

9.0 Island Natural Environment

(an Ecological Network approach)



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OVERVIEW:

Richmond's spectacular estuarine location—at the point where the Fraser River meets the Pacific Ocean—means that the island City is located within one of the most productive ecosystems in the world. Our community relies upon a healthy and diverse landscape to maintain biological diversity and a resilient natural environment. Richmond's inland and foreshore habitats weave an intricate and unique tapestry of landscapes that provide a host of ecosystem services, the fundamental life supports for human settlements and a wide variety of plants and animals. These essential ecosystem services include temperature regulation, soil stability, clean air and water, carbon sequestration, pollination and drought and flood mitigation.

Increasing population growth will place higher demands on already stretched ecological resources. Research on ecological sustainability indicates that the worldwide use of resources is exceeding the Earth's capacity to renew and replenish them. At the same time, awareness is growing that Richmond will likely experience significant impacts from changing environmental conditions (e.g., climate change), urbanization and agricultural intensification. There is a concern for Richmond's natural environment in regards to the loss of local biodiversity due to climate change impacts (e.g., loss of foreshore habitat due to sea level rise and/or loss of inland habitat due to increasing storm intensity), urbanization and proliferation of invasive species.



Accommodating future growth, responding to climate change and adapting to urban and agricultural intensification necessitate a sustainable approach to protecting and maintaining the ecological health and resilience of our unique island natural environment. The objectives and policies for the natural environment identify a broad range of tools and approaches that target the protection, enhancement, connectivity and acquisition of ecological lands and services. These tools include policies to integrate ecological values, lands and connectivity into land use planning initiatives at a variety of scales and in a manner that promotes ecosystem services and human well-being.



OBJECTIVE 1:

Protect, enhance and expand a diverse, connected and functioning Ecological Network.

