Jurisdictional Scan Report

Table of Contents

1. Introduction

The Jurisdictional Scan looked at the Canadian cities of Richmond, Calgary, Edmonton, and Saskatoon, and metro regions of Vancouver and Halifax. The cities were chosen either by their comparability to Winnipeg, or by the core working group's recommendations for best working practices. Despite not being included in the Jurisdictional Scan matrix, additional documents from Montréal and Toronto were reviewed and summarized under **Section 11: Key Findings**. Habitats, ecosystems, and topography varied greatly due to the vast geographical dispersal of the selected cities, however, there were general consistencies found among the ecological and political frameworks. Some cities focused more on greenspaces using an ecological framework while others had more human-centred strategies. These focuses are reflected in the terms and definitions used within the documents, which can be found in **Section 13**.

1.1   Documents

The following documents were included as part of the Jurisdictional Scan

City	Title	Description
Calgary	*Our BiodiverCity: Calgary's 10-year biodiversity strategic plan (2015)*	This plan builds upon the City of Calgary's Biodiversity Report (2014), discussing the pressures on biodiversity in the region and a strategic plan to address these.
	Calgary's Biodiversity Policy (2015)	This policy is based on and supports the implementation of Calgary's 10-year biodiversity strategic plan of the same year.
	The City of Calgary Parks: Open Space Plan (2003)	Written as a single, comprehensive, and integrated reference source for policy on the City of Calgary's open spaces. It is intended to provide broad policy direction for decision-making on development proposals, community plans, and area redevelopment plans.
Edmonton	*Breathe: Edmonton's Green Network Strategy (2017)*	This document presents a comprehensive approach to programming, managing, and promoting efficient and sustainable use of the city's public parks and open spaces with consideration for projected population growth.
	Guidelines for Determining Environmental Reserve (ER) Dedication for Wetlands and Other Water Bodies (2007)	These guidelines were developed to assist in determining appropriate buffer zones for wetlands and other water bodies included in areas to be dedicated as Environmental Reserve within the City of Edmonton.
Halifax	*Halifax Green Network Plan (2018)*	This plan defines Halifax's interconnected open space system, highlights ecosystem functions and benefits, outlines strategies to manage open spaces, and provides land management and community design direction.
	Halifax State of the Landscape Report (2016)	Written as an initial step in the Halifax Green Network Plan, the report provides a summary of the current state of open spaces, key issues, and opportunities to guide the plan's development. Baseline information is included for future comparison of alternative open space scenarios within the plan
Metro Vancouver	*Metro 2050: Regional Growth Strategy (2022)*	This growth strategy is based on existing land use policies and provides a framework for planning future development within the region, specifically related to regional utilities, transportation, housing, and air quality. Aspects related to greenspaces, green infrastructure and environmental health were included in the scan.
	Metro Vancouver Ecological Health Framework (2018)	This document looks at Metro Vancouver's role in protecting, supporting and monitoring ecological health in the region, incorporating ecological health into decision-making, and

		increasing efforts to protect and enhance ecological health.
	Biodiversity Strategy: Vancouver Board of Parks and Recreation (2016)	This strategy presents goals, objectives, targets, and actions for supporting, protecting, and restoring biodiversity in greenspaces, including both public and private lands across the City of Vancouver.
	Rewilding Vancouver From Sustaining to Flourishing: An Environmental Education & Stewardship Action Plan for the Vancouver Park Board (2014)	This plan aims to increase awareness and education in the City of Vancouver on urban nature by creating special wild places in the city, promoting nature in everyday life, and fostering meaningful park board leadership.
	Connecting the Dots: Regional Green Infrastructure Network Resources Guide (2013)	This document supports the development of the Regional Green Infrastructure Network Strategy of Metro Vancouver. The guide describes the forms and subsequent benefits of green infrastructure across the regional landscape to support the development of a green network that will improve ecological resiliency and community benefits.
	Strategic Directions for Biodiversity Conservation in the Metro Vancouver Region (2008)	This report provides the framework to integrate biodiversity into Metro Vancouver land use policies, plans and programs. It provides strategic recommendations based on research and analysis conducted since 2001 by the Biodiversity Conservation Strategy Partnership
Montréal	*Montréal 2030 Strategic Plan*	This is Montréal's first, city-wide strategic plan. It aims to help the city recover from the pandemic, build future resilience, develop more open, transparent and accessible governance, and provide municipal services and healthy living environments to promote inclusivity, well-being and a greener city.
	Climate Plan 2020-2030	This plan is an offshoot of the *Montreal 2030 Strategic* Plan and aims to enable Montréal to become carbon neutral by 2050. This 10-year strategic plan seeks to improve the quality of life of all residents by enhancing the city's economic, social and ecological resilience.
	Good practices for biodiversity: Ecosystems Management Program 2020	The program aims to maintain a balance between general public access to large parks in the city and the protection of environmental integrity. Winner of the "2020 Biodiversity Sector Distinction" award, the Ecosystems Management Program contributes to the city's 2030 biodiversity objectives through a number of actions.
	Ville De Montréal Biodiversity Report (2013)	This report works to present information on present biological diversity within the Montréal metropolitan area, including threats, ecosystem services, management procedures, local initiatives, and opportunities. The findings from this report form the basis for the biodiversity strategy and action plan.
	Local Action for Biodiversity: A Series of Local Cases (2008)	This document summarizes several policies and actions taken within the city of Montréal on biodiversity and biodiversity management.
	Montréal Master Plan, Section 2.7 A Healthy Environment (2004)	This section of Montréal's 2004 Master Plan focuses on the requirements for a healthy environment. This includes criteria related to environmental quality, optimal resource management, and connections between urban green spaces and infrastructure.
	Policy on the Protection and Enhancement of Natural Habitats (2004)	This policy aims to preserve and expand biodiversity within Montréal and all of the components that make up the city's natural heritage.
Richmond	*Richmond's Ecological Network (EN) Management Strategy (2015)*	This strategy acts as a strategic approach to the management of Richmond's natural areas and provides a framework for municipal decisions regarding the Ecological Network and corresponding ecological services.

Saskatoon	*Saskatoon's Green Infrastructure Strategy: Towards an Interconnected Green Network (2020)*	This strategy was created to address concerns around increased population and development leading to increased habitat and biodiversity loss. The strategy identifies existing green infrastructure, its benefits, and looks at ways to strengthen the City of Saskatoon's Green Network.
	Saskatoon's Green Infrastructure Strategy: Baseline Inventory Report (2018)	This Report provides a comprehensive inventory and overview of the City of Saskatoon's Green Infrastructure. It covers guiding principles, aspects of governance, land allocation, the green network, storm water servicing, and heritage and culture.
Toronto	*Our Plan (OP) Toronto: Indigenous Engagement Summary (2022)*	Connected to the City of Toronto's *Reconciliation Action Plan (2022-2032)*, this document presents guiding principles for an Indigenous engagement plan, looks at amplifying Indigenous voices, and using culturally sensitive approaches to Indigenous engagement.

1.2   Methodology

Documents related to **greenspaces**, **green networks**, and **biodiversity** were compiled from each city to use in the scan. Documents included policies, frameworks, strategies, and plans. Information was pulled from the document and recorded into a matrix containing various categories that would assist in comparison of each city. Categories include the scope of each document, what data is included, methodologies used, level of engagement in the creation of the document, policies and strategies specific actions for implementation, key gaps, useful terms and definitions, and applicable lessons for the City of Winnipeg.

2. Scope

The scan looked at whether each city's scope included public or private lands, the types of lands included, as well as any other non-City publicly accessible greenspace. Generally, every city kept the scope of their plans to public city lands.

