VOLUNTEER AND TATLOW PARKS OPEN HOUSE #2

SEPTEMBER 9, 2017

VANCOUVER, BC

1 - RESTORING TATLOW CREEK : INTRODUCTION

PROJECT BACKGROUND

- Volunteer Park is the site of a historical stream that was covered when the city was developed. A small section of the stream still exists in Tatlow Park. The stream enters a culvert at Point Grey Road and discharges into English Bay via underground pipes.

- In 2003, the City commissioned an engineering firm to study the feasibility of daylighting Tatlow Creek. Findings showed that the restoration of the stream is feasible however, it is unlikely for the stream to be functional for fish habitat.

SITE CONTEXT

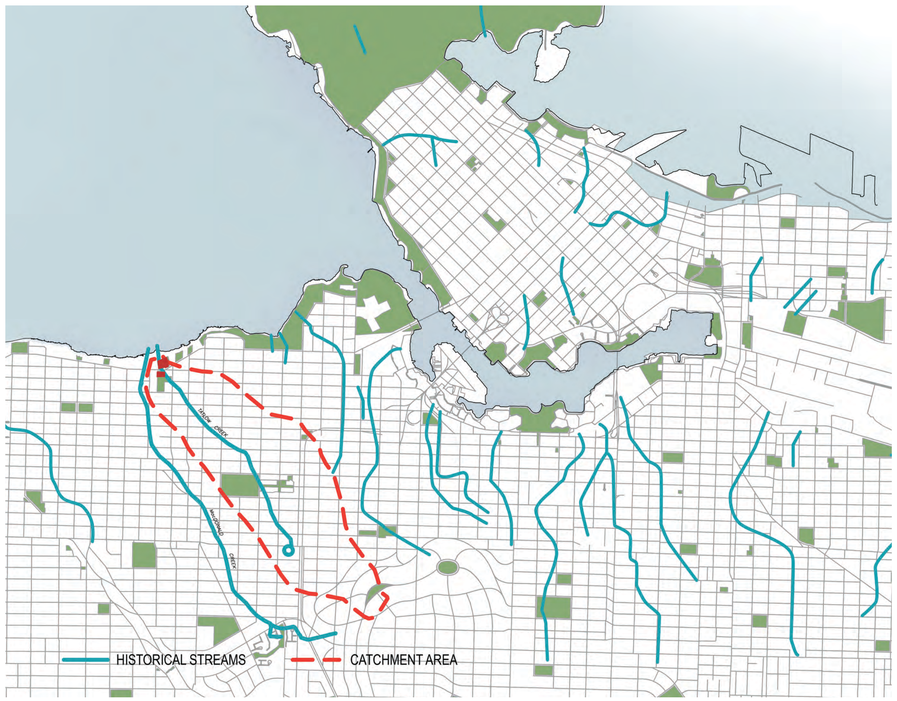
WATERSHED CONTEXT

- The historical Tatlow Creek, previously known as First Creek, flowed through the west of Tatlow Park and Volunteer Park before entering English Bay. Groundwater in the area supplied the stream with a steady flow of water year round.