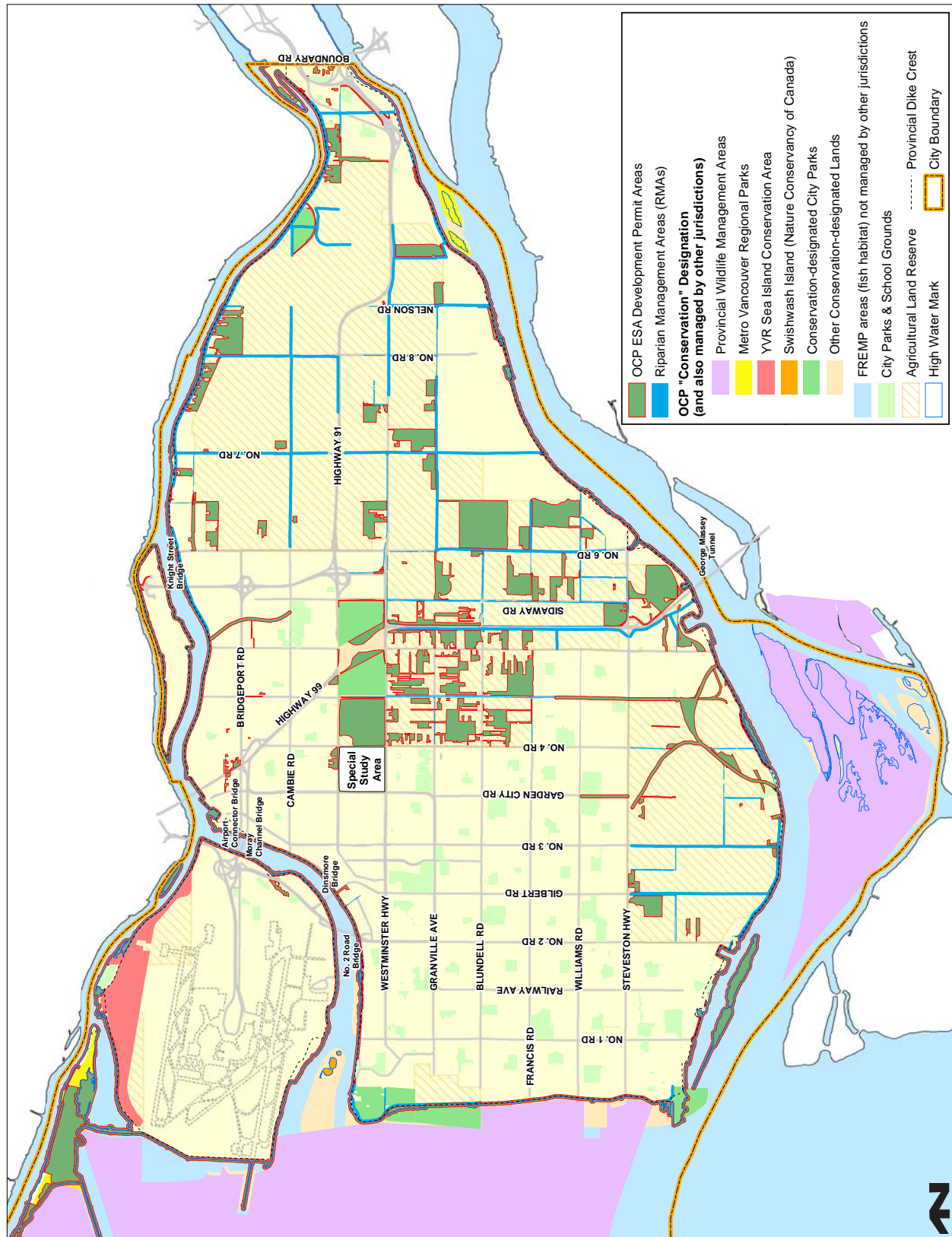
In a developing urban and rural environment, retention of biological productivity and biodiversity is a challenge. Biodiversity principles clearly indicate that contiguous or connected areas offer greater habitat value and overall ecosystem resiliency than numerous fragmented portions. To gain the maximum benefit to biodiversity through land-use planning, the creation of an Ecological Network (EN) will help guide the strategic enhancement, layout and acquisition of lands. The EN comprises larger 'hubs', smaller "sites" and interconnecting corridors that act to conserve and connect natural and semi-natural areas. The EN approach recognizes the ecological services provided by these areas that contribute to the health and livability of the City. Connectivity between people, the built environment and natural lands is intrinsic to the EN. It is an innovative and opportunistic approach to better achieve the acquisition, protection, and enhancement of biodiversity components and the ecosystem services they support, within an expanding urban and agricultural context.

POLICIES:

- a) identify an EN to provide an innovative framework to better protect the city's ecological resources (see Ecological Network Management Map);
- b) include the EN as a foundational tool within the Green Built and Natural Environment program of the City's Sustainability Framework. Implementation within the program will include the establishment of targets and adoption of the Ecological Network concept;
- c) establish a meaningful and robust EN by:
 - considering the prioritization of EN lands, including City, private and other jurisdictions, for future planning, land acquisition, protection and enhancement (e.g., Riparian Management Areas, Park and Open Space policies, Environmentally Sensitive Areas, school yards, agricultural lands, Wildlife Management Areas, etc.). The EN data set includes information for the relative "naturalness" of given areas and also assesses their suitability for restoration and enhancement of lands including functioning, impaired and non-functioning corridors. Prioritization and recommendations can be made to identify possible acquisition, enhancement and protection strategies. Note: Currently the EN map does not include any corridors. Amendments to the OCP will be made, as appropriate, prior to the next OCP update;