2.1   Public Lands

Public lands included a wide variety of spaces within the scope for what would be considered a greenspace or included in a green network. Greenspaces and green infrastructure were categorized as natural assets, enhanced assets, and engineered assets, which all contributed to biodiversity and enhancing greenspaces. Some examples of these spaces or features included: municipal parks, civic spaces, campuses, corridors, cemeteries, golf courses, school sites, sports fields, utility lots, boulevards and greenways, storm ponds, bioswales, green roofs, active transportation routes, community gardens, buffer plantings, and urban forests.

2.2   Private Lands

Few of the plans reviewed provided specific policies for private lands. While a few cities included strategies for including private landowners in their greenspace network, others mentioned collaboration with federal and provincial governments regarding parkland and other higher-level government-owned lands. Although private land was acknowledged as contributing to a city's overall greenspaces and act as functional corridors for wildlife to move freely, several cities identified the need for additional policies and strategies to reduce barriers for protecting biodiversity on private land.

In the City of Vancouver, it was shown that private land accounts for 90% of the city's land base, making it a priority to engage with landowners around biodiversity education and stewardship. In *Connecting the Dots* (2013), the document mentions that in some communities within Metro Vancouver, there are policies to protect significant trees on private property, while other communities have enforced their own methods for ensuring biodiversity on private lands. In a project involving the Semiahmoo Trail in South Surrey, developers of properties fronting the trail are required to dedicate lands to complete the Trail as necessary. This was enforced by registering a restrictive covenant that established a 10-metre landscape buffer on private property abutting the trail that prohibits construction within the area. Guidelines for landscaping within this buffer emphasize native planting that provide aesthetic appeal, wildlife habitat, and complement existing trail conditions.

3. Boundaries

The Jurisdictional Scan looked at the geographical boundaries each document was confined by. The majority of the cities kept their scope within their municipal boundaries. However, many acknowledge the importance of looking at a greater, regional context when it came to green network connectivity, shared ecosystems and habitats, and planning for future growth and partnerships. Halifax was uniquely positioned as a regional municipality; therefore, it had a broader geographical scope within its plan. Similarly, the majority of the documents scanned for Vancouver were for the entire Metro Region. This expanded the geographical scope when looking at its green infrastructure network, ecological heath, and biodiversity strategies.

4. Data

Each document was scanned to identify what baseline data existed to support the plan or strategy. Each city had its own geospatial data to highlight the goals of their greenspace plan or strategy, whether it was habitat and biodiversity focused, centred around access to public open space, or green infrastructure. For example, Saskatoon and Calgary each produced an inventory of municipal sites and infrastructure, then categorized them by type and quantity. This was used to identify existing greenspaces or where additional greenspace and connectivity was needed based on population size and dispersal. Edmonton included more of an ecological approach by using its geospatial data to identify the percentage of municipal open space that provided high ecological function (habitat), and what percentage of the population had access to these spaces within walking distance (connectivity). Halifax took a slightly different approach by using its geospatial data to assign value on different locations based on the amount of existing open space elements. These elements were categorized by working and socio-cultural landscapes, as well as ecological value.

4.1   Geospatial Data

While each city included geospatial data, the types of data varied. A few additional supporting documents did not include geospatial data and therefore were not included in the geospatial part of the scan. The categories for geospatial data in the scan consisted of:

- Natural Areas
- Parks
- Other Public Open Space
- Active Transportation
- Corridors (utility, ROWs, etc.)
- Engineered Assets/ LIDS (green roofs, etc.)
- Arable Land

- Storm Water
- Open Water
- Wetlands
- Greenspace Ownership/Management

Each of the documents containing geospatial data included data on Natural Areas and Other Public Open Space. Other most common categories included Parks and Corridors in 90% of the plans, Wetlands in 80%, and Open Water in 70%. Active Transportation was included as geospatial data in 60% of the plans, while Engineered Assets and Storm Water were only documented in 50% of the plans. Greenspace Ownership was the least documented geospatial category, with only 40% inclusion amongst the plans.

5. Methodology

A key component of the scan was to see what methodologies were used by each city to identify gaps and deficiencies in greenspaces and corridors. While geospatial analysis and inventories were the main forms of data used to identify key areas, some cities based their strategies or plans on visions and guiding principles obtained through stakeholder feedback or founded in ecological principles. For example, both Richmond and Calgary used geospatial data, community needs assessments and a trends analysis. In 2015, when Calgary created their 10-year Biodiversity Strategic Plan, they looked at current biodiversity projects, engaged with stakeholders, and used findings from a previous Oral History Project, which consisted of Calgarian perceptions of changes to landscapes and the environment. Richmond focused more on connectivity by including a corridor analysis using a landscape impedance model and looked at landscape permeability using Circuitscape analysis. Vancouver used a broad range of methodologies among its numerous documents relating to greenspaces. The 2008 the Vancouver Metro Region focused on Biodiversity mapping, guiding principles and process principles as a methodology for informing its strategy. In 2013, the Regional Green Infrastructure Guideline explored ecological concepts and case studies, while the 2014 and 2016 Plan and Strategy focused on metrics such as population distribution and hectares of natural areas. Lastly, the 2022 Regional Growth Strategy looks more in depth at data related to sensitive ecosystem inventories, tree canopy cover, and carbon storage, natural assets, and ecosystem services.

6. Engagement

Public engagement was another area the scan hoped to identify to see how strongly each plan or strategy consulted with key stakeholders. This part of the scan looked at how stakeholders were involved, and whether Indigenous stakeholders were identified and included in creating the document. The results were varied, with some cities like Edmonton and Saskatoon providing detailed accounts of how many individuals and stakeholder groups were engaged with, as well as what methods were used. Other cities, like Calgary and Halifax, either engaged with fewer individuals and stakeholder groups, or were vague in their engagement process and extent of their outreach, as was the case with Richmond. The Metro Vancouver Region did not identify their engagement process; however, it did express the intent to increase engagement and working relationships with local First Nations.

7. Policies

The Jurisdictional Scan sought to highlight policies, strategies, and resources used to support the plans and strategies under review. The scan initially hoped to identify policies related to privately owned land, integration measures, or anything related to wildlife, habitat, and ecological protection. Since many of the plans and strategies were written with the intent of forming new policies, few policies were mentioned. Calgary's 2003

Open Space plan identified open land use policies, while acknowledging that little exists around protecting natural features on private land. Later, in the 2015 Policy and Strategic Plan for biodiversity, proposes using a list of guiding principles around ecological literacy, resilience, collaboration and integration in future policies and strategies. Similarly, Saskatoon, and Halifax proposed principles, objectives, and/or action items rather than specific policies. Edmonton stood alone by presenting its open space policy that uses the guidelines, actions, and strategies from its *Breathe* document for the planning, design, and management of Edmonton's open space. The three main policy actions identified from this document were on habitat and connectivity, land management and monitoring, and green infrastructure. Vancouver's 2008 Biodiversity Strategies for Conservation provided the most information regarding private land policies by recommending the development and utilization of incentives and education to encourage better uptake of existing programs for private land stewardship. It also identified the need for developing flexible, 'results-based' legislation that also ensures accountability for achieving effective biodiversity conservation. The document continues to highlight the need for improving the incorporation of biodiversity conservation priorities and values into development plans and policies.

