



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee      **Date:** January 25, 2018  
**From:** John Irving, P.Eng. MPA      **File:** 10-6125-11-01/2017-  
Director, Engineering      Vol 01  
**Re:** 2018 Ecological Network Management Strategy Update

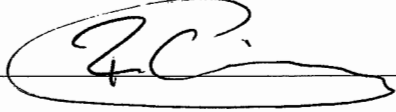
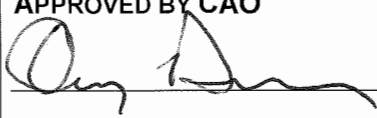
### Staff Recommendation

That the staff report titled “2018 Ecological Network Management Strategy Update” dated January 25, 2018, from the Director, Engineering, be received for information.



John Irving, P.Eng. MPA  
Director, Engineering  
(604-276-4140)

Att. 1

REPORT CONCURRENCE		
<b>ROUTED TO:</b>	<b>CONCURRENCE</b>	<b>CONCURRENCE OF GENERAL MANAGER</b>
Arts, Culture & Heritage	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
<b>REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE</b>	<b>INITIALS:</b> CS	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

Richmond City Council adopted the Ecological Network Management Strategy in September 2015 with a specific vision:

“The Ecological Network is the long-term ecological blueprint for the collaborative management and enhancement of the natural and built environments throughout the city, within neighbourhoods, and across land-uses and development types in order to achieve ecologically connected, livable and healthy places in which residents thrive.”

This report supports Council’s 2014-2018 Term Goal #4 Leadership in Sustainability:

*Continue advancement of the City’s sustainability framework and initiatives to improve the short and long term livability of our City, and that maintain Richmond’s position as a leader in sustainable programs, practices and innovations.*

*4.1. Continued implementation of the sustainability framework.*

*4.2. Innovative projects and initiatives to advance sustainability.*

This report showcases Richmond’s commitment to protecting natural areas and expanding the existing network by summarizing key achievements since 2015 and outlining future initiatives (Attachment 1). Attachment 1 will be posted online and publicized through the City’s social media channels and highlighted at community events.

### Background

The Ecological Network Management Strategy (the Strategy) provides a comprehensive framework to manage and guide decisions regarding natural areas in Richmond and the ecosystem services they provide on City, public and private lands. The Strategy outlines an extensive approach to complement, align, and inform the City’s planning, regulatory and operational context to strengthen and enhance Richmond’s natural spaces.

The Ecological Network (EN) is comprised of Richmond’s natural and semi-natural areas, (terrestrial, riparian and aquatic) including Richmond Nature Park, Sturgeon Bank, the South Arm Islands, Northeast Bog as well as smaller-scale natural areas such as backyards, parks, school yards and old fields. These areas support critical ecosystem functions that support wildlife habitat, erosion protection, pollination and food production, water filtration, drainage, flood mitigation, recreation and aesthetics, and improve the quality of life for residents and businesses in Richmond.

### Analysis

The implementation of the Strategy is set by a series of recommended actions and initiatives. Actions seek to establish an implementation approach that integrates and aligns the EN into

processes occurring throughout the different City departments and builds on existing City processes, policies, and plans. Actions are grouped into four activity focus areas:

1. Green Infrastructure and Development
2. Vegetation, Habitat and Wildlife
3. Parks and Public Spaces
4. Stewardship and Collaboration

Since implementation in 2015, there have been numerous projects and initiatives among City Departments. Showcase projects that have been executed by the City (within this timeframe) pursuant to the Strategy are highlighted below.

### Green Infrastructure & Development

Green infrastructure uses methods that mimic natural systems to provide services and achieve multiple benefits. From rainwater management systems to district energy utilities, 'green' design initiatives have become integral to the EN's success. The following projects showcase green infrastructure solutions in Richmond:

