Vancouver Board of Parks and Recreation

Park Board Committee Meeting

October 27, 2014

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VANCOUVER
BOARD OF PARKS
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Vancouver Board of Parks and Recreation

Chair's Report

October 27, 2014

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Strathcona Community Centre

SPES Annual General Meeting


VANCOUVER
BOARD OF PARKS
AND RECREATION

Vancouver Board of Parks and Recreation

Enhancement Plan for Beaver Lake

October 27, 2014

Visit the Park Board website at: **vancouverparks.ca**

Recommendation

THAT the Final Concept for the enhancement of Beaver Lake (Appendix A) be adopted.

Policy

- Greenest City Action Plan Goal 6: Access to Nature
- Park Board Strategic Plan
- Biodiversity Strategy
- Urban Forest Strategy
- Vancouver Bird Strategy

- Green Operations Environmental Framework
- Healthy City for All Action Plan
- Environmental Education and Stewardship Action Plan
- Stanley Park Forest Management Plan

Background

- Stanley Park Ecological Action Plan approved January 2011
- Rapid infilling due to logging, construction of roads, trails and the overflow weir, disruption to surrounding hydrology, and the introduction of invasive plant species, mainly Fragrant Water Lilies.
- Request for proposals drafted by staff, SPES and an advisory committee of academics.

Consultant Team

Chris Lee, AquaTerra Environmental Ltd., M.Sc., RPBio, Principal, Senior Biologist, Project Lead

Chris Lee is a well-recognized species-at-risk expert and an authority on invasive species, habitat restoration and enhancement. Chris has successfully managed numerous large-scale, multi-faceted projects and brings a wide array of relevant experience to the Beaver Lake project. Chris has prepared environmental assessments, sediment and water sampling and analysis, and regulatory correspondence and approvals, as well dredging practices and limitations, fish passage, and Erosion and Sediment Control (ESC) measures. He works regularly with First Nations and non-profit organizations, providing senior input on referrals and funded projects with an environmental component.

Derek Ray, Northwest Hydraulic Consultants, M.Sc., P.Geo., Principal

Derek Ray is a senior geomorphologist with over 17 years of experience applying coastal and river geomorphology theory and knowledge to various studies and engineering projects in British Columbia, Washington State and overseas. He completed a Masters Degree in Geography from Simon Fraser University and an undergraduate degree in Geography and Environmental Science from McGill University. His early-career experience focused on forestry-related watershed restoration, fish habitat assessment and restoration, and construction within sensitive aquatic ecosystems. A significant portion of this work was spent working with First Nations on forestry and fish habitat restoration projects in British Columbia and Washington State.

Erik Lees, Lees+Associates Landscape Architects and Planners, BCSLA Landscape Architect, Principal

Erik Lees brings over 30 years' experience in park and environmental planning, design and management to the team. His background in the public sector, and 15 years working on a wide range of public sector projects, gives him a sound understanding of the public process and a balanced perspective. He has been involved in many environmentally-based planning and design projects, including the GVRD "Biodiversity Action Plan for the Greater Vancouver Region," and the City of Vancouver's "Still Creek Rehabilitation and Enhancement Study" – a visionary project that won an award for environmental planning excellence from the Canadian Institute of Planners in 2007.

Byron Kirkham, AquaTerra Environmental Ltd., B.Sc., RPBio, Senior Biologist

Byron Kirkham has a background in groundwater and sediment sampling and analysis, laboratory testing, and aquatic and riparian habitat design. Recently, he successfully developed a restoration strategy for 20,000 m² of riparian habitat in the City of Abbotsford. He also participated in the approval process and monitoring of a large sediment removal project on Vancouver Island in 2013. Byron has also completed vegetation and wildlife inventories for park projects in the Lower Mainland and Fraser Valley, and recently completed a wetland and restoration project in Squamish, with a focus on increased habitat utilization by species-at-risk.

Dr. André Zimmermann, Northwest Hydraulic Consultants, PhD, P.Geo

Dr. André Zimmermann is an expert in fluvial geomorphology with considerable knowledge of sedimentology and watershed processes. He completed his Doctoral research at the University of British Columbia in Geography and his Masters Degree is from McGill University. André's solid academic background focuses on sediment transport, hydrology, geomorphology, fish habitat and the design of new scientific methods. As part of his undergraduate research project he contributed to a comprehensive study of the recent and historical sediment dynamics of Beaver Lake. In addition to his position at NHC, André is an adjunct faculty member in the Department of Geography at UBC, where he collaborates with students on applied research projects.

Catriona Hearn, Lees+Associates Landscape Architects and Planners, BLA, Senior Associate

Catriona Hearn has a diverse background in landscape planning and design and brings a lifelong personal interest in wetlands and the natural landscape to this project. As project manager for Falaise Park Wetlands Gardens and the Everett Crowley Parks Management Plan, Catriona worked with the Vancouver Park Board to create environmentally sustainable recreation areas within an urban context. Catriona is committed to engaging the community with the natural landscape on a variety of levels, to enhance public access and enjoyment, and to ensure ongoing appreciation of its value in the contemporary landscape.