Ecological Network Management Map

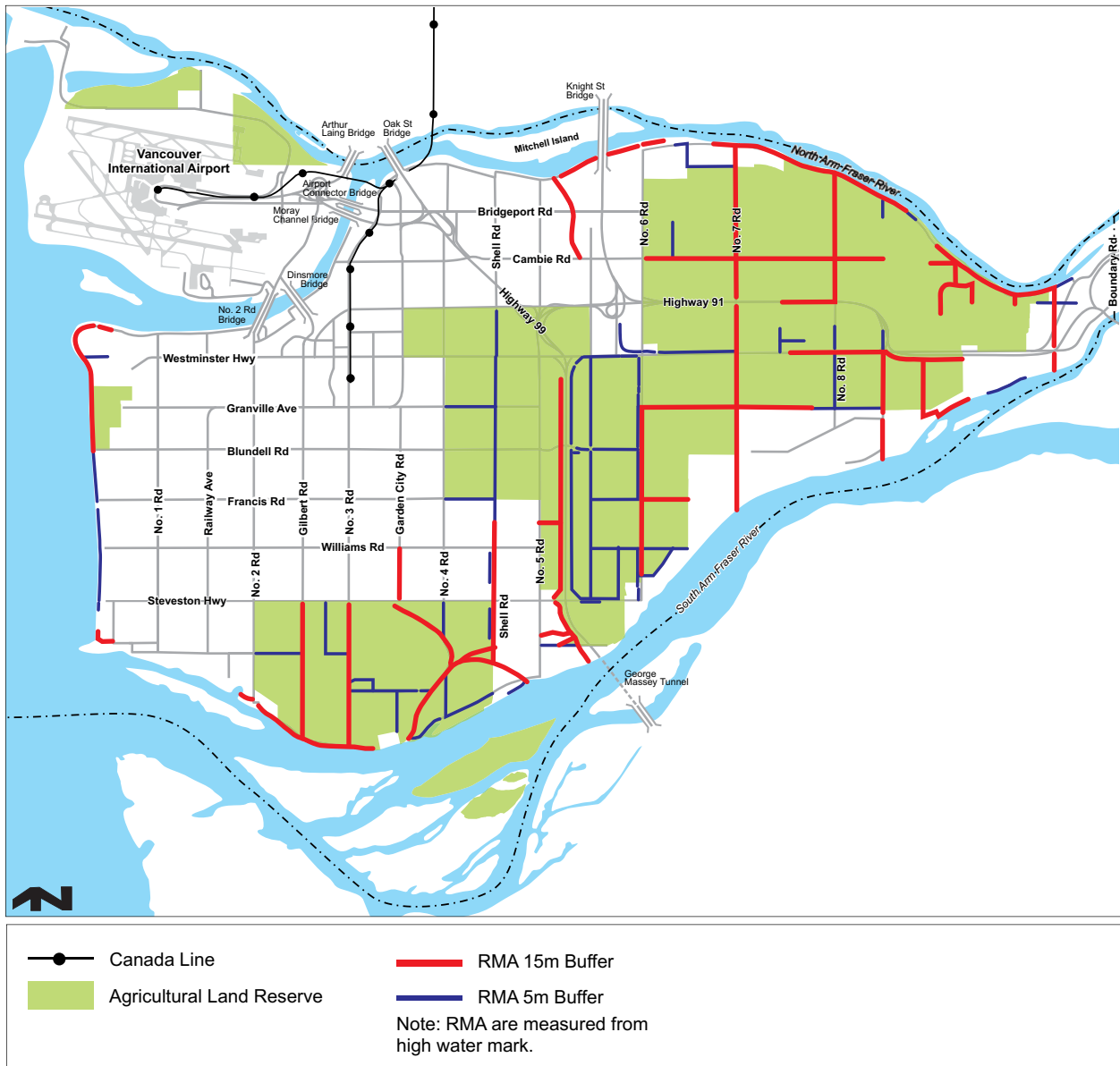




- establish clear goals and objectives to strengthen and expand the existing EN. This will include a review and recommendation of potential targets and metrics to assure successful implementation of the EN;
 - over time, establishing new design objectives (e.g., ecological landscape design guidelines), policies and principles for city lands, operations, environmental stewardship initiatives and private developments to ensure integration with the EN;
 - linking the EN to emerging social and economic opportunities (e.g., organic farming, community gardens, recreation, eco-tourism) that will encourage the use of the land in an ecologically responsible manner;
 - implementing the 2012 Environmentally Sensitive Areas (ESA) Management Strategy and updating it every five years (Policy Planning);
 - over time, updating the City's Riparian Management Areas (RMA) Response Strategy, Parks and Open Space Strategy and related policies to reinforce the value of connectivity;
 - all private development and City works will comply with the City's Environmentally Sensitive Areas policies, the City's RMA setbacks (5 m or 16.4 ft. and 15 m or 49.2 ft.), the City's Tree Protection Bylaw, the Fraser River Estuary Management Program (FREMP) project review process and will respond to the EN policies and all other applicable environmental legislation;
 - as city resources enable, strategically acquiring portions of the EN that become available and are considered important properties to be owned by the City;
 - continuing to establish partnerships, incentives, policies, programs and measures, as appropriate, to improve the EN;
- d) Environmental Sustainability will take the lead role in implementing the Ecological Network.