- **Sidaway Drainage Improvement Project:** Infrastructure improvements and ecological enhancements (new culverts and native plantings) to approximately 1800 metres (m) of channelized watercourse along Sidaway Road and Steveston Highway.
- **Metro Vancouver's Lulu Island Waste Treatment Plant Expansion:** Through the ESA DP, the compensation plan involved the removal of invasive species, ecological habitat replacements at a 3:1 compensation ratio, with over 4000 new plantings on Iona Island.
- **Stormwater Management:** Throughout the city, several green infrastructure solutions using stormwater have been provided through development including:
  - Hollybridge Canal rain garden;
  - Oval Village rain gardens (Intracorp and Cressey developments);
  - Stormwater detention for the Gardens Development and adjacent Gardens Agricultural Park; and
  - Translink (Boundary Rd.) rain garden.
- **Alexandra District Energy Utility:** Established a green roof approximately 240 m<sup>2</sup> that includes native grasses and sedums to control storm water runoff.
- **Railway & West Cambie Greenways:** Required significant tree retention, new plantings, and a rain water management system to extend the ecological function of the corridors.
- **Cornerstone Evangelical Baptist Church and Christian Academy:** Remediated a portion of the ESA that was previous disturbed by unauthorized changes and replanted with native trees and shrubs.

### Vegetation, Habitat & Wildlife

Richmond is home to a unique mix of diverse ecological places, many of which are managed through a range of municipal, provincial and federal jurisdictions. The EN seeks to protect these areas and are actively monitored and enhanced over time so they continue to provide the ecological services vital to community health.

The following projects have enabled the City to strengthen the EN by protecting and enhancing the City's vegetation, habitat and wildlife:

- **Riparian Response Strategy:** Enhanced approximately 2.1 hectares (21,000 m<sup>2</sup>) of disturbed riparian habitat with native plantings through residential, commercial and industrial developments approvals.
- **Knotweed Treatment:** Identified in the ISAP, the City treated 260 knotweed infestations throughout the EN, equal to approximately 2.5 hectares of habitat.
- **Bridgeport Industrial Park Pollinator Pasture & Terra Nova Pollinator Meadow:** Converted approximately 3,000 m<sup>2</sup> of underutilized land at Bridgeport to a wildflower pasture to benefit native pollinators and a plan to increase this area by 2,500 m<sup>2</sup> in 2018 at Terra Nova.
- **David Suzuki Foundation's Butterfly Rangers:** Worked with the Richmond Butterflyway Rangers who are responsible for planting pollinator patches in 21 locations throughout Richmond, including City Hall.
- **Barn Owl Nest Box Program:** Four barn owl boxes were installed at Terra Nova Rural Park and West Cambie Park to promote nesting and two fixed with monitoring cameras were installed at the Alexandra District Energy Utility Building.
- **Snow Goose Cover Crop Program:** Provided 100 acres of wildlife habitat within the Agricultural Land Reserve for migrating snow geese to utilize each season.
- **Bath Slough Revitalization:** in addition to a pollinator pasture, revitalization efforts included 250 native shrubs and trees planted along the slough.
- **Northeast Bog Conservation Area:** On-going study to assess the bog's carbon storage and sequestration capacity to offset the City's greenhouse gas emissions and preserve the unique ecosystem.
- **Trellis Seniors' Care Facility:** ESA restoration in Hamilton that will enhance and combined area of 1,099 m<sup>2</sup> with native plantings and trees.
- **Jayden Mews Development:** Townhouse development north of Garden City Lands that included 374 m<sup>2</sup> of enhanced area and visible artwork that functions as barn owl habitat.

### Parks and Public Spaces

Projects can complement the management and enhancement of our ecological assets such as Parks and public spaces. The City has successfully integrated a multitude of projects that have strengthened the EN including:

- **Garden City Lands:** A unique and made-in-Richmond project that combines initiatives to promote agriculture and ecology stewardship within the community. This project will contribute over 1,250 native trees, 15,000 native shrubs while maintaining a portion of the bog's ecological function within the EN.
- **Terra Nova Resource Management Strategy:** Once finalized, this strategy will allow the City to better coordinate the multiple functions and programs occurring at the park and provide for new community initiatives that will support the EN.
- **Minoru Park Vision Plan:** This plan incorporates sustainability measures into the park including utilizing stormwater from surrounding developments and adding ecosystem services throughout the park.
- **South Dike Upgrade:** Once completed, this project will enhance approximately 750 m of the south dike and adjacent park area.

### Stewardship & Collaboration

Central to the continued success of the EN is the active involvement of community members at different scales and levels of participation. The EN seeks to ignite collaboration and stewardship through community involvement and engagement at all levels of EN delivery. Staff have successfully built and strengthened community relationships within the City through project initiatives.