Claudio Bianchini, RPBio, Wildlife Biologist and Species-at-Risk Expert

Claudio Bianchini is a former SPEA board member and a well-known wildlife biologist with experience across Canada. With over twenty years of relevant experience, Claudio has contributed to numerous projects and studies within Stanley Park and brings a unique insight pertaining to the subtleties and key issues of Stanley Park ecosystems. He has also served as a consultant to the Vancouver Parks Board, providing input on beaver and waterfowl management and has developed nest management plans for raptors and the Great Blue Heron rookery within the park. Claudio was also involved with the Burnaby Lake Rejuvenation Project, which has many similarities to the Beaver Lake project.

Jemma Scobie, M.A.Sc. – First Nations Engagement and Consultation

Jemma Scobie has diverse and extensive local experience working in the areas of First Nations engagement and consultation. She has unparalleled experience engaging First Nations in the planning, design, and delivery of habitat compensation and restoration projects throughout the Lower Mainland. She is dedicated to delivering projects in a culturally-appropriate manner, and is honoured to be working with the Musqueam, Squamish and Tsleil-Waututh First Nations on the Beaver Lake project.

Katy Amon, Lees+Associates Landscape Architects and Planners, BA, MLA, BCSLA Intern

Katy Amon was awarded an American Society of Landscape Architecture student research award for her thesis (based in Surrey BC), which proposed an evidence-based methodology for integrating native ecosystems and habitats into marginalized urban spaces. Previous related planning and design work includes the Stanley Park Cycling Plan, City of Toronto Natural Environment Trails Management Plan, and Metro Vancouver's Surrey Bend Regional Park Concept Feasibility Assessment. She was a planning intern for the Vancouver Park Board prior to completing her Masters Degree in 2009.

Thomas R. Biebighauser, Wildlife Biologist and Wetland Ecologist, B.Sc.

Thomas Biebighauser has restored over 1,000 wetlands in twenty-two provinces and states. He teaches practical, hands-on workshops across North America, where participants learn about wetland restoration by becoming involved in the design and construction of natural appearing and functioning wetlands. Tom has written three books describing how to restore wetlands and brings a unique, specialist expertise to this project.

Dr. Valentin Schaefer, Urban Ecologist, Biodiversity Expert, Lake Restoration Specialist

Dr. Val Schaefer is an ecologist who has developed unique expertise in ecological restoration and the emerging field of urban ecology. He uses an approach that combines ecology, natural history and landscape architecture. He recently was the Project Lead in developing the Invasive Species Management Strategy for the District of Saanich. He is a founder and former Executive Director of the Institute of Urban Ecology at Douglas College in New Westminster. Val is presently Faculty Coordinator of the Restoration of Natural Systems Program at the University of Victoria.

John Kirbyson, Lees+Associates Landscape Architects and Planners, MRM

John Kirbyson is a parks and recreation consultant with a Masters of Resource Management and is currently working towards the completion of a Certificate in Restoration of Natural Systems (UVic). Past Director of Parks, Recreation and Culture for the City of Penticton, as well as 25 years with the City of Burnaby, John became knowledgeable in managing parks projects of the nature and scope of the Beaver Lake Enhancement Plan. John was the City of Burnaby's Manager for the Deer Lake Management Plan and represented the City on a project dealing with similar issues at Burnaby Lake.

Methodology

- Reviewed all documentation from SPES and other sources
- Conducted field studies and analyses where data gaps were identified
- Investigated lake and creeks throughout the summer, 2013

Methodology

- Confirmed the current physical and biological state of the lake compared to what was previously reported
- Confirmed that the vegetation mats were floating
- Visited Deer Lake and Burnaby Lake in August, 2013
- Meetings held on site with staff, SPES and representatives of the Musqueam, Squamish and Tsleil-Waututh First Nations

Environmental Management Objectives

- Maximize Biodiversity
- Encourage Aquatic Life
- Establish a Habitat Mosaic on the Landscape
- Facilitate Fish Utilization
- Prevent the Spread of Invasive Species
- Minimize Maintenance Requirements
- Utilize Plants of Ethnobotanical Relevance
- Maintain Site Character (Beaver Management)
- Reduce Reliance on Municipal Water Inputs

Preliminary Concept 1

Islands and Viewing Platforms – Maximizes Habitat Creation and Biodiversity

- *Seeks to maximize biodiversity. Islands provide habitat for mammals, birds, amphibians, reptiles, fish and insects - including both common and sensitive (species-at-risk) species. Vernal ponds, and improvements to Zoo Creek further enhance habitat.*
- *Fish ladder and 6 metre deep channel from Beaver Creek to North Creek increases potential for year round salmon habitat.*
- *2.8 hectares of open water, to a maximum depth of 6m.*
- *High volume of sediment and clay removal and disposal.*
- *Moderate-High Lake Longevity (assumes periodic invasive species management around islands and edge areas following dredging to a maximum depth of 6m).*
- *Boardwalks, five additional viewing platforms and a composting toilet.*

Strengths

- Highest increase in animal diversity.
- Highest increase in plant diversity.
- Increases habitat for fish.
- Islands and woody debris provide for turtle basking/ nesting and shorebird/waterfowl habitat.
- Reduces prevalence of non-native invasives such as fragrant water lily and narrow leaf cattail.
- Vernal ponds improve wildlife, especially amphibian, habitat and reduce runoff into the lake.
- Zoo Creek stream restoration diversifies wildlife habitat.
- Increased opportunities for the lake to be used for re-introduction of species at-risk e.g. western painted turtle.
- Installed fish ladder in Beaver Creek and deepening of channel through lake to reduce water temperature would allow for salmon to travel from Beaver Creek to North Creek year round.
- **Islands with trees shade and cool the channel and reduce evapotranspiration.**
- Deeper water (max 6 metres) prevents recolonization by lilies.
- Expansion of bog increases plant diversity.