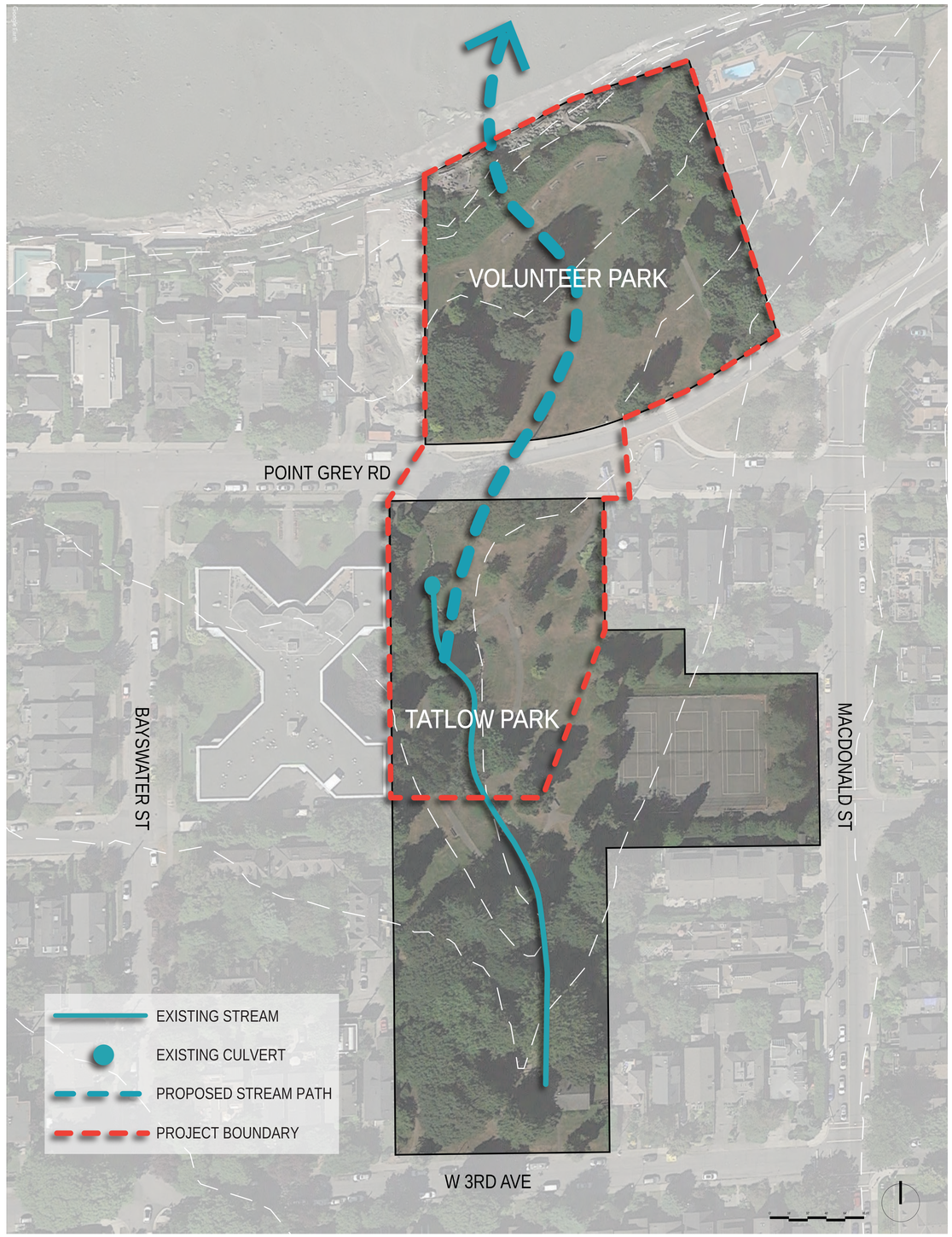
- Due to urban development, the original Tatlow Creek was diverted and buried underground, and the natural watershed was replaced by underground pipes. This has resulted in a deeper water table and altered hydrological processes.

- Currently the watershed is comprised of residential and commercial areas, with a high percentage of impervious surfaces such as roofs and parking lots. The storm water runoff from these surfaces is directed by underground sewer pipes to the Iona Wastewater Treatment Plant, partly as combined stormwater system and partly as a separate stormwater system.

(Jingsi (Jessica) Jin, "Identification Mechanism and Design Strategies for Stream Daylighting in Vancouver," master's thesis, University of British Columbia, 2016)



HISTORICAL TATLOW CREEK WATERSHED



PROJECT SITE AND BOUNDARIES

VANCOUVER BOARD OF PARKS AND RECREATION

PAUL SANGHA LANDSCAPE ARCHITECTURE

Contact: tatlowcreek@vancouver.ca www.vancouver.ca/tatlow-stream-restoration

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2 - DESIGN GOALS AND INTENTIONS