8. Strategies

In addition to policies, the Jurisdictional Scan sought to identify strategies related to enhancing, acquiring, restoring, conserving, and managing urban greenspace. For Edmonton, the focus was to protect and restore natural habitat quality in greenspaces and to provide greater connectivity between greenspaces rather than acquiring more. Saskatoon's green network strategy provided a comprehensive list of actions related to governance, open space, ecology, storm water management, and community aspects of green infrastructure. The city of Calgary focused on the goal of restoring biodiversity and natural habitat in 20% of its existing open space. Calgary also identified a need to set targets for conservation measures, including identifying invasive species in these areas and creating a management strategy. Halifax 's strategy for conservation and protection included establishing a regional biodiversity monitoring program, mapping and maintaining wildlife habitat, maintaining diverse tree cover that is resilient to disease, and mapping, protecting or enhancing habitats for species at risk.

Richmond differed from the other cities by choosing to look at geographical strategy areas in order to provide an overview of the city's ecological assets and identify and prioritize actions related to enhancement and enrichment of its ecological network. Vancouver similarly used geospatial data to identify areas that required protection, enhancement, or restoration of ecosystems, while simultaneously identifying the need to increase protected areas from 40% to 50% and increase the regional tree canopy cover from 32% to 40% by 2050. Its strategy included preparing implementation guidelines to support a regional green infrastructure network that also assisted in protecting, enhancing, and restoring local ecosystems. Vancouver's biodiversity policy went further by recommending the creation of a Biodiversity Advisory Committee composed of public members, experts, and staff to guide biodiversity efforts, develop a city-wide biodiversity monitoring plan, and partnering with public and community organizations to support biodiversity and restoration projects.

9. Implementation & Actions

Although beyond the scope of many documents scanned, each were analysed to see what implementations and actions were laid out in the plans and strategies. These were looked at in terms of possible next steps and early implementation, specific quantitative targets, greenspace and corridor acquisition, resource requirements for implementation, and whether the strategy or plan was actionable. If any of these were within the scope of the document, there would either be a list of strategies and accompanying actions, or there would be connecting documents that detailed these. A good example of an actionable plan can be found in the City of Calgary's biodiversity strategic plan (2015). One actionable target includes restoring habitat lost in 20% of the city's open space. Three on-the ground biodiversity projects are then included which work to address several procedures

identified in the plan. The first is to create an ecological integrity index for the city's natural areas that will be used to plan new parks, and track changes in habitat conditions and plant diversity. The second involves implementing a landscape ecosystem work program that develops policy and technical guidelines for the planning, management, and monitoring of functional habitat and connectivity within the city. The third focuses on interviewing experts and citizens on urban biodiversity to increase the effectiveness of public engagement, education, and outreach efforts.

Richmond took a different approach by identifying specific strategy areas to focus on, each with its own list of objectives and supporting actions and initiatives. The city's *Ecological Network Management Strategy* (2015) provides a Roles and Responsibilities chart identifying key players necessary to include in the strategy's implementation. While designating strategy areas using geospatial data helped to better identify specific area issues and opportunities, it was unclear what specific players would be responsible for following through on the actions identified and what resources were required to do so.

10. Key Gaps

A few key gaps were identified amongst the plans and strategies. Firstly, a significant number of the plans and strategies seemed to lack clear actions on how the documents will be implemented and the resources required to do so. Secondly, documents lacked a balance between biodiversity-focus and human-centric goals. For example, Edmonton opted for the term "open space" which subsequently highlighted recreation and human benefits taking priority over habitat and biodiversity in its greenspace strategy. Conversely, cities like Calgary included significantly more data and thought on habitat, biodiversity, and ecosystem services, but lacked consideration for accessibility and environmental discrimination in its greenspace plans.

The largest gap in the Jurisdictional Scan found that there was a consistent lack of Indigenous engagement and representation in many of the plans and strategies scanned, even within the culture and heritage themes. Some cities, such as Vancouver and Halifax, identified the need to do better and indicated how consultation would improve. Halifax in their *State of the Landscape Report* (2015) indicated its goal to incorporate more Indigenous consultation and knowledge into the plan, however, there are few examples on how this will be achieved. This gap indicates an opportunity for the City of Winnipeg to demonstrate leadership in Indigenous consultation, partnerships, and representation by increasing the accessibility and number of Indigenous spaces within the city's green network.

11. Key Findings

11.1 Calgary

Calgary's *Our BiodiverCity Strategic Plan* (2015) proposes several actions to promote biodiversity throughout the city. The plan proposes fostering ecological literacy amongst citizens by training city employees on biodiversity conservation, developing volunteer and education programs, and setting biodiversity conservation targets. In order to improve urban ecological resilience, the plan promotes monitoring, maintaining, and acquiring urban natural areas, and managing access to specific areas to reduce pressures on biodiversity. The social, environmental, and financial costs of removing or modifying natural ecosystems are considered in the plan, with the recognition of natural systems and biodiversity as being part of healthy economic development.

To support biodiversity throughout future growth and planning, the plan proposes developing a database to integrate land use and biodiversity data in the strategic management of urban ecosystems. As part of this strategy, open space is to be used as a way of responding to environmental changes. The plan suggests developing infrastructure that mimics and incorporates ecological processes, while the database can be used to plan and

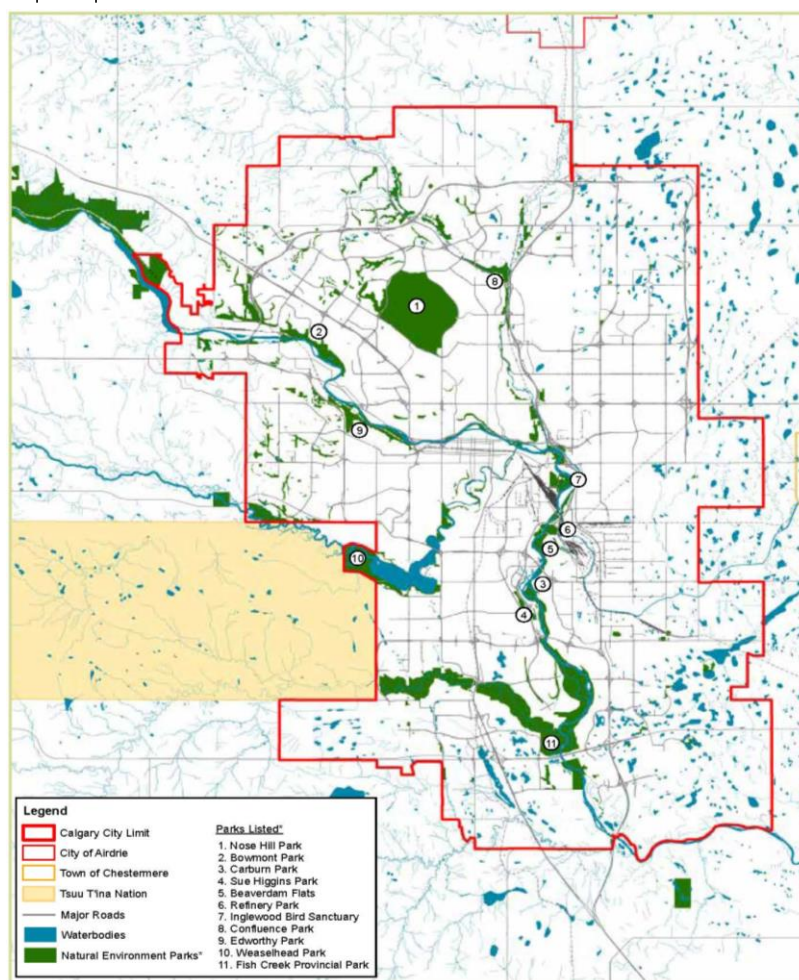manage parks and open spaces as a connected network of habitats and wildlife corridors.

Image 1: Calgary's Major Natural Environmental Parks (*Biodiversity Report,* 2014).