- Greatly increases wildlife viewing and interpretive opportunities.
- Replicates natural coastal BC wetlands.
- Additional platforms and boardwalks expand viewing opportunities, educational and interpretive programming.
- Boardwalks provide additional interpretive opportunities.
- Vernal ponds, bog expansion and stream restoration increase wildlife viewing along trail, adding to the ecological experience of visiting Stanley Park.
- Composting toilet expands the range of programming and enhances visitor experience.

Weaknesses

- Islands may contribute to more rapid infilling of lake over time, but should be mitigated by overall depth increase.
- Requires most extensive sediment and clay removal and disposal.
- Longest length of excavation and invasive species removal work (2-3 months).

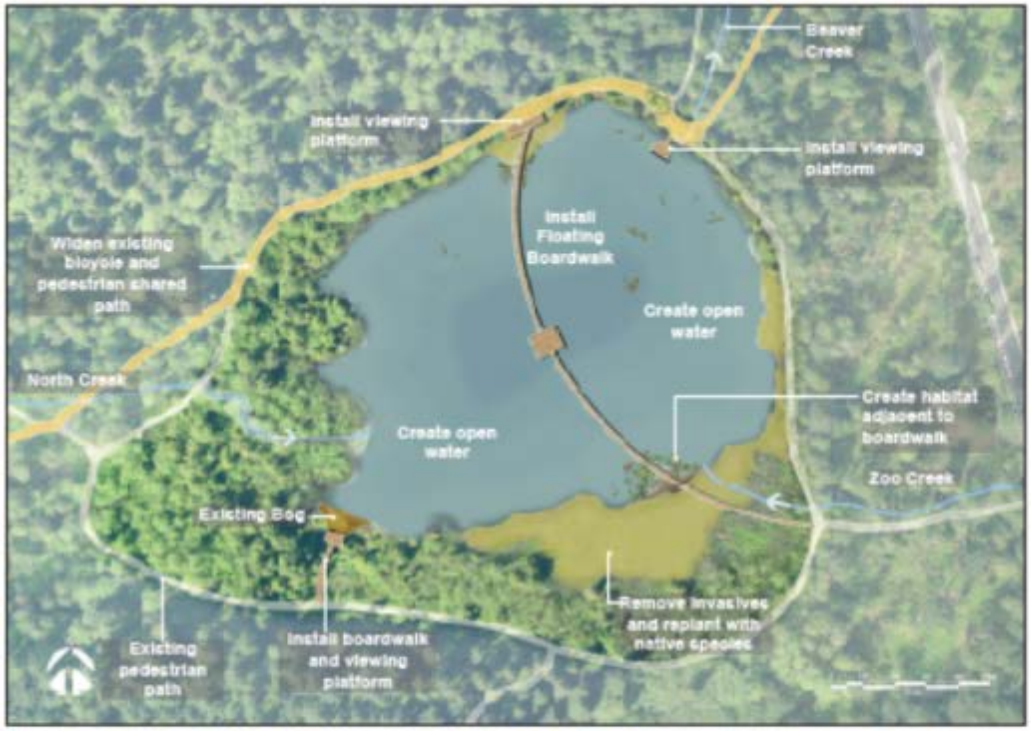
Relative Costs

- Highest enhancement capital cost. $$$$
- High facilities capital cost. $$$
- Low - moderate maintenance cost. $-$$

Section 1: Vernal ponds, path, viewing platform and habitat island

Preliminary Concept 2

Open Water and Floating Boardwalk – Increases Passive Recreation but Reduces Wildlife



- *Seeks to remove all non-native plant species and replant with natives.*
- *Does not support fish.*
- *3.16 hectares of open water, to a maximum depth of 1.6m.*
- *Low volume of sediment removal and disposal.*
- *High Lake Longevity (assuming on-going invasives removal following dredging to a maximum depth of approximately 1.6m).*
- *2m wide floating boardwalk across the lake with central platform and two additional viewing platforms.*

Strengths

- Least increase in animal diversity.
- Moderate increase in plant diversity.
- Maximized removal of non-native plant species limits recolonization of invasive fragrant water lily.
- Woody debris enhances habitat.

- Boardwalk facilitates wildlife viewing and provides interpretive and passive recreation opportunities for visitors.
- Widened shared path on north edge of lake would reduce user conflicts.

- Removal of 100% non-natives and management would result in slowest future lake infill.
- Lowest volume of sediment removal and disposal.
- Short period of excavation and invasive species removal work (~1 month).