The following projects have strengthened the EN through key stewardship and collaboration efforts:

- **Tree Canada Plantings:** Included 90 volunteers from Siemens Canada, IKEA Canada, Shiseido and Ion Trading to plant 730 trees along the Railway Greenway and at Garden City Lands.
- **TD Tree Days Plantings:** Included planting over 1400 native trees and shrubs by 130 volunteers and members from TD Bank.
- **Partners for Beautification Program:** Allows community members to adopt streets, gardens, parks, trails, and open spaces to proactively remove litter and invasive plants from these areas.
- **Our Home and Native Bloom:** Successful community project on display at City Hall to promote Richmond's unique island ecology through educational talks and stewardship events.

- **Project WET:** In partnership with Richmond elementary school teachers and the Public Works Department, this project is an interactive elementary school science program aimed at educating students about the importance of potable water in Richmond.
- **Public Works Open House:** This interactive event offers a hands-on experience for residents including plenty of activities for all ages, including awareness about Richmond's unique environment.
- **Sustainability in Action Videos:** Several short videos produced by the City to highlight the actions that Richmond is taking to achieve a more sustainable community.
- **Bridgeport Pollinator Pasture:** A partnership initiative with Border Free Bees and other community partners to raise awareness in the community about the plight of wild pollinators and enjoy the tranquility of the site.
- **Richmond Earth Day Youth (REaDY) Summit:** Through the unique partnership of the City of Richmond, the Richmond School District, and the David Suzuki Foundation, REaDY helps build capacity for environmental education amongst Richmond high school and elementary students and has attracted over 1,500 participants to date.

### Financial Impact

None. Funding received through annual capital and operating budgets augment the capacity for staff to manage and deliver the projects highlighted in this report.

### Conclusion

Richmond's Ecological Network Management Strategy set a new direction to strengthen habitat connections throughout Richmond and is an effective tool to communicate to residents what the City has been doing to support a healthy local ecosystem.

Future initiatives will focus on promoting new collaborative opportunities and establishing stronger processes for monitoring the Strategy's successes.



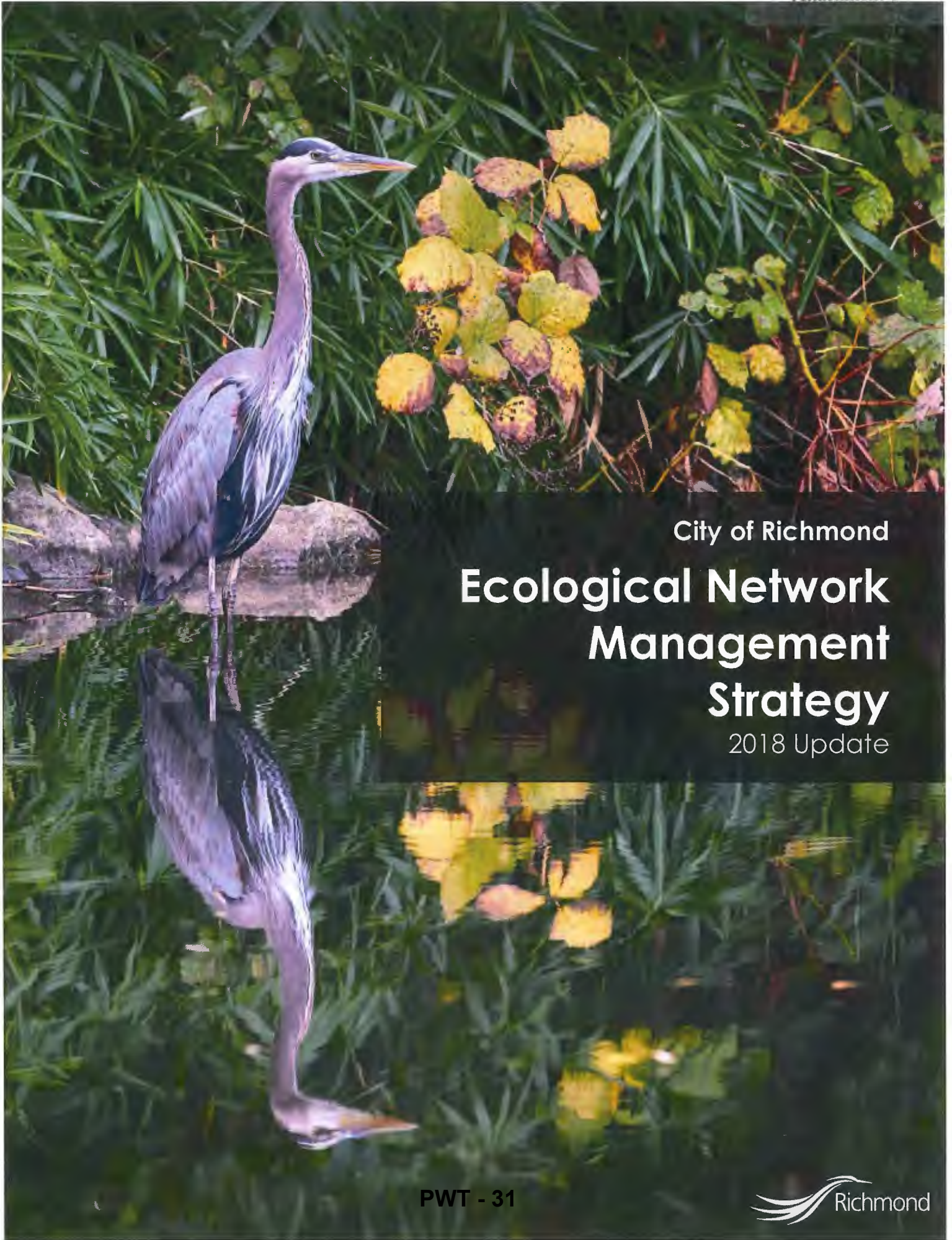
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Att. 1: Ecological Network Management Strategy: 2018 Update Summary Document

