protection	Pursue a minimum of six sites or 65 ha secured annually
Naturalization of Regional Properties	15,000 trees and shrubs planted annually
Public Engagement and Marketing	Target outreach to 50,000 people annually through programs and communications

These examples demonstrate that there are different approaches to monitoring achievements. The key component is identifying meaningful targets that are measurable and demonstrate progress and accountability. Targets typically involve setting a quantitative measure that represents progress.

Targets can be time consuming and costly to monitor, so it is important to develop a strategy that is implementable and sustainable over time.

F.10 Communications

A practice used by several parks agencies is to post bulletins and send annual updates with specific information about land acquisition achievements. The purpose of these updates is to provide information about what has been accomplished through the funding. These documents typically include:

- Amount of parkland added to the system in a specific timeframe
- The value of the land added
- Notable acquisitions
- Funds received through grants, partnerships, or donations
- A summary of the current acquisition funding mechanism
- A summary of land acquisition revenue and expenditures
- Indication of future acquisitions for Regional Parks

CRD publishes a Land Acquisition Fund bulletin and EBRPD produces a Community Report that documents annual funding and budget, including the investment in land acquisition. In 2011, when MidPen updated their Strategic Plan, they added "public engagement and education" as part of the organization's mission, making it a much more outwardly focused organization than in years past when the primary goal was rapid land acquisition (Midpeninsula Regional Open Space District, 2011).

These communications effectively demonstrate the achievements made possible by the acquisition funding. Input from EBRPD credits part of their success obtaining public support for bond funding for Regional Parks from:

- Following through on their commitments by using funding to complete the priorities the public have identified;
- Providing public access to new Regional Parks as soon as reasonably possible so people are able to enjoy their investments; and
- Preparing regular, transparent, and informative updates about accomplishments and spending (Musbach, Nisbet, Tong, Graul, & Rasmussen, 2015).