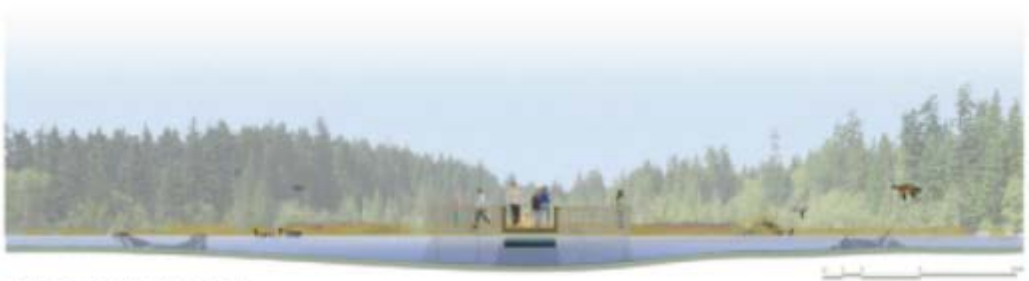
Weaknesses

- A large investment of habitat reconstruction and extensive on-going maintenance is required.
- Negative impact on biodiversity by eliminating all non-native species.
- Human use of boardwalk across the lake would disturb wildlife, especially those requiring larger habitat patches and intolerant of disturbance (e.g. American bittern).
- Not suitable for salmon.

- Significant ongoing invasive and non-native species management.
- Canada geese droppings on boardwalk could require additional maintenance.

Relative Costs

- Low - moderate enhancement capital cost. $$
- Highest facility costs. $$$$
- Highest maintenance costs due to maximized on-going management of non-native plants. $$$$



Section 2: Floating boardwalk

Preliminary Concept 3

Open Water and View Tower – Creates Less Habitat and Biodiversity but Lowest Capital Cost

- *Seeks to remove vegetation, sediment and decaying organics from the lake and reduce, but not eradicate, the invasive fragrant water lilies.*
- *Does not support fish.*
- *2.26 hectares of open water, to a maximum depth of 1.76m.*
- *Moderate sediment removal and disposal. Some fragrant water lilies would return annually and may lead to more rapid infilling of the lake if not managed.*
- *Low-Moderate Lake Longevity (assumes periodic invasives species management following dredging to a maximum depth of 1.76m).*
- *Two storey viewing tower and loop boardwalk trail to bog.*

Strength

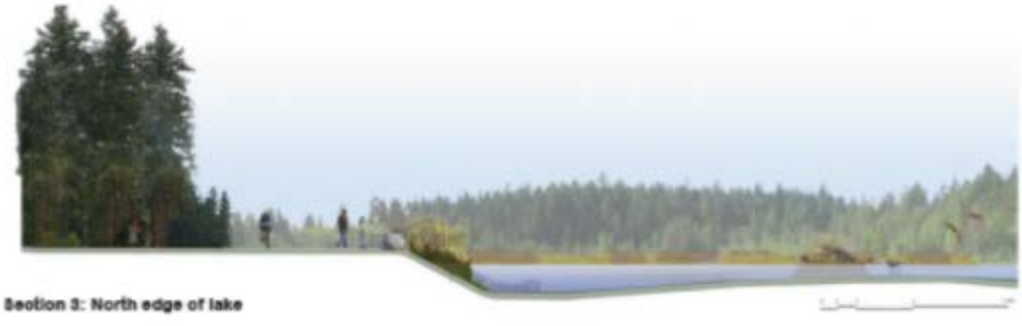
- Moderate increase in animal diversity.
- Reduces invasive fragrant water lily and narrow leaf cattail.
- Woody debris provides for increased habitat.
- Combination of open water and maximized riparian area provide habitat benefits.
- Creates a deep open water lake appearance.
- Tower provides a unique viewing opportunity.
- Short period of excavation and invasive species removal work (~ 1.5 months).

Weaknesses

- Does not remove all water lily. Water lily will re-grow and mats will return without regular, ongoing management.
- View tower in this location may disturb wildlife.
- Does not increase plant diversity.
- Not suitable for salmon.
- Decreases wildlife viewing opportunities due to few places for animals to hide, feed, or nest.
- No increase in wildlife habitat and viewing opportunities along the trail.
- As fewer of the invasive lilies will be removed, the lake will infill more rapidly than other restoration options without regular, ongoing management.

Relative Costs

- Lowest enhancement capital cost. $
- Low - moderate facility costs. $$
- Low - moderate maintenance cost. $-$$



Section 3: North edge of lake

Preliminary Concept 4

Islands and View Tower – Balances Habitat Creation and Biodiversity with Cost Considerations

- *Seeks to remove vegetation, sediment and decaying organics from the lake and reduce, but not eradicate, the invasive fragrant water lilies. Excavated soil is used to create habitat islands for mammals, birds, amphibians, reptiles, fish and insects.*
- *A clear passage of 1.76m depth is created from Beaver Creek to North Creek to encourage seasonal fish movement through the lake.*
- *2 hectares of open water, to a maximum depth of 1.76m.*
- *Moderate sediment removal and disposal. Some fragrant water lilies would return annually and may lead to more rapid infilling of the lake if not managed.*
- *Low Lake Longevity (assumes periodic invasive species management around islands and edge areas following dredging to a maximum depth of 1.76m).*
- *Two storey viewing tower and boardwalk trail to bog.*

Strengths

- High increase in animal diversity.
- High increase in plant diversity.
- Islands encourage turtle basking/ nesting and use by shorebird, waterfowl and song birds.
- Woody debris provides increased habitat.
- Reduces invasive fragrant water lily and narrow leaf cattail.
- Fish ladder in Beaver Creek and deepening of channel through lake to reduce water temperature allows for seasonal movement of salmon to travel from Beaver Creek to North Creek.
- Islands with trees shade and cool the channel and reduce evapotranspiration.