Riparian Management Map





OBJECTIVE 2:

Promote green infrastructure and the Green Infrastructure Network (GIN) and their underlying ecosystem services (e.g., clean air, water, soils), on all lands.

Green infrastructure is referred to as the physical environment within and between our cities, towns and villages, forming a network of multi-functioning open spaces, including formal parks, gardens, woodlands, ponds, wetlands, watercourses, green corridors, street trees and open fields/lands (Davies, McFarlane, McGolin, and Roe, 2006). The Green Infrastructure Network (GIN), describes the interconnected network of these natural and engineered “green” elements occurring at a variety of scales and is a foundational support tool for the function and quality of communities and ecological systems. Green Infrastructure Network elements include the built and the natural environment such as district energy systems, green buildings, permeable pavement, eco-industrial development, and storm-water management. The Green Infrastructure Network provides the opportunity to create and enhance natural values through the development process.

POLICIES:

- a) expand the EN with a complementary Green Infrastructure Network (GIN) as the key management tool;
- b) develop a Richmond specific approach to promote and track GIN opportunities to support the Ecological Network through the City's capital and operation projects, policies and development application requirements;
- c) establish an Invasive Species Management Program which includes community and institutional partners, to reduce the spread of invasive species and consequent loss of biodiversity;
- d) create educational and outreach materials that interpret the direct value of the green infrastructure and the GIN, their underlying ecosystem services and significant natural features in the City;
- e) develop a toolbox of planning and environmental policies to support site and neighbourhood level planning processes to integrate the GIN tool within the EN. This will include the identification of opportunities to acquire, enhance and protect lands through redevelopment and rezoning;
- f) Environmental Sustainability will lead the implementation of this Objective 2.

OBJECTIVE 3:

Proactively implement practices to protect and improve water, air and soil quality.

In the course of the City's ongoing operations as well as the redevelopment and use of publicly owned lands, opportunities exist to not only preserve but actively improve environmental conditions. In some cases, new or strengthened City policies will be implemented; incorporating performance targets. Of particular note is the Integrated Stormwater Management planning process already underway, which will provide a framework to guide development towards sustainable rainwater management practices.



POLICIES:



- a) incorporate ecological values, Ecological Network, and Green Infrastructure Network opportunities and consideration of targets into the City's Integrated Stormwater Management Plan being developed under Regional and Provincial process. Targets will be considered for inclusion within the City's Sustainability Framework programs. As part of plan implementation, encourage innovative measures to improve storm water quality and manage impervious areas where appropriate to reduce run-off volumes, sedimentation and erosion, and thus improve water quality;
- b) continue to partner with other government agencies in the Fraser River Estuary Management Program (FREMP) in regulating and assessing shoreline development along the Fraser River;
- c) prioritize the protection and enhancement of the Fraser River and West Dike foreshore habitat (e.g., RMA requirements, 30 m or 98.4 ft. foreshore and 30 m or 98.4 ft. inland setback buffer in accordance with the City's ESA development permit process and the Parks and Open Space Strategy);
- d) assure compliance for all capital, operations, development applications and other projects for the City's 5 m or 16.4 ft. and 15 m or 49.2 ft. setback requirements for Riparian Management Areas (RMAs) and for Environmentally Sensitive Development Permit Areas (ESAs);
- e) enhance the City's RMA network through the implementation of strengthened policy and/or bylaw approaches;
- f) overtime, review and update design guidelines to ensure that public access to natural areas is provided in a manner that best balances habitat protection with public access and ecological connectivity opportunities;
- g) establish and encourage Best Management Practices related to Air Quality and reduction of greenhouse gases, including education both internally and externally to the industrial, construction and agricultural sectors;
- h) cease the use of traditional pesticides through the ongoing implementation of the city's Enhanced Pesticide Management Program which includes the Pesticide Use Control Bylaw and educational initiatives which promote the use of new generation, low toxicity pesticides, organic gardening, natural lawn care, etc.;
- i) continue to expand City Operations practices to innovate best practices for landscape maintenance in the absence of traditional pesticides;
- j) continue to establish collaborative approaches with partner agencies to reduce the environmental (i.e. biodiversity loss), infrastructure and economic impact of invasive species expansion;
- k) continue to partner with senior governments and businesses to promote initiatives aimed at best practices for storm water management and spill response management;
- l) continue participation in the Site Profile system to assist the Provincial Ministry of Environment with screening and managing contaminated sites through the Development process;