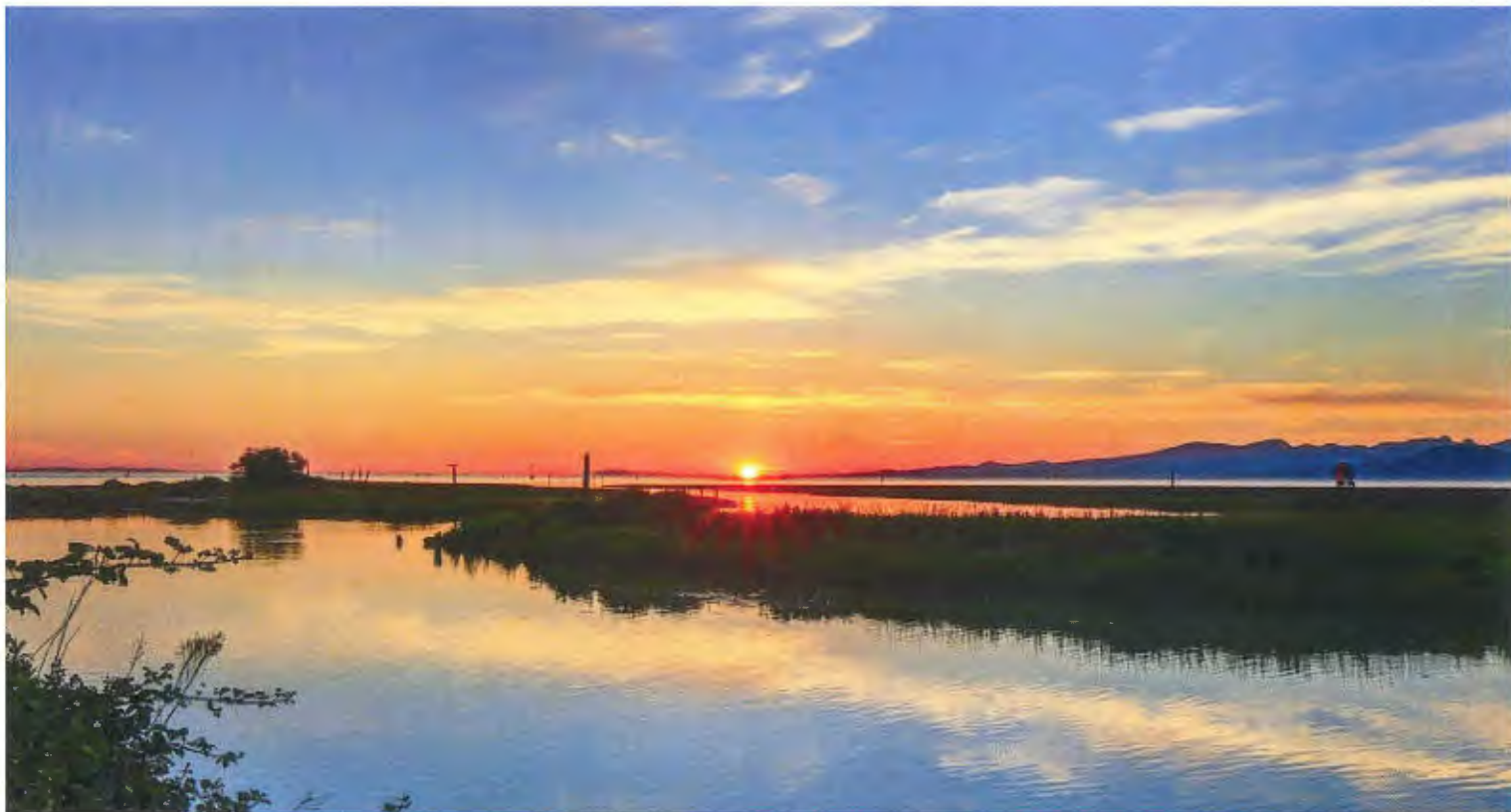




City of Richmond  
**Ecological Network  
Management  
Strategy**  
2018 Update







# ECOLOGICAL NETWORK MANAGEMENT STRATEGY

Richmond City Council adopted the Ecological Network Management Strategy in September 2015 with a specific vision:

“The Ecological Network (EN) is the long-term ecological blueprint for the collaborative management and enhancement of the natural and built environments throughout the city, within neighbourhoods, and across land-uses and development types in order to achieve ecologically connected, livable and healthy places in which residents thrive.”

In support of that vision, the Ecological Network Management Strategy (the Strategy) outlines detailed actions and initiatives developed under four focus areas:

1. **Green Infrastructure and Development**
2. **Vegetation, Habitat and Wildlife**
3. **Parks and Public Spaces**
4. **Stewardship and Collaboration**

This document and the statistics provided herein, serves to provide an update on actions taken in support of initiatives identified in the Strategy since its 2015 adoption and highlight future actions.



The Strategy received the Silver Award for Excellence in Policy Planning from the Planning Institute of BC



## GREEN INFRASTRUCTURE AND DEVELOPMENT

### OVERARCHING OBJECTIVES

1. Protection of riparian areas
2. Connecting & enhancing wildlife corridors
3. Increasing ecological services