- Increases wildlife viewing opportunities.
- Replicates natural coastal BC wetlands.
- Creates a deep open water lake appearance.
- The tower provides a unique viewing opportunity.

Weaknesses

- Reduces, but does not eliminate, invasive species.
- Does not increase wildlife habitat and viewing opportunities along the trail.
- Moderate length of excavation and invasive species removal work (1.5 - 2 months)

Relative Costs

- Moderate - high enhancement capital cost. $$ - $$$
- Lowest facility costs. $
- Lowest maintenance cost. $

Section 4: View tower and edge of lake

Consultation and Engagement

First Nations Engagement – In Their Own Words

xʷməθkʷəy̓əm
Musqueam First Nation

The Musqueam people have been present in our traditional territory since time immemorial. Musqueam artifacts over 9,000 years old have been found in our territory, which includes all of present day Vancouver, extending north-west up Howe Sound and east up the Fraser Valley and to the South Arm of the Fraser River and still occupies what is now Vancouver and its surrounding areas.

Our ancestral language is hən̓q̓əmin̓əm̓, one of the 10 Central Coast Salish languages, and is often referred to as the Downriver dialect of Halkomelem because it is geographically situated between the two other major dialects of the same language.

The oral history of the Musqueam people that has been handed down through generations talks about our traditional territory, how we have always used the resources of the land for fishing, hunting, trapping, and gathering to maintain our livelihood. Musqueam oral history tells of a connection to these lands and waters since time immemorial.

xʷaƛ̓xʷəƛ̓, spaəqwəƛ̓, ʔəƛ̓əlxən, χaʔχcə.... these are just a few of our names for sites in and around what is now known as Stanley Park, an area once known for its abundant natural resources and spiritual sites.

www.musqueam.bc.ca

Photos courtesy of Musqueam Indian Band

Sḵwx̱wú7mesh
Squamish First Nation

Kayachten (Welcome) The Squamish people invite you to witness the beauty of our lands and waters, this area is known as Axachu7 (Beaver Lake). A prominent story from this area recounts the origins of a sacred mask used by Coast Salish peoples. You are invited to learn more of the rich history of the village sites and place names throughout Stanley Park, a place where our People flourished and lived since time immemorial.

www.squamish.net

Photos courtesy of Lisa Wilcox

səl̓ilwətaʔɬ
Tsleil-Waututh First Nation

We are the Tsleil-Waututh Nation, "The People of the Inlet" and have lived in and along the waters of Burrard Inlet and the Salish Sea, including what is now Stanley Park, since time out of mind. The first Tsleil-Waututh people were created from Burrard Inlet. Before contact with Europeans, the Tsleil-Waututh population was great, with villages of long houses stretching for kilometres along the inlet. Today we are a Nation almost 500 people strong, based in North Vancouver along the shores of Burrard Inlet.
The traditional territory of the Tsleil-Waututh Nation was a veritable land of plenty. Tsleil-Waututh elders taught that when "the tide was out, the table was set." We have always been here, and we will always be here. Our People are here to care for our land and water.

Tsleil-Waututh people have acted as the stewards of the lands and waters of Burrard Inlet for thousands of years. It is now, and has always been the birthright and the obligation of the Tsleil-Waututh people to care for the lands and waters of our territory and to restore them to their prior state.

www.twnation.ca

Consultation and Engagement Results

- Make the lake as natural as possible (92%)
- A balance of open water and islands (77%)
- Control invasive species and embrace higher habitat diversity (66%)
- Deepen lake at greater initial cost to limit water lilies (78%)
- Deepen lake to allow salmon to move through the lake (74%)
- Relocate and then return beavers after construction but design to reduce their impacts (70%)
- More viewing platforms around the lake (66%)
- Install a toilet for greater convenience (50%)

Beaver Lake Bog

Recommended Concept

- Seeks to maximize biodiversity. Islands provide habitat for mammals, birds, amphibians, reptiles and insects - including both common and sensitive (species-at-risk) species. Vernal ponds and improvements to Zoo Creek further enhance habitat.
- Fish ladder and 6m deep channel from Beaver Creek to North Creek increases potential for year round salmonid habitat.
- 2.6 hectares of open water, to a maximum depth of 6m.
- Large volume of sediment, clay and decaying organic matter removal and disposal.
- Moderate-High Lake Longevity (assumes periodic invasive species management around islands and edge areas following dredging).
- Boardwalk and four additional viewing platforms increase viewing and interpretive opportunities.