- m) continue to work with senior government and other agencies to raise awareness of environmental and health impacts of discharges of polluting substances into the air, soil and water;
- n) over time, establish Adaptive Management Principles to better manage foreshore areas in light of the potential impacts of climate change (e.g., sea level rise);
- o) continue to partner with all levels of government and others to encourage more adaptable, resilient policies to better manage climate change.

OBJECTIVE 4:

Develop Partnerships for “Ecological Gain”.

Supporting the objective of improving baseline indicators such as water quality, the City will work towards creating a net gain in ecological values through the process of development, zoning and City capital and operation projects. This “Eco-Plus+” approach integrates environmental improvements as part of the City’s capital operations and the development process, rather than simply managing impacts. Combined with the Ecological Network concept, this provides the framework for creating strategic improvements to the City’s ecological values over time.

POLICIES:

- a) incorporate Ecological Gain principles into all City and development approval projects to maximize environmental values and benefits to the Ecological Network;
- b) consider the review and establishment of a target or metric to use for tracking the implementation and success of the Ecological Gain concept.



OBJECTIVE 5:

Fostering Environmental Stewardship.

Richmond takes pride in its beautiful setting at the mouth of the Fraser estuary. The City is defined by its proximity to the river, its history in agriculture and fishing as well as its diverse ecological values. With significant growth and the arrival of many new immigrants to the community an unrivalled opportunity presents itself to create a City-wide program of environmental education and awareness. With diverse cultural approaches to environmental stewardship, the City will take a leadership role in interpreting and valuing our natural environment to both long-standing and new residents.

POLICIES:

- a) identify and establish opportunities to support the Ecological Network through volunteer driven stewardship initiatives;
- b) continue to work with partner organizations, other levels of government, multicultural organizations and First Nations to develop and deliver environmental stewardship initiatives and collaborations that embrace the City’s Ecological Network principles;



- c) ensure outreach and educational programs in environmental stewardship are relevant to a multicultural audience;
- d) seek out sponsorship and private sector support for environmental stewardship and place-making initiatives;
- e) encourage the formation of community based volunteer environmental stewardship organizations.



OBJECTIVE 6:

Achieve long-term protection for Environmentally Sensitive Areas (ESAs) through the implementation of the 2012 ESA Management Strategy.

POLICIES:

- a) ESAs are identified in OCP Schedule 1 Attachment 2 Map;
- b) continue to provide protection for ESAs by requiring ESA Development Permits for proposed development activity in ESAs to ensure that development proposals meet ESA policies and guidelines;
- c) ensure that the ESA DPs review and minimize the impacts of the proposed development in the ESA;
- d) continue to require environmental impact assessments in cases where development applications are likely to negatively impact the ESA;
- e) strive to achieve additional protection for ESAs, by facilitating the environmentally sensitive development on lands adjacent to identified ESAs through particular attention to the subdivision of land, siting of buildings and structures, the provision of parking, storage and landscaping areas, and allow stormwater retention during rain events;
- f) encourage the restoration and re-creation of natural habitats to enhance ESAs, particularly those which are under City ownership;
- g) review and update the ESA policies and areas at least every five years;
- h) Policy Planning will lead the implementation of this Objective 6.