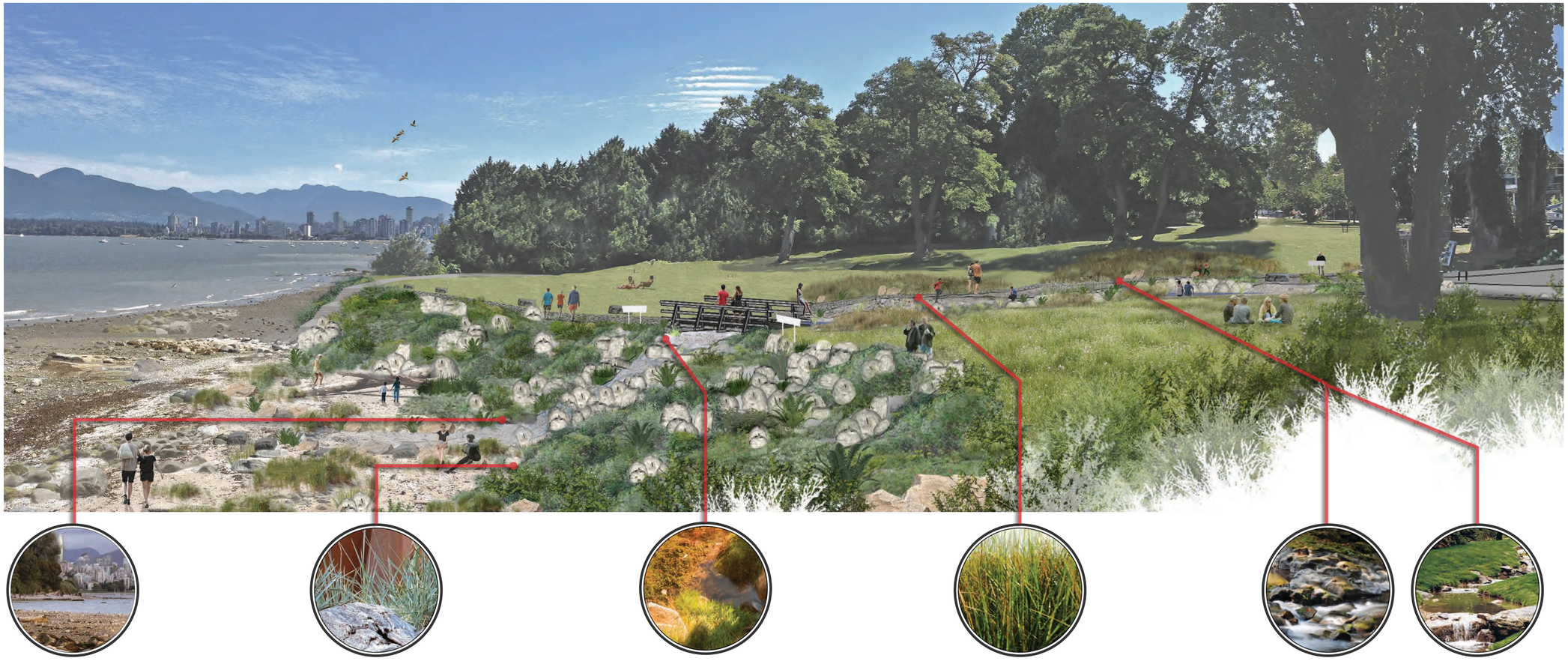
PROJECT SCOPE

- This project involves restoring the stream through the north end of Tatlow Park and Volunteer Park to re-connect it with English Bay.
- The restored stream will be fed with stormwater runoff from the adjacent catchment, which will be cleansed and filtered through a combination of separator system and a series of pools along the stream before draining into English Bay. Native planting along the stream will create riparian habitat for birds and pollinator species.
- The project will also include improvements to Volunteer Park to create an ecologically diverse green space and accessible waterfront access for pedestrians.
- The project supports the Vancouver Park Board's 'Biodiversity Strategy' as well as the City of Vancouver's Greenest City Action Goal 'Access to Nature' through native planting, reduced mowed lawn area, and the creation of habitat for bird and pollinator species.