- Increase in animal diversity.
- Increase in plant diversity.
- Increases utilizable fish habitat.
- Islands and woody debris provide for turtle basking/nesting and shorebird/ waterfowl habitat.
- Reduces prevalence of non-native invasive species such as fragrant water lily and narrow leaf cattail.
- Vernal ponds improve wildlife, especially amphibian habitat and modulate runoff into the lake.
- Zoo Creek stream restoration diversifies wildlife habitat.
- Increased opportunities for the lake to be used for re-introduction of species at-risk e.g. western painted turtle.
- Installed fish ladder in Beaver Creek and deepening of channel through lake to reduce water temperature would allow for salmonids to travel from Beaver Creek to North Creek year round.
- Islands with trees shade and cool the channel and reduce evapotranspiration.
- Deeper water (max 5m) prevents recolonization by invasive lilies.
- Expansion of bog increases plant diversity and educational value.
- Short sections of boardwalk, bridges and larger culverts allow for improved creek crossings across the perimeter trail into the lake.

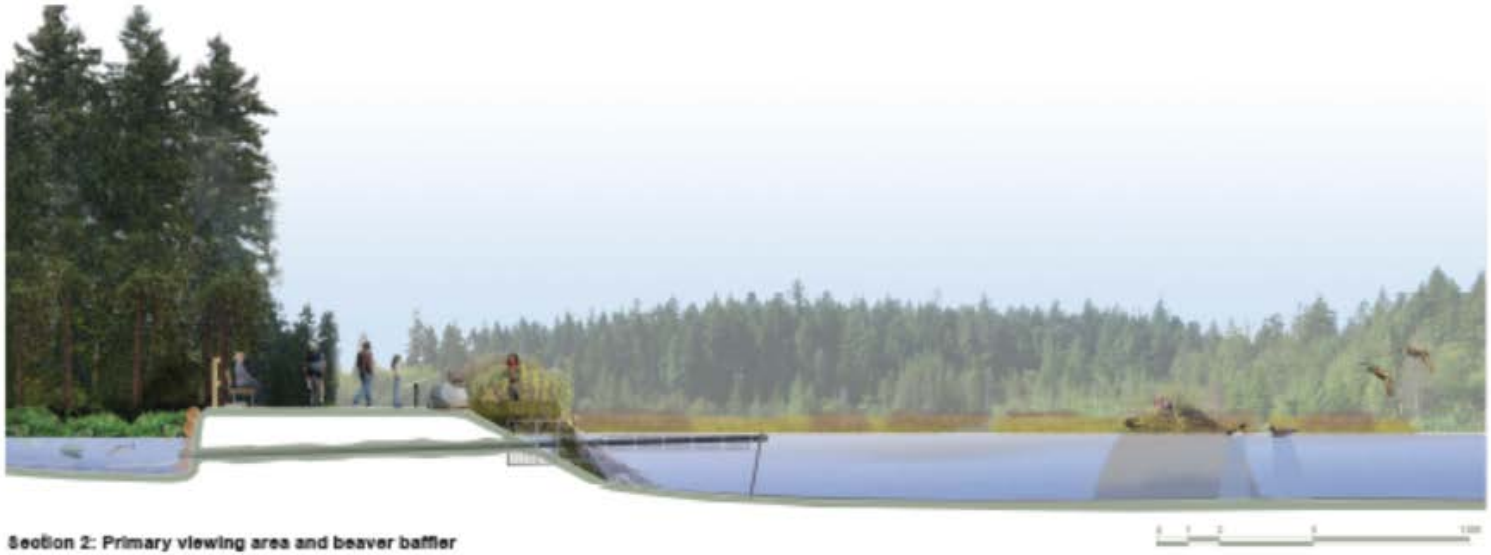
- Increases wildlife viewing and interpretive opportunities.
- Replicates natural coastal BC wetlands.
- Additional platforms and bog boardwalk expand viewing opportunities, educational and interpretive programming.
- The bog boardwalk provides additional interpretive opportunities.
- Vernal ponds, bog expansion and stream restoration increase wildlife viewing along trail, adding to the ecological experience of visiting Stanley Park.
- A nearby toilet expands the range of programming and enhances visitor experience.

- Islands may contribute to more rapid infilling of lake over time, but should be mitigated by overall depth increase.
- Requires extensive removal and disposal of decaying organic matter, sediment and clay.




Recommended Concept

Section 1: Vernal ponds, path, viewing platform and habitat island



Section 2: Primary viewing area and beaver baffler

Enhancement and Management Strategies

The following provides deteails on ancillary enhancement strategies included in the enhancement concept.

STRATEGY	APPROACH	RATIONALE	
CREATE MORE OPEN WATER	• Reduce invasive aquatic plants, focusing on the removal of fragrant lily and narrowleaf cattail.	These plants have formed a thick floating mat of organics that covers most of Beaver Lake. Left unchecked the lake will continue to infill, until it becomes forest.	
CREATE HABITAT MOSAIC AND SUPPORT SPECIES AT RISK	• Establish pattern of islands and open water. • Create vernal ponds. • Introduce snags. • Create turtle nesting sites on islands. • Install bird nest boxes and large logs.	Expand the number of habitats to attract a range of species including great blue heron, western painted turtle, red legged-frog, and Pacific water shrew. Offer a variety of habitats with approximately 50% open water.	
IMPROVE STREAM HEALTH OF ZOO, NORTH AND BEAVER CREEKS	• Improve riparian zone plantings. • Establish natural pools and riffles.	Improve fish habitat and augment Zoo Creek and North Creek to help supply water to Beaver Lake.	
ENCOURAGE AQUATIC LIFE	• Remove fragrant water lily to create and maintain more open water. • Establish vernal ponds next to trail. • Remove organic build-up in lake. • Repair dam leakages.	Egg masses and tadpoles for the northwestern salamander require open water in lake and streams. All stages of amphibian life would benefit from vernal ponds. Vernal ponds would also increase water storage in the watershed.	