11.2   Edmonton

Edmonton's *Breathe: Green Network Strategy* (2017) provided a number of applicable lessons and examples for the City of Winnipeg to use in its Greenspace and Natural Corridor plan. *Breathe* is built from several relevant documents connected to biodiversity, environmental planning, parks, and natural areas over the past two decades. The strategy includes an open space inventory geospatial database of over 75 relevant datasets, providing key information on existing spaces within the urban ecological network. This document highlights the importance of core areas of natural vegetation including pockets and buffers, corridors, linkages, and stepping-stones that connect to the regional landscape Edmonton sits within. Multiple ecological and built features are considered such as ravines, rivers, greenways, and utility corridors.

Breathe does an excellent job at looking at the urban matrix of Edmonton at multiple scales, including the central core, mature neighbourhoods, established and developing neighbourhoods, urban growth areas, and industrial neighbourhoods. The strategy looks at increasing functional ecological connectivity through native plantings, extending the urban tree canopy, and developing more complete streets with a mix of uses and resources. The plan also considers the cultural wellness functions of spaces connected to the ecological network. For example, the plan considers human connectivity to open spaces throughout the city, with 400 metres or approximately 10

minutes walking distance being considered appropriate based on best practice research and route analysis. Using this guideline, Edmonton refined its road network dataset to include only roads that have sidewalks alongside them when analysing and planning for connectivity throughout the landscape. The emphasis of connectivity over significant greenspace acquisition could be an applicable lesson to Winnipeg. It highlights the importance of both connectivity for wildlife between habitats and the impacts of fragmentation on populations, while also addressing factors pertaining to equitable human access to nature throughout the city. In situations where greenspace acquisition proves to be difficult, connectivity should take priority, allowing for multi-use corridors for both human and wildlife migration.

The strategy also took future projections for population and development growth into account. An important consideration that was identified regarding future planning was how habitat loss from development could be
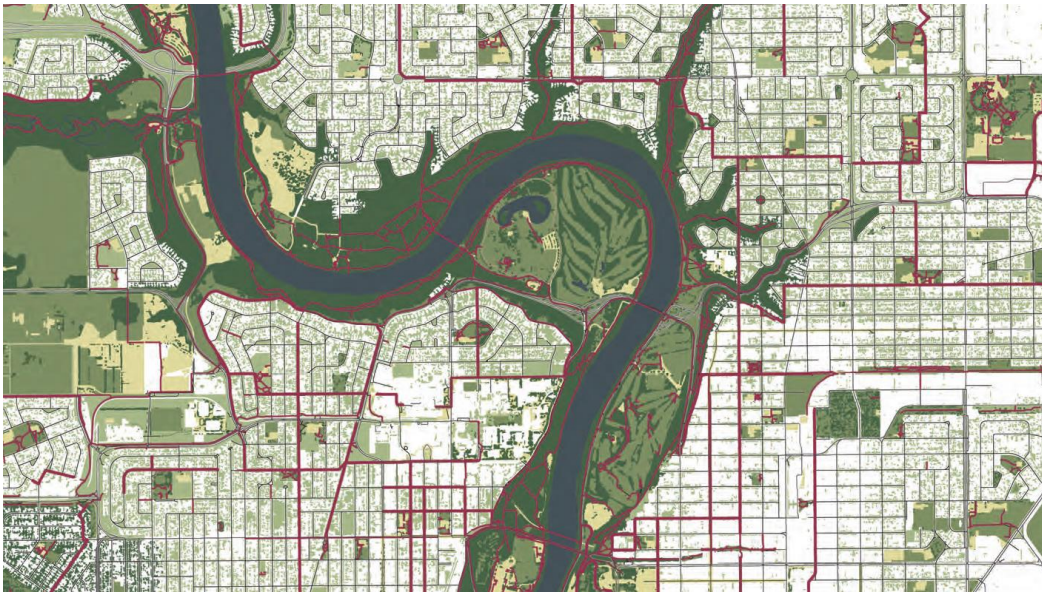

Image 2: A vision for Edmonton's Green Network (*Breathe,* 2017).

compounded by avoidance effects in poorly designed or overused areas. This could lead to population decline in an area alongside loss of the natural character that initially attracted people there. The document stated that an essential aspect of wise stewardship, was to avoid development and manage access in areas of significant or sensitive ecological values.

11.3   Halifax

The documents for Halifax contained extensive use of geospatial data and data categories with greater consideration to the surrounding metro region than the core urban area. The plan used similar ecological concepts to Edmonton and similar open space themes to Saskatoon. Halifax's open space themes include: Ecology, Working Landscapes, Community Shaping, Outdoor Recreation, and Cultural Landscapes. The core planning concepts from the *Green Network Plan* (2018) considers creating interconnected and multifunctional spaces with community shaping landscape patterns in mind. These patterns include ecological patterns of edges, patches, and corridors, as well as the concept of cultural landscapes. Community resilience is also included as a core planning concept which takes into consideration moderate environmental impacts, economic resilience, and improved livability and social cohesion.

Suggestions in the *State of the Landscape Report* (2015) include ensuring landscape connectivity for wildlife mobility in the consideration of transport corridor design and location, as well as finding multiple uses for utility

corridors. The report highlights the importance of the ecological functions of urban tree canopies and their role in life quality and preventing heat island effects. Greening programs are also suggested for commercial and industrial parks to provide visual breaks, shade, and improved stormwater management.

Image 3: Halifax's Ecological Open Space Values (*Halifax Green Network Plan*, 2018)

11.4   Metro Vancouver

The several documents scanned under the jurisdiction of Metro Vancouver illustrated that the regional context allowed for more coordinated expansion and collaboration than a single-city context. By collaborating with member jurisdictions, a broader range of habitat, park lands, buffer parks, and conservation areas can be identified, secured, and enhanced. One action item that supports this observation included managing the metro region's assets by collaborating with member jurisdictions, First Nations, and other agencies to:

- protect, enhance, and restore the ecosystems identified in local ecological and cultural geospatial datasets.
- use regional multi-hazard mapping to identify ecosystems that may be vulnerable to natural hazard impacts and climate change.
- Connect ecosystems and build on existing networks by creating a regional green infrastructure network that works to increase resilience, biodiversity, and human health benefits.

Similarly, to Saskatoon, the region considered green infrastructure according to its natural, enhanced, and engineered assets. The documents sought to identify regional ecological health indicators and integrate ecosystem services into planning. The main health indicators identified included the amount and quality of natural areas and their proximity to one another. Priority actions of the City of Vancouver's Biodiversity Strategy included using park acquisition, tree planting, and development planning processes to connect parks and build the city's ecological network. Other strategies included developing a city-wide Invasive Species Action Plan and Biodiversity Monitoring Plan, incorporate smaller natural areas and features into new and old city-owned lands, and create a