PROJECT GOALS

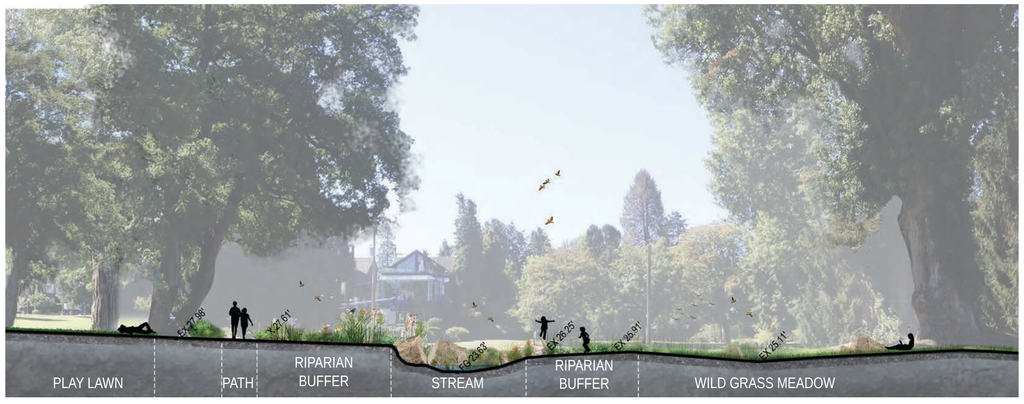
- Connect the existing stream in Tatlow Park to English Bay through Volunteer Park.
- Implement sustainable storm water management strategies.
- Improve the quality of water entering English Bay.
- Improve accessible pedestrian access to the shore.
- Increase biodiversity through the planting of native plants.
- Restore and enhance riparian and shoreline habitat.
- Providing educational opportunities for the community.
- Improve amenities including landscaping, pathways, benches, and picnicking areas.