STRATEGY	APPROACH	RATIONALE	
PREVENT THE SPREAD OF INVASIVE SPECIES	• Remove invasive knotweed, purple loosestrife, giant hogweed, narrowleaf cattail and yellow flag iris.	Focus on early eradication. Remove narrowleaf cattail and yellow flag iris to encourage high habitat value sedges.	
MINIMIZE MAINTENANCE: ACCEPTANCE OF AN ALTERED ECOSYSTEM	• Accept that some invasive species are well established and their complete eradication is not a cost effective, long term option. • Focus on effective management and field surveys to minimize recolonization.	The park is a cultural landscape and not a pristine wilderness. This underscores the need to set a realistic enhancement target for Beaver Lake, rather than an unachievable natural lake with only native species.	
CREATE LONG TERM BEAVER STRATEGY	• Widen and the outflow to Beaver Creek with a rock drain or similar beaver resistant fish passage structure, to prevent the beavers' continued damming and resultant flooding of the trail.	The beavers regularly block the main pipe through which water flows to Beaver Creek causing flooding and irregular downstream flows. Replacing the pipe with a rock drain would allow gradual seepage, undetectable to the beavers so they would no longer try to block it with dams.	  *A baffler was put in place June, 2014. Future design will further incorporate the baffler into the path and viewing area.*
SUPPORT AND MAINTAIN NATIVE SPECIES	• Relocate beavers and other native species during enhancement and return them upon completion.	Six beavers currently live in a lodge on the lake. They have created a small area of open water near the water control structures by cutting water lilies, shrubs and trees. This natural control of vegetation by aquatic mammals should be facilitated in the future.	

Enhancement and Management Strategies

The following provides deteails on ancillary enhancement strategies included in the enhancement concept.

STRATEGY	APPROACH	RATIONALE	
INCORPORATE PLANTS OF ETHNOBOTANICAL RELEVANCE	• Plant native and culturally significant species • Have observers for culturally modified trees (CMTs) and artifacts during enhancement work. • Consider providing opportunities to aboriginal youth for project implementation.	The park as a whole is of cultural significance for the First Nations of the Musqueam, Squamish and Tsleil-Waututh who have occupied the site for centuries. First Nations representatives will be present on the site during this work to identify artifacts and culturally modified trees that will be preserved.	
MAINTAIN THE BOG	• Continue restoration efforts involving removal of trees and shrubs • Introduce sphagnum moss. • Maintain water levels.	SPEG has been successful in restoring a small area of bog at the south end of the lake.	
REINTRODUCE EXTIRPATED SPECIES	• Assess species that have or likely occurred historically within the park and evaluate the option for reintroduction, contingent on habitat suitability determined through detailed habitat design.	Reintroducing species, e.g. red-legged frog and western painted turtle, would increase biodiversity, restore natural ecosystem function, encourage other species, and even aid in the management of invasive plant species.	
INSTALL ADDITIONAL BOARDWALKS AND VIEWING PLATFORMS	• Provide a boardwalk and viewing platforms to provide more ecologically sensitive access than gravel trails.	Expanding viewpoints to Beaver Lake will increase interpretive and passive recreation opportunities.	 

STRATEGY	APPROACH	RATIONALE	
SUPPORT SALMON SPECIES	• Install fish ladders to allow fish passage into Beaver Lake. • Deepen the channel between Beaver and North Creeks and deliver more water to the lake during the summer. • Introduce chum rather then coho Salmon.	Coho are annually released into Beaver Creek have been unable to return to spawn. Beaver Creek is effectively cut-off from Beaver Lake and North Creek, which has a resident Cutthroat Trout population.	
INSTALL GEOTEXTILE FABRIC	• Install geotextile fabric in portions of the lake to control invasive water lilies and other non-native aquatic plants and control turbidity.	Geotextile fabric has been successfully used at other lakes in the Lower Mainland. The fabric is anchored out of sight, approximately 10 cm below the lake bottom.	
AERATE WATER	• Install aerators situated so they are not visually obtrusive or operate only at night.	The use of aerators would improve water movement and oxygenation during the summer.	
INSTALL TOILET NEARBY	• Install a simple toilet close to Pipeline Road.	A toilet would expand range of programming and serve visitor needs without significant additional infrastructure.	
EXPAND INTERPRETIVE SIGNAGE	• Implement an expanded interpretation signage program.	An expanded interpretive signage program will further educate and enhance visitor understanding of the lake and its surroundings.	

Next Steps

- Undertake an implementation plan including detailed design and construction documentation
- Review technological approaches to the implementation to evaluate financial and environmental impacts
- Develop a phasing plan with costs for the proposed enhancements
- Funds in 2015 – 2018 Capital Plan to begin implementation and to leverage other funding
- A first phase to enhance Beaver Lake watershed will be construction of a Beaver Creek estuary step-pool and channel enhancement in 2015

Recommendation

THAT the Final Concept for the enhancement of Beaver Lake (Appendix A) be adopted.