Green infrastructure uses methods that mimic natural systems to provide services and achieve multiple benefits. From rainwater management systems to district energy utilities, 'green' design initiatives have become integral to the EN's success.

### KEY ACHIEVEMENTS

**Development Application Compensation:** Through its Environmentally Sensitive Area (ESA) Development Applications from September 2015 to the present, an area of approximately 8,015 m<sup>2</sup> has been compensated for by adding over 7,000 native trees and shrubs to Richmond.

**Sidaway Drainage Improvement Project:** Civil improvements (culverts) and ecological enhancements (native plantings) to approximately 1,800 m of channelized watercourse along Sidaway Road and Steveston Highway.

**Metro Vancouver's Lulu Island Waste Treatment Plant Expansion:** Through the ESA DP, the compensation involved the removal of invasive species, ecological habitat replacements at a 3:1 compensation ratio, with over 4,000 new plantings on Iona Island.

8,015 m<sup>2</sup>

compensated with

1,188

native trees &

6,475

native shrubs



**Stormwater Management:** Throughout the City, several green infrastructure solutions using stormwater have been provided through development including:

- Hollybridge Canal rain garden;
- Oval Village rain gardens (Intracorp and Cressey developments);
- Stormwater detention for the Gardens Development and adjacent Gardens Agricultural Park; and
- Translink (Boundary Rd.) rain garden.