CONCEPTUAL IMAGE OF RESTORED STREAM OUTFALL

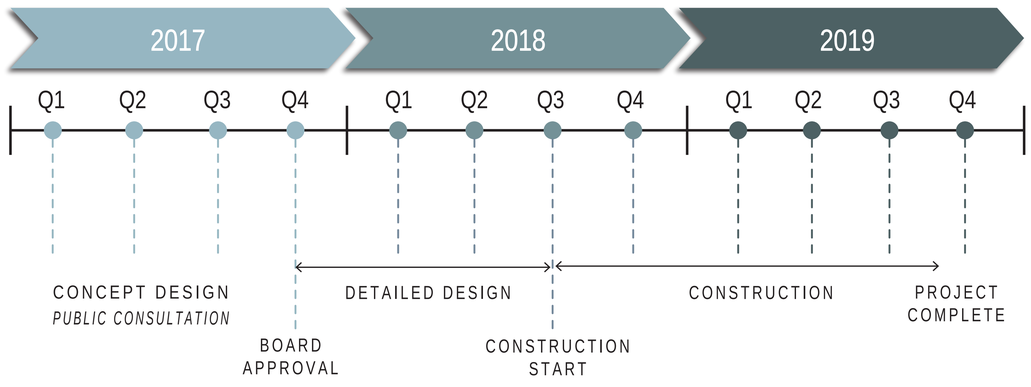


5. OUTPUTS — 4. RIPARIAN + DEPOSITION — 3. AERATION — 2. CLEANSING + FILTERING — 1. AERATION + SEDIMENTATION

STORMWATER FILTRATION PROCESS



PROPOSED CROSS-SECTION THROUGH STREAM



PROJECT TIMELINE

PAUL SANGHA LANDSCAPE ARCHITECTURE

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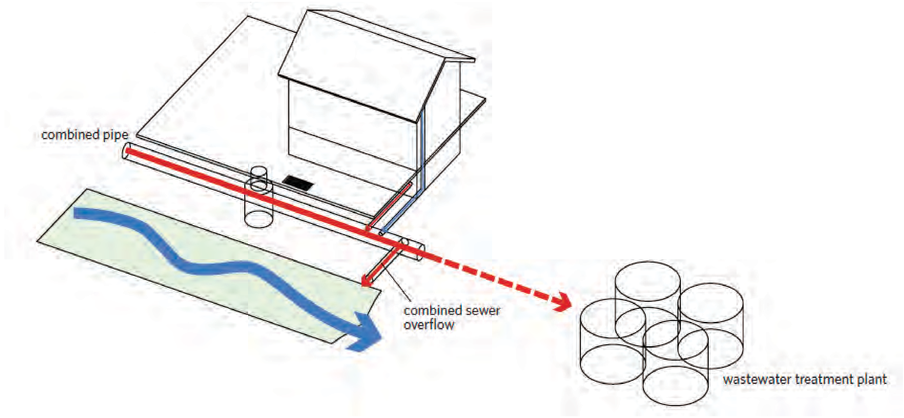
3-PROPOSED STORMWATER SYSTEM UPGRADES

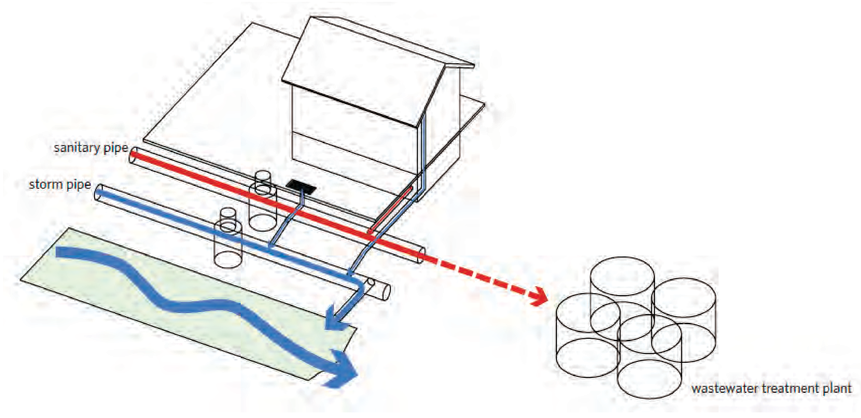
COMBINED SEPARATION

- The City of Vancouver is working toward the Province of BC's environmental goal to eliminate sewage overflows by 2050 by replacing combined systems with separated systems.
- In a combined system, stormwater runoff is combined in a single pipe with wastewater from homes, businesses, and industry.
- During heavy rains, high volumes of stormwater can exceed the capacity of a combined system causing untreated overflow to empty directly into waterways.
- In a two-pipe separated system, stormwater is collected through storm drains and travels separately from household waste and other wastewater.



COMBINED SYSTEM

Image Credit: (Jingsi (Jessica) Jin, "Identification Mechanism and Design Strategies for Stream Daylighting in Vancouver," master's thesis, University of British Columbia, 2016)



SEPARATED SYSTEM

Image Credit: (Jingsi (Jessica) Jin, "Identification Mechanism and Design Strategies for Stream Daylighting in Vancouver," master's thesis, University of British Columbia, 2016)

BENEFITS OF SEPARATION

1. Eliminates combined sewer overflow.
2. Improves water quality.
3. Reduces risk of flooding by increasing capacity.
4. Utilizes stormwater as a resource.