VANCOUVER
BOARD OF PARKS
AND RECREATION

Vancouver Board of Parks and Recreation

Proposed Memorial Plaque in Falaise Park

October 27, 2014

Visit the Park Board website at: **vancouverparks.ca**

Recommendation

THAT the Board approve the donation of a plaque in Falaise Park commemorating the soldiers who served in World War II, and their families, with all arrangements to the satisfaction of the General Manager.

Background

- June 2012, Park Board received a request to place a memorial plaque in Falaise Park
- Support from residents who grew up in the area including a petition signed by 82 residents and 116 e-mails recommending installation of the plaque
- August 2014, technical approval meetings convened and site approvals obtained
- Neighbourhood consultation completed; majority of responses positive

Type of Memorial Plaque

Samples of type of monument proposed:

Type of Memorial Plaque

- Proposed text:

To Our Parents

In our hearts the greatest generation; men and women who survived a depression, fought a war and helped build this country; the men and women who lived and raised their families here.

Placed here by the sons and daughters who called Renfrew Heights "THE PROJECT" home.

Proposed Installation Site

Recommendation

THAT the Board approve the donation of a plaque in Falaise Park commemorating the soldiers who served in World War II, and their families, with all arrangements to the satisfaction of the General Manager.


VANCOUVER
BOARD OF PARKS
AND RECREATION

Vancouver Board of Parks and Recreation

Regular Park Board Meeting

October 27, 2014

Visit the Park Board website at: **vancouverparks.ca**

Motion on Notice:
Valentine's Train in Stanley Park

Mover: Commissioner De Genova
Seconder: Commissioner Coupar

WHEREAS:

1. The Park Board offers a variety of options and opportunities for cultural events and celebrations in Vancouver Parks and Recreation Facilities.

2. Beginning in 1998, and continuing annually, the Park Board has partnered with the BC Professional Fire Fighter's Burn Fund to offer Bright Nights - a festival of lights in Stanley Park, beginning in December and continuing throughout the holiday season.

3. Revenue from Bright Nights benefits both the Park Board and the charitable organization of the BC Professional Fire Fighter's Burn Fund.

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4. Beginning in 1999, and continuing annually, the Park Board has operated the Stanley Park Ghost Train, generating revenue that benefits the Park Board.

5. The Stanley Park Miniature Train has in the past five years also been opened for Easter and has included events such as Easter egg hunts.

6. During the summer, the Stanley Park Miniature Railway offers a Spirit Catcher Train and the Klahowya Village, providing educational and family oriented activities that showcase aboriginal culture.

Motion on Notice:
Valentine's Train in Stanley Park

THEREFORE BE IT RESOLVED:

A. THAT the Vancouver Park Board direct staff to research and report back to the Board regarding the potential of a Valentine's Train at the Stanley Park Miniature Railway, one that would operate annually in the month of February.

B. THAT the Vancouver Park Board direct staff to reach out to Park Board partnered restaurants to explore the possibility of offering packages including set-meals at restaurants, tickets to the train, and/or engaging a variety of vendors, including food trucks to be present at the event.

C. THAT the report from staff explore and include the possibility of partnerships with existing partners, such as charitable organizations, and the possibility of utilizing some of the lighting and decorative features used at Bright Nights.


VANCOUVER
BOARD OF PARKS
AND RECREATION

Motion on Notice:
Ban on Neonicotinoid Pesticides in our Park System

Mover: Commissioner Sharma
Seconder: Commissioner

WHEREAS:

1. Bumble bees, honey bees, butterflies, and other pollinators provide essential ecosystem services by pollinating crops, backyard gardens, fruit trees, and native plants;

2. Honeybee health is declining across North America and many of our native pollinators are susceptible to the same adverse effects of industrial agriculture, urbanization, disease, and pesticide use;

3. On March 31, 2014, the Park Board passed the "Pollinator Project" to support pollinators in our park system. The project has been successful in enhancing pollinator habitat in our park system.

Motion on Notice:
Ban on Neonicotinoid Pesticides in our Park System

AND WHEREAS:

4. Neonicotinoids, a category of commonly used pesticides, are scientifically found to be toxic to honey bees and some native bees including bumble bees;

5. In 1987, the Vancouver Park Board adopted an Integrated Pest Management Policy to systematically reduce the use of chemical pesticides, in favour of cultural, mechanical, and biological pest controls;

6. The Park Board regularly procures vegetation from third parties for use in our parks system and does not track whether neonicotinoids have been applied to procured vegetation;

Motion on Notice:
Ban on Neonicotinoid Pesticides in our Park System

THEREFORE BE IT RESOLVED:

THAT the Vancouver Park Board direct staff to implement a ban on neonicotinoids in our park and recreational system, including any vegetation procured from third-parties for use on any lands under the jurisdiction of the Park Board.

Vancouver Board of Parks and Recreation

Next Committee/Park Board Meetings

November 24, 2014

Visit the Park Board website at: **vancouverparks.ca**