**Alexandra District Energy Utility (ADEU):** Established a green roof approximately 240 m<sup>2</sup> that includes native grasses and sedums to control storm water runoff.

**Railway & West Cambie Greenways:** Required significant tree retention, new plantings, and a rain water management system to extend the ecological function of the corridor.

**Richmond Middle Arm Waterfront Park Brownfield Action Plan:** Initiative to restoration and develop a waterfront park that has been subject to impacts from soil and groundwater contamination due to historical uses.



ADEU building green roof planting palette.

## FUTURE ACTIONS

**Pump Station Actuator Upgrades (Bridgeport, Horseshoe Slough & Future Sites):** Upgrades will allow for the controlled exchange of water between the Fraser River and Bath Slough to improve water quality and restore the slough’s natural water cycle.

**Integrated Rainwater Resource Management Strategy:** Continue the strategic implementation of water detention measures, such as storage ponds that have additional benefits for the City such as water reuse and ecological and aesthetic value.







## VEGETATION, HABITAT, AND WILDLIFE

### OVERARCHING OBJECTIVES

1. Identify areas of opportunity
2. Retain and enhance existing vegetation
3. Strengthen connectivity

Richmond is home to a unique mix of diverse ecological places; many of which are managed through a range of municipal, provincial and federal jurisdictions. The EN seeks to protect these areas and actively monitored and enhanced over time so they continue to provide the ecological services vital to community health.

### KEY ACHIEVEMENTS

**Riparian Response Strategy:** Enhanced approximately 2.1 ha (21,000 m<sup>2</sup>) of disturbed riparian habitat with native plantings through residential, commercial and industrial developments approvals.

**Knotweed Treatment:** Identified in the ISAP, the City treated 260 knotweed infestations throughout the EN, equal to approximately 2.5 ha of habitat.

**Cornerstone Evangelical Baptist Church and Christian Academy:** Remediated a portion of the ESA that was previous disturbed with unauthorized changes and replanted with native trees and shrubs.

2.1ha

of riparian enhancements  
through development projects



2.5ha

of knotweed treated



**Bridgeport Industrial Park Pollinator Pasture:** Converted approximately 3,000 m<sup>2</sup> of underutilized land at Bridgeport to a wildflower pasture to benefit native pollinators.

**David Suzuki Foundation's Butterfly Rangers:** Worked with the Richmond Butterflyway Rangers who are responsible for planting pollinator patches in 21 locations throughout Richmond, including City Hall.

**Barn Owl Nest Box Program:** Four barn owl boxes installed at Terra Nova Rural Park and West Cambie Park to promote nesting and two fixed with monitoring cameras were installed at the Alexandra District Energy Utility Building.

**Jayden Mews Development:** Townhouse development north of Garden City Lands that included 374 m<sup>2</sup> of enhanced area and visible artwork that functions as barn owl habitat.

**Snow Goose Cover Crop Program:** Provided 100 acres of wildlife habitat within the Agricultural Land Reserve for migrating snow geese to utilize each season.

**Bath Slough Revitalization:** In addition to a pollinator pasture, revitalization efforts included 250 native shrubs and trees planted along the slough.

**Northeast Bog Conservation Area:** On-going study to assess the bog's carbon storage and sequestration capacity to offset the City's greenhouse gas emissions and preserve the unique ecosystem.

**Trellis Seniors' Care Facility:** ESA restoration in Hamilton that will enhance and combined area of 1,099 m<sup>2</sup> with native plantings and trees.

## FUTURE ACTIONS

**Bath Slough Restoration:** Restoration will include the removal of various invasive species and replacing this area with native trees and shrubs and ongoing success monitoring

**Riparian Response Strategy Update:** Will formalize and streamline the RMA application process to improve customer service and allow for success monitoring.



Dr. Cameron Cartier of Border Free Bees accepts the Mayor's Artistic Innovation Award, 2017



One of six Barn owl boxes installed at Terra Nova and ADEU







## PARKS AND PUBLIC SPACES

### OVERARCHING OBJECTIVES

1. **Complement the management & enhancement of ecological assets**
2. **Identify unprotected ecological assets**
3. **Create new protected spaces**

Projects can complement the management and enhancement of our ecological assets such as Parks and public spaces. The City has successfully integrated a multitude of projects that have strengthened that Ecological Network, which have been highlighted below as key achievements.