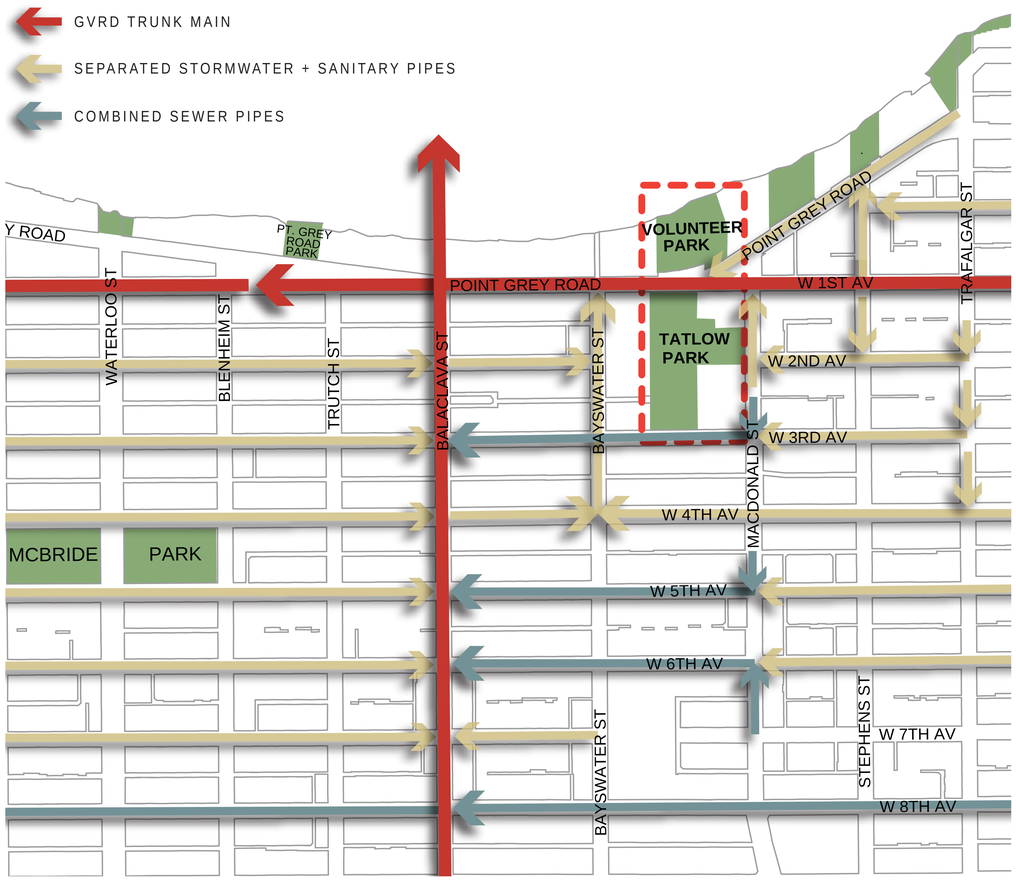
SCOPE OF PROPOSED WORK

SHORT TERM:

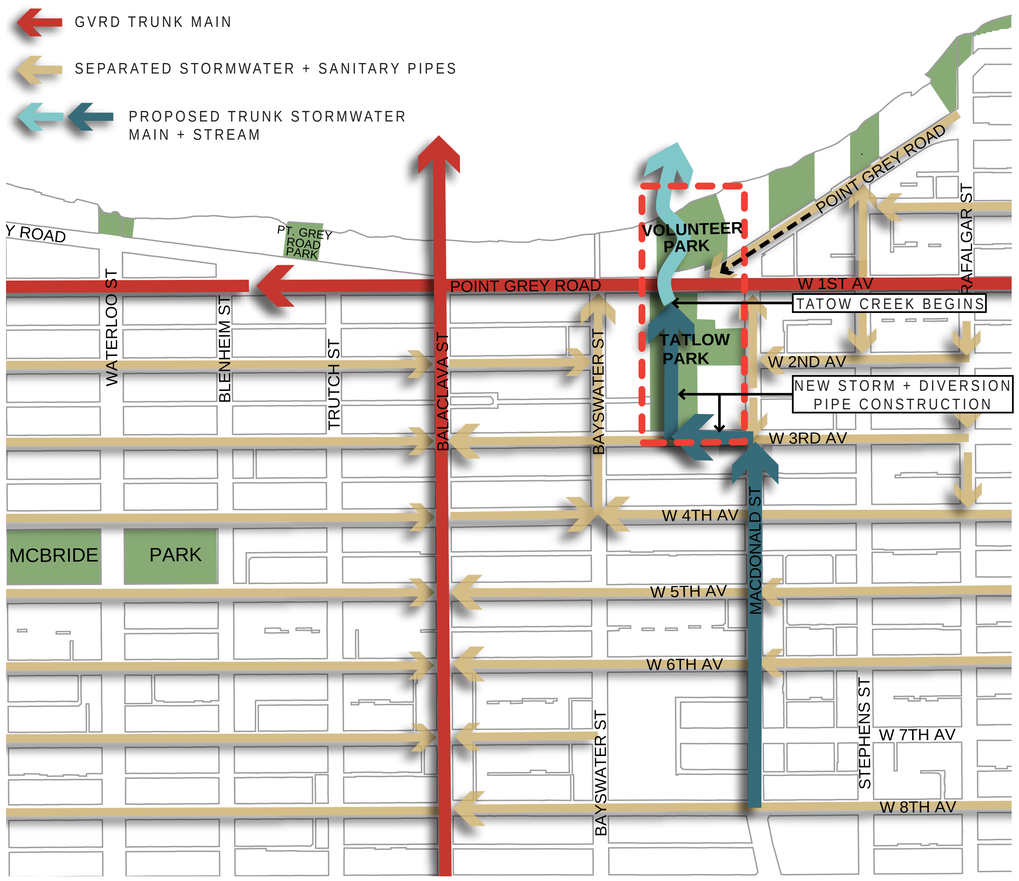
- Construction of a stormwater main from the beginning of the stream south of Point Grey Rd to a City trunk storm on W 3rd Ave. as well as South along MacDonald St. from W 3rd Ave. to W 4th Ave.