Biodiversity Advisory Committee to guide the Park Board's biodiversity conservation efforts. Some other private land covenants or policies suggested include protecting specific tree species and creating buffer zones along public access areas that require native plantings and permit approvals.
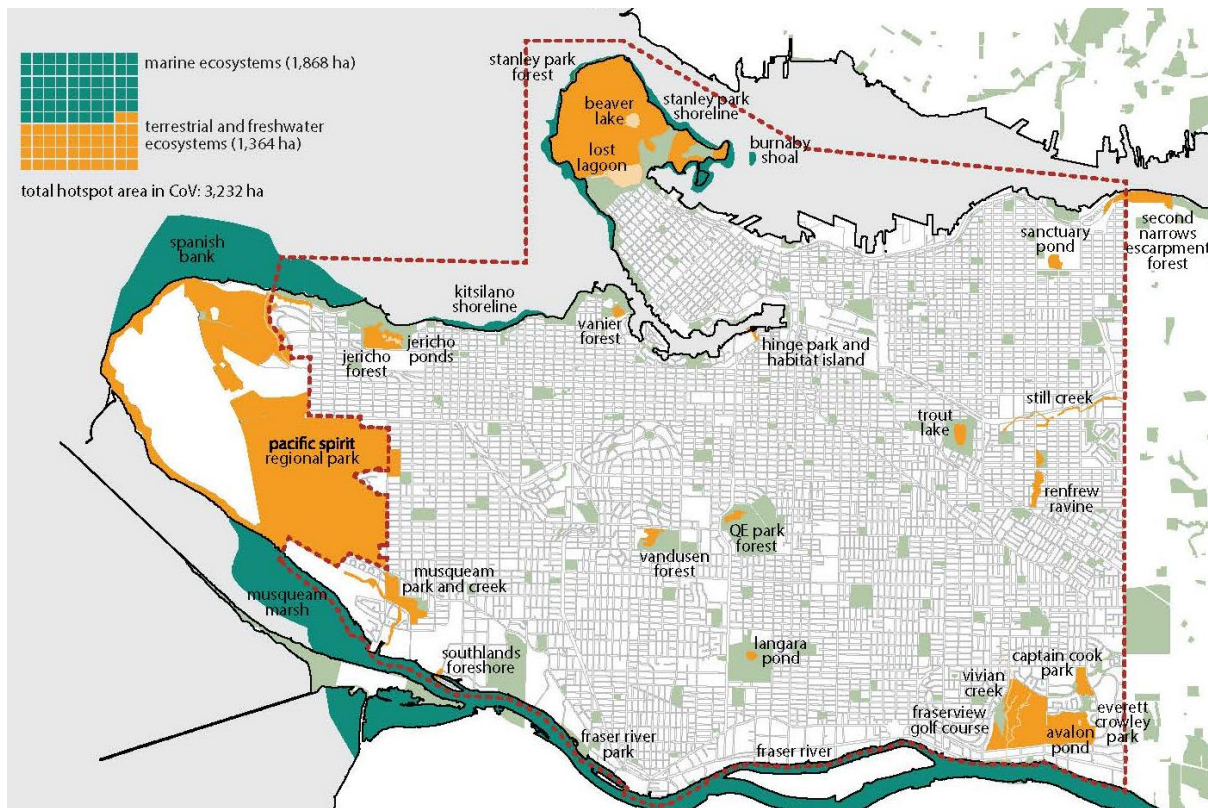

Image 4: Vancouver's Biodiversity Hotspots (*Biodiversity Strategy,* 2017)

11.5   Montréal

While Montréal was not part of the initial scan, several documents of note were analysed for this report. Montréal's *2030 Strategic Plan* and accompanying *Climate Plan 2020-2030* contained several actions relevant to urban greenspaces and natural corridors such as restoring public riverbanks within the city's large park network, developing urban agriculture, and tightening municipal by-laws around pesticide use. The documents highlight priorities to accelerate an ecological transition with several targets including protecting 10% of the territory and planting 500,000 trees with biodiversity in mind to be maintained and protected by the city in areas that are more vulnerable to heat waves. This is target is likely a continuation of the *Montréal Master Plan* (2004) that identifies the city as a heat island and proposes measures for mitigation. Data provided within the strategic and climate plans include 2017 numbers on Montréal's tree canopy coverage, number of public parks and greenspaces, and the amount of greenspace per 1,000 residents.

Accompanying policies related to biodiversity include a *Heritage Policy* (2005), which prioritizes the conservation and enhancement of Montréal's natural heritage, as well as a *Policy on the Protection and Enhancement of Natural Habitats* (2004). The latter policy's objective was to double the size of ecologically managed natural habitats within the city through careful monitoring and ecosystem management in parks and new conservation initiatives. In 2005, the city also adopted a tree policy that pushed for establishing a tree inventory and public tree maintenance program in addition to new regulations to protect trees on private property. The Ecosystems Management Program is a twenty year plus program run by the city, which contributes to towards Montréal's

2030 Biodiversity objectives. The program works to protect biodiversity through a network of protected areas by controlling invasive species, planting native vegetation, monitoring changes within habitats, maintaining inventories of flora and fauna, and promoting sustainable behaviours. This program works to share results with stakeholders
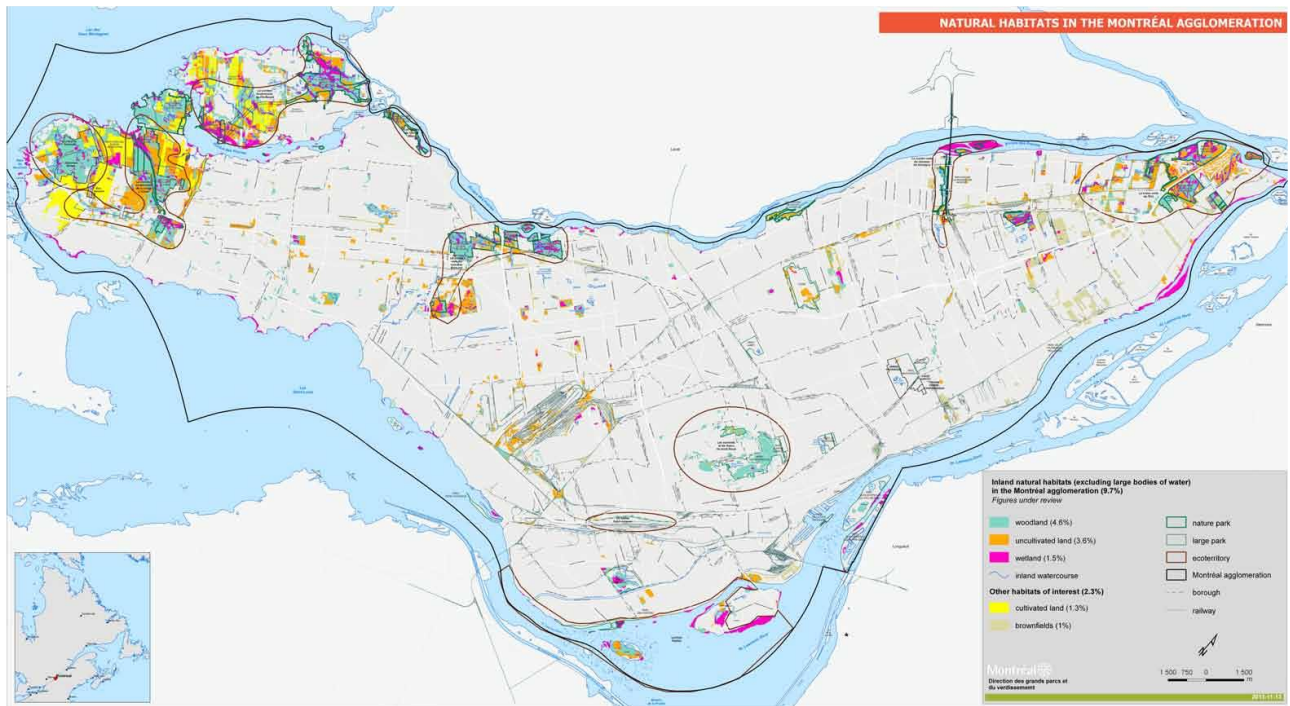