### KEY ACHIEVEMENTS

**Garden City Lands:** A truly unique and made-in-Richmond project that combines initiatives to promote agriculture and ecology stewardship with community wellness and cultural expression. This project will contribute over 1,250 native trees and 15,000 native shrubs while maintaining a portion of the bog's ecological function within the EN.

**Railway Greenway:** Greenways are fundamental ecological corridors within urban landscapes providing food and habitat for wildlife and opts for active transportation for residents. A significant amount of native tree and shrub planting was completed along the entire greenway in 2017.

**Aberdeen Park:** The design of this park incorporates multiple objectives, bringing nature into an urban, recreational context with the integration of a rain garden feature.

4,469

trees planted in parks and on  
streets between  
2013 & 2017

**London Landing Park:** Completion of park landscaping includes ESA restoration/riparian plantings along foreshore according to an agreement with FREMP.

## FUTURE ACTIONS

**Minoru Park Vision Plan:** This plan incorporates sustainability measures into the park including utilizing stormwater from surrounding developments and adding ecosystem services throughout the park.

**Urban Forestry Management Strategy:** When implemented, this strategy will see to the sustainable management of publicly-owned trees throughout the city.

**Terra Nova Resource Management Strategy:** Once finalized, this strategy will allow the City to better coordinate the multiple functions and programs occurring at the park and provide for new community initiatives that will support the EN.







# STEWARDSHIP AND COLLABORATION

## OVERARCHING OBJECTIVES

1. **Ignite collaboration & stewardship through community involvement**
2. **Build and strengthen community relationships within the City through various project initiatives**

Central to the continued success of the EN is the active involvement of community members at different scales and levels of participation. The EN seeks to ignite collaboration and stewardship through community involvement and engagement at all levels of EN delivery.

## KEY ACHIEVEMENTS

**Tree Canada Plantings:** Included 90 volunteers from Siemens Canada, IKEA Canada, Shiseido and Ion Trading to plant 730 trees along the Railway Greenway and at Garden City Lands.

**TD Tree Days Plantings:** Included planting over 1,400 native trees and shrubs by 130 volunteers and members from TD Bank.

**Partners for Beautification Program:** Allows community members to adopt streets, gardens, parks, trails, and open spaces to proactively remove litter and invasive plants from these areas.

**Enhanced Pesticide Management Program:** Reduces exposure of unnecessary pesticide use for residents and empowers community members to make the switch to pesticide free practices.

**Environmental Workshops & Events:** Delivered 49 free workshops that have attracted over 700 residents since 2016 and included topics such as Natural Lawn Care and Organic Gardening, to Bee Identification and Fruit Tree Management.



465

volunteers participated in planting over

3,200

native trees & shrubs

1,500

REaDY Summit participants to date



**Our Home and Native Bloom:** Successful community project on display at City Hall to promote Richmond’s unique island ecology through educational talks and stewardship events.

**Project Wet:** In partnership with Richmond elementary school teachers and City of Richmond Public Works, this project is an interactive elementary school science program aimed at educating students about the importance of potable water in Richmond.

**Public Work Open House:** This interactive event offers a hands-on experience for residents including plenty of activities for all ages, including awareness about Richmond’s unique environment.

**Sustainability in Action Videos:** Several short videos produced by the City to highlight the actions that Richmond is taking to achieve a more sustainable community.

**Richmond Earth Day Youth (REaDY) Summit:** Through the unique partnership of the City of Richmond, the Richmond School District, and the David Suzuki Foundation, REaDY helps build capacity for environmental education amongst Richmond high school and elementary students and has attracted over 1,500 participants to date.



Our Home and Native Bloom at City Hall Plaza, 2017

## FUTURE ACTIONS

**Terra Nova Pollinator Pasture:** Continue the successful partnership with Emily Carr University to establish a new 2,500 m<sup>2</sup> pollinator meadow at Terra Nova in 2018.

**Interactive Chafer Beetle Videos:** A new series of videos prepared to educate, inform and assist residents in dealing with chafer beetle infestations.



Public Works Open House 2017







## City of Richmond

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