LONG TERM:

- Extend the trunk stormwater main south along Macdonald St. from W 4th Ave to W 8th Ave connecting in the branches from each avenue.



EXISTING STORM DRAINAGE SYSTEM



PROPOSED STORM DRAINAGE SYSTEM

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4 - DESIGN CHALLENGES

ISSUES OF WATER SOURCE

1. Acquiring a sufficient base water flow to supply the stream by directing stormwater runoff into the stream.

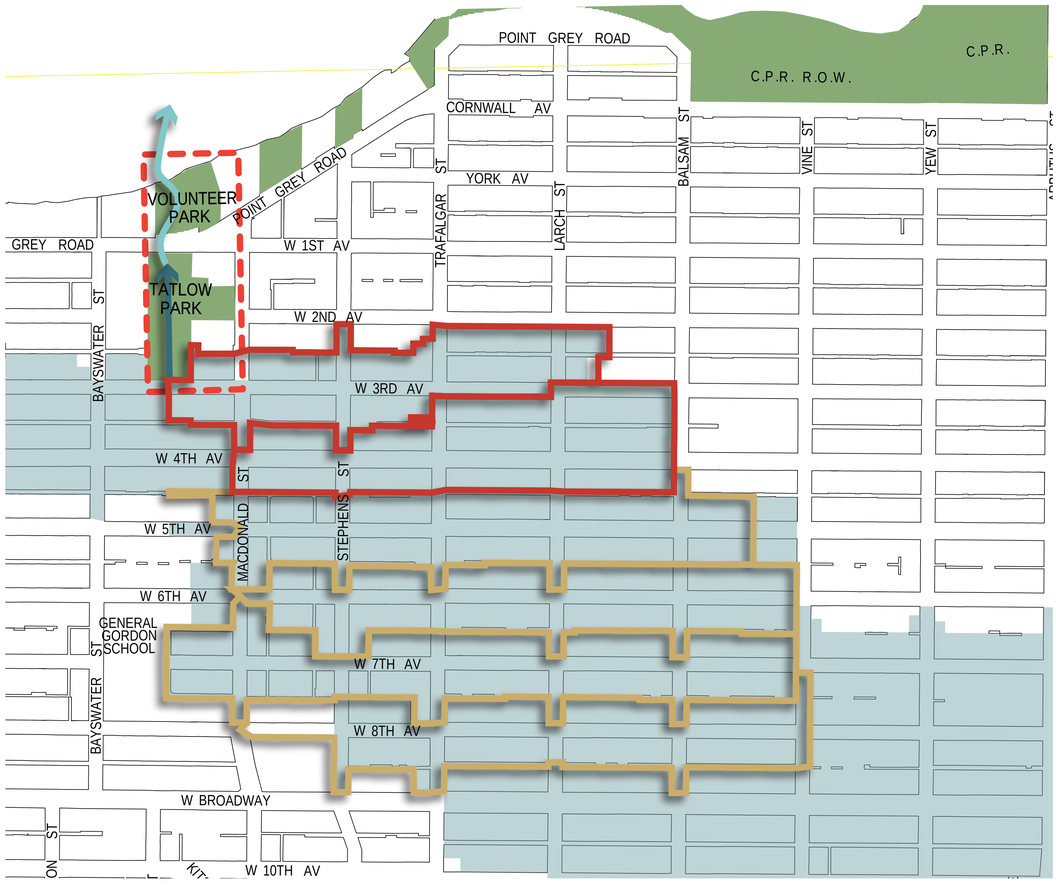
2. Maintaining a consistent water level in the stream throughout the year so the stream does not run dry.