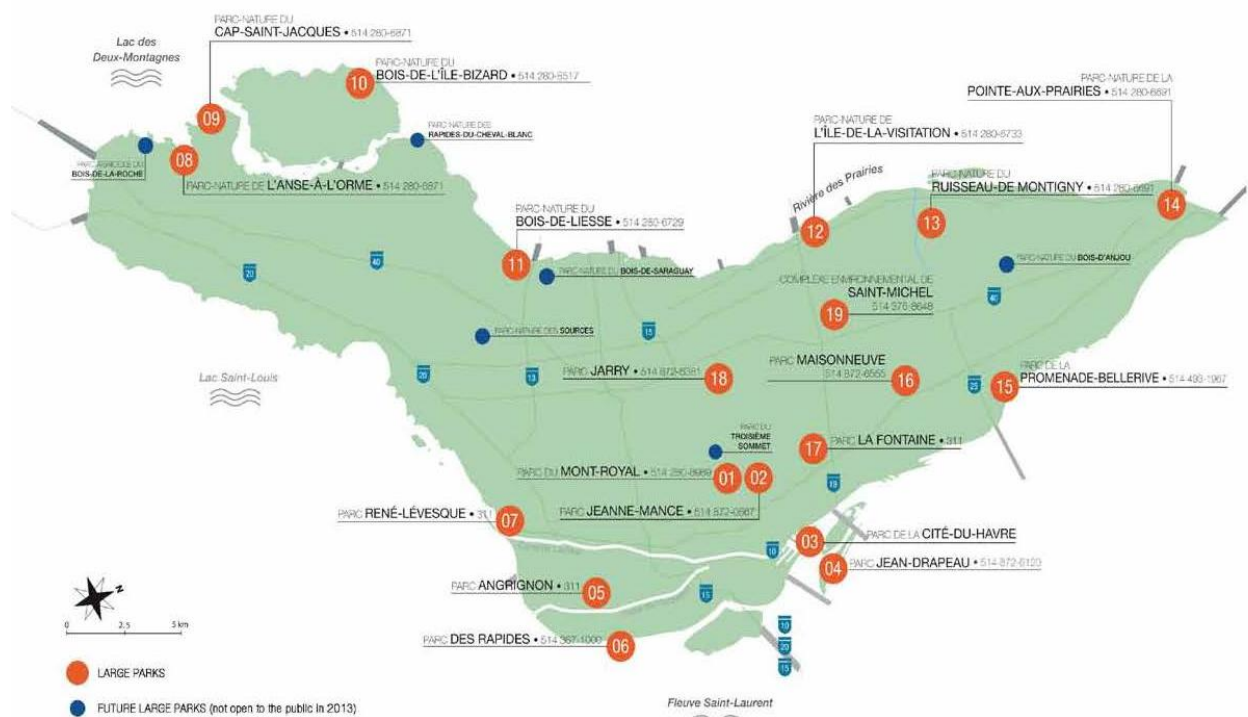Image 5: Montréal natural habitat types (*Biodiversity Report*, 2017)

11.6   Richmond

The City of Richmond used geospatial data to identify strategy areas that were then analysed to identify areas of focus, objectives, actions, and initiatives. Several strategy areas connected to the city or surrounding city borders were identified including, but not limited to traditional neighbourhoods, city centre, agriculture, central wetlands, and industrial areas. Ecological Principles identified as a framework for viewing the landscape were **Hubs**, **Sites**, **Corridors**, and **Matrix** categories that were identified using geospatial data in the city's analysis. Identifying these categories help to see how different parts of the ecological network are connected.

Richmond's Ecological Network Management Strategy (2015) demonstrates the importance of these connections and used two complimentary methods to assess connectivity within the terrestrial components of the city's Environmental Network. The first method consisted of a corridor analysis using a landscape impedance model, while the second method involved using Circuitscape analysis to identify landscape permeability. Both methods assessed potential areas that would allow for the movement of biodiversity through Richmond's complex ecological landscape. The management strategy also highlighted ecosystem services and their role in supporting biodiversity and human interests.

Image 7: Richmond's Ecological Network (*Richmond's Ecological Network Strategy*, 2015)

11.7   Saskatoon

Saskatoon's *Green Infrastructure Strategy* (2020) and *Baseline Inventory Report* (2018) include extensive geospatial data that map out different green network categories and identifies gaps, stressors, assets, and necessary actions. The city considers ecological principles such as connectivity, contiguity, proximity, and the size

of greenspaces in its strategy. Important qualities are also considered for open spaces within the city such as being walkable, natural, and connected. A ratio of 4 hectares of public open space per 1000 persons is considered a desirable standard for Saskatoon and could be considered a guideline for the City of Winnipeg's Greenspace and Natural Corridor plan.

Within the *Baseline Inventory Report,* green infrastructure is categorized into three types: Natural assets, enhanced assets, and engineered assets. This provides a balance between preserving and enhancing natural areas, while acknowledging the ability for design to support ecosystem function through built environments. The documents also consider local hydrology and aquatic assets as important aspects to wildlife and human well-being. Themes identified in Saskatoon's strategy include Community, Governance, Open Space, Ecology, and Storm Water as part of its Green Infrastructure Strategy and Vision.
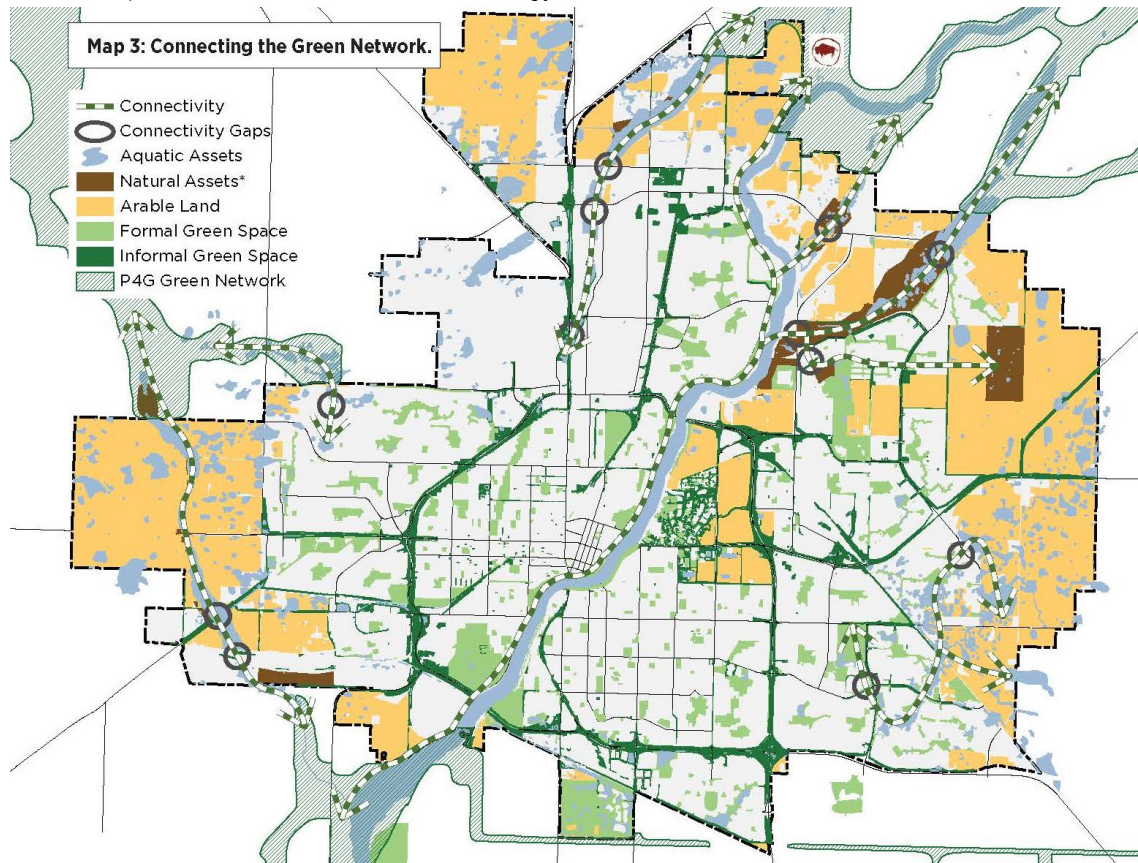

Image 8: Saskatoon's Interconnected Green Network (2020).

11.8 Toronto

The document *Our Plan Toronto: Indigenous Engagement Summary* (2022) was included in the scan due to the lack of Indigenous Engagement documents. The *Indigenous Engagement Summary* is an excellent guideline on how work should be done with Indigenous populations. This documented is connected to the City of Toronto's *Reconciliation Action Plan (2022-2032)* and the Ontario *Provincial Policy Statement* (2020 Update).The *Indigenous Engagement Summary* has several guiding principles for their engagement plan: To uphold and follow through on relationship building commitments, and discussions regarding the implementation of Indigenous rights, interests, and self-determination; To present information on planning documents and policies in a clear and relatable way; To offer multiple channels for engagement that is tailored to the individual and diverse needs of the Indigenous community members; To create space for holding conversations around restorative justice,

reconciliation, and truth with respect to the urban environment; To communicate often with participants, focusing on early engagement, supporting ongoing consultations, and reporting back on what is heard; To allow for adaptability in the methods of engagement that integrates feedback from participants as the engagement unfolds.

The document highlights the importance of amplifying Indigenous voices, using culturally sensitive approaches, and appropriate communication and engagement activities. Themes heard during engagement for this document highlighted how Indigenous peoples and rights holders wanted a larger role in planning and decision-making, especially regarding whether development had the potential to impact the environment, wildlife, habitat, water, or treaty rights. It stated how Indigenous people should be consulted and Traditional knowledge integrated on environmental conditions prior to the completion of environmental studies and reviews. Other key points include how urbanization affects Indigenous harvesting rights and how there is a need for natural spaces in the city for Indigenous people to be able to practice their rights and rituals. Several other principles and suggestions are shared within the document that address possible approaches for planning and development in a way that holistically preserves and protects the natural environment.

12. Key Considerations for Future Phases

12.1 **A clear vision and guiding principles to guide plan development are essential.**

12.2 **Consider development of time horizon for plan targets in alignment with UN climate action and biodiversity targets (e.g. 2030 & 2050).**

12.3 **Select key terms and definitions that support the vision, goals, objectives and targets.**

12.4 **Create a substantial geospatial database that includes multiple categories, that could include:**

Greenspace inventory

- Determine categorization for types of spaces or categorize & analyse using ecological principles (ex: hubs, patches, edges, corridors, stepping-stones, matrix, etc.) as well as land-use designation (ex: parks, utility corridors, boulevards, greenways, etc.)

Open space inventory

- Categorize (ex: athletic field, plaza, basketball court, bike path, etc.)

Assets (natural, enhanced, engineered)

Waterways & wetland inventory

Stormwater/ Wastewater system/diversions; soil/surface permeability

Arable land/Urban agriculture inventory

Heat islands

Tree canopy cover

Active transportation network (Seasonal)

Greenspace Ownership: Private vs Public greenspace

Species richness (Plant & animal); biodiversity hotspots (if applicable)

Natural areas & habitat types

- Natural-Semi natural vegetation; vegetation classes + Sensitive and modified ecosystems inventory

Areas of cultural significance (Indigenous-specific)

12.5   Determine key data analysis questions and criteria:

Analyse greenspace and natural corridor quantity, quality and connectivity using defined standards or service levels such as hectares/1000 people, m2 per person, and geographic catchment areas (walking/cycling/driving time or distance)

Where are neighbourhoods and greenspaces divided (ex: by significant roadways, rivers or rail lines/yards)?

What areas lack greenspace or access to greenspace (using metrics)

Where are there higher rates of pollution?

Identify underutilized open spaces and green spaces (by season)

Identify disjointed/breaks in active transportation network

12.6   Protection and restoration of waterways and aquatic habitat (i.e., wetlands) that:

Include considerations for rainwater and snowmelt management using green infrastructure to reduce strain on sewage systems. Plans scanned included diverting grey water and increasing the use of permeable pavers, bioswales, wetlands, etc.

12.7   Increased considerations for Indigenous Peoples [From *Our Plan Toronto: Indigenous Engagement Summary* (2022)]:

Traditional knowledge needs to be reflected in why and where development and intensification is located.

Consider processes and best practices for inclusion of Indigenous perspectives in planning and development process.

Consider access to nature and green spaces in urbanized areas to support complete communities for Indigenous people.

Identify Indigenous approaches and perspectives for environmental policies.

12.8   Create a clear plan for increasing, enhancing and managing biodiversity in existing greenspaces.

12.9   Learn from Montréal as a national biodiversity leader, including its Ecosystems Management Program.

12.10   Establish partnerships & green infrastructure network between surrounding municipalities.

E.g. Collaborate with Metro Winnipeg Region and RM's to plan how suburbs will eventually connect, and how greenspace and biodiversity can be preserved.

12.11   Create new guidelines for industrial & commercial developments to promote green

infrastructure & habitat restoration/conservation.

12.12   Develop new policies for private land such as:

Increasing public access to riverbanks; creating buffer zones on private properties bordering critical biodiversity rich greenspaces; implementing bans or permit requirements for landscaping on private properties that are adjacent to or abutting natural greenspaces.

12.13   Further research is required on policies and by-laws related to natural areas on private lands.

13.   Glossary of Terms from Jurisdictional Scan

Biodiversity

(Vancouver, Calgary)– the variability among living organisms which includes the diversity within species, between species and among ecosystems.

Connectivity

(Saskatoon, Vancouver)– The physical and functional links between ecosystems that support biodiversity by allowing the movement of species within and between ecosystems. Ecosystem connectivity is achieved by conserving and maintaining a connected network of natural and urban ecosystems.

Essential Corridor

(Halifax)– connections that provide unique or critical connections between important core areas, the loss of which would severely degrade connectivity throughout the Region and to adjacent Municipalities.

Important Corridor

(Halifax)- connections between natural habitats, the loss of which would impact local connectivity but are unlikely to impact overall regional connectivity…. A band of natural vegetation that connects important core habitats.

Functioning Corridor

(Richmond)- a linear area of habitat with continuous or near-continuous natural vegetation cover along its length. This type of corridor offers an existing pathway for wildlife movement between hubs. Functioning corridors are designated as 'existing corridors' within the Ecological Network.

Impaired Corridor

(Richmond)- has some natural vegetation cover along its length but contains significant gaps that are currently compromising its function as a pathway for wildlife movement between hubs. As a result, actual use of the corridor in its current state may be limited. This type of corridor has a high potential for restoration and is designated a 'potential corridor' within the Ecological Network.

Non-Functioning Corridor

(Richmond)- has little to no natural vegetation along its length and does not function as pathway for wildlife movement between hubs in its current state. Non-functioning corridors were identified based the

corridor analysis and are shown where connectivity would significantly benefit the integrity of the EN but is currently lacking. Larger-scale restoration efforts would be required to restore connectivity in these areas. Non-functioning corridors are identified as 'potential corridors' within the Ecological Network.

Patches

(Halifax)– A contiguous, unfragmented area of natural vegetation or small, discontinuous natural areas, used by wildlife during longer movements between core habitats.

Hubs

(Richmond)- the largest natural areas, generally greater than 10 hectares. They are the core of the EN. Hubs can support entire and diverse populations of animals and plants and associated ecological functions.

Sites

(Richmond)- smaller (e.g., 0.25–10 hectares), more discrete non-linear areas of natural ecosystems which support smaller or less diverse populations of animals and plants. These lands play an important role in increasing the structural or functional connectivity of the network by providing "stepping stones" as connections between hubs.

Matrix

(Richmond)- the remainder of the land between the hubs, corridors, and other components of the EN. The Matrix is important because it encompasses most of the land base in the city. It includes many smaller ecological features and provides many opportunities to restore ecological features and functions through restoration measures and the creation of green infrastructure. The matrix can contribute to the overall function and health of the EN.

Cultural Landscape

(Halifax)– places that connect us to our history and define our regional identity.

Ecosystems

Dynamic complexes of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Ecological Network

(Calgary)- a network of natural areas and open space providing the conditions necessary for ecosystems and species populations to survive in a human-dominated landscape.

Ecosystem Services

(Saskatoon, Vancouver)- The aspects of ecosystems used, actively or passively, to contribute to human wellbeing. They include the provision of clean water and air, pollination of crops, mitigation of environmental hazards (e.g. flooding), pest and disease control and carbon sequestration. Can be categorized by:

Provisioning Services

Include material and energy outputs from ecosystems, including food, fresh water, and raw materials used for construction and energy like wood.

Regulating Services

Refer to the services provided by ecosystems in processing and assimilating pollution, stabilizing water flows and soil erosion, controlling local climates, and storing or sequestering carbon.

Cultural Services

Are the non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, recreation, and aesthetic enjoyment.

Supporting Services

Underpin all other ecosystem services. Ecosystems provide habitats for all plants and animals while depending on a diversity of species to maintain their own functions.

Edible Landscaping

(Halifax)– Use of food producing plants in the urban landscape.

Environmental Reserve

(Edmonton, Calgary)- A part of a parcel of land that is the subject of a proposed subdivision and is to be provided as environmental reserve as required by the subdivision authority if it consists of:

- A swamp, gully, ravine, coulee, or natural rain course,

- Land that is subject to flooding or is, in the opinion of the subdivision authority, unstable, or

- A strip of land, not less than 6 metres in width, abutting the bed and shore of any lake, river, stream, or other body of water for the purpose of preventing pollution, or providing public access to and beside the bed and shore.

Environmentally Significant Area

(Calgary)- A natural area site that has been inventoried prior to potential development and which, because of its features or characteristics, is significant from an environmental perspective, and has the potential to remain viable in an urban environment.

Ethical Space

(Saskatoon)- A framework for decision making that creates a place for knowledge systems to be considered equal; each treated with mutual respect, generosity, kindness, and other basic values. In an ethical space, no single system has more weight or legitimacy than another. Ethical space is an important concept for equitable engagement in reconciliation efforts between settler governments and Indigenous peoples.

Fragmentation

(Saskatoon, Vancouver)- The process of ecosystems being divided into smaller and isolated patches of land thereby reducing ecosystem integrity.

Green Infrastructure

(Saskatoon, Richmond, Vancouver)- the natural vegetation, soils, water, and bioengineered solutions that collectively provide society with a broad array of products and services for health living. Natural areas such as forest, wetlands and floodplains, and engineered systems like bioswales and rain gardens conserve natural resources and mitigate negative environmental effects, benefiting both people and wildlife. When green infrastructure is connected as part of a larger framework, a green infrastructure network is created.

Natural Assets

(Saskatoon, Vancouver)- biological features and constituents that are essential for functioning ecosystems. Core ecosystems provide important habitats for wildlife, mitigate climate change risks, support municipal services & connect community to nature. Natural assets to greenspaces include natural river corridors, wetlands, woodland, grassland and soil systems.

Enhanced Assets

(Saskatoon, Vancouver)- designed places and features that modify natural assets for improved human use. Examples include parks, roadway greens, urban forests, recreation spaces and arable land that act as link between natural assets.

Engineered Assets

(Saskatoon, Vancouver)- incorporated nature-inspired design into built environments to support ecosystem function and/or greater connectivity to natural and enhanced assets. Examples include storm water infrastructure, trail systems, green roofs, grey infrastructure.

Green Network

(Edmonton, Saskatoon, Halifax, Richmond- Ecological Network)- An integrated system of public open spaces, with multiple functions that provide value to humans and the environment. The green network includes all the outdoor land and water that is publicly owned or publicly accessible, such as parks, plazas, main streets, natural areas, greenways, and green infrastructure.

Greenspace

A type of open space that contains plant life and provides ecological functions such as a park, river corridor, community garden, greenway, or treed boulevard.

Greenway

(Halifax, Vancouver)- Linear transportation routes that link the city's neighbourhoods; many provide ecological values related to the urban forest and habitat for pollinators; A linear open space established along either a natural corridor (riverfront, stream valley or ridgeline) or a human influenced corridor (railroad right-of-way, canal, scenic road). It is a natural or landscaped course offering mobility options while connecting parks, natural reserves, cultural features, or communities.

Natural Area

(Vancouver)- large and small patches of the urban landscape which support nature such as forests, wetlands, and shorelines, but also including green roofs, constructed wetlands, and rain gardens.

Natural Environment Park

(Calgary)-A City-owned Park where the primary role is the protection of an undisturbed or relatively undisturbed area of land or water, or both, and which has existing characteristics of a natural/native plant or animal community and/or portions of a natural ecological and geographic system.

Natural Heritage

(Calgary)- Natural features consisting of physical and biological formations or groups of such formations, which are of particular value from the aesthetic or scientific point of view; geological and physiographical formations and precisely delineated areas which constitute the habitat of species of animals and plants, valuable or

threatened, of particular value from the point of view of science or conservation; natural sites or strictly delineated natural sites of particular value from the point of view of science, conservation or natural beauty, or in their relation to the combined works of man and of nature.

Open Space

(Edmonton, Calgary)- Open space where the main function is to contribute to the quality, form, and function of the built environment through visual aesthetics, character, variety, sun allowances, noise/sight buffering, and public areas. Examples include roadway greens, escarpments, landscaped boulevards, sidewalks, and urban plazas.

Rewilding

(Vancouver)– the process of making the environment wilder again, including rebuilding natura ecosystems and food-webs, and re-introducing species which are absent. Rewilding often has the connotation of bringing large mammals back to the landscape but in many cases, it focuses on the social and ecological benefits of restoring functioning ecosystems.

Sensitive Ecosystem Inventory

(Vancouver)- An inventory of the region's most ecologically important areas mapped using provincial methodology. It does not include small, young, significantly disturbed, farmed or landscaped vegetation such as young forests <5 hectares, crop or fallow land, enhanced or engineered assets, backyards and street trees. The inventory includes sensitive ecosystems and modified ecosystems, as follows:

Sensitive Ecosystems

Ecologically fragile, rare, or at-risk ecosystems such as wetlands, forests, and riparian areas.

Modified Ecosystems

Includes young forests (30-80 years old) and freshwater reservoirs that have experienced some human alteration, but still provide ecosystem services and remain important for biodiversity. In many cases, modified ecosystems are essential to maintaining ecosystem connectivity in highly fragmented landscapes where sensitive ecosystems have been lost.

Sensitive Landforms

(Halifax)– Vulnerable, delicate, rare and/or valuable (from an aesthetic, ecological or cultural perspective) geological formations that may be significantly impacted or modified by development and uses in the landscape.