3. Creating a natural slope and low-volume flow at the entrance of the stream into the ocean.

4. Controlling seasonal fluctuations in water flow due to varying amounts of rainfall.

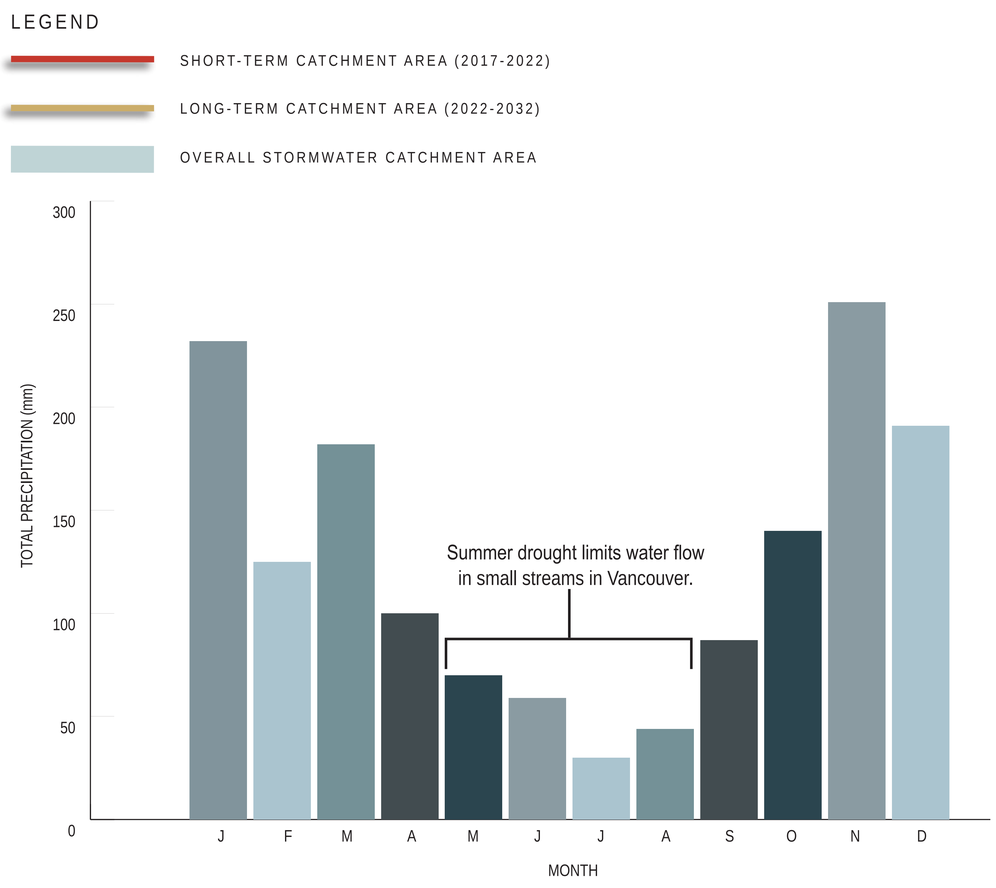
5. Filtering out contaminants and sediments from urban runoff.

6. Maintaining a consistent water temperature in the stream.



PROPOSED STORMWATER CATCHMENT AREAS

The proposed catchment area will be diverted over an ~15 year period, gradually increasing the available water for the stream.



AVERAGE RAINFALL IN VANCOUVER (2006 - 2016)

Vancouver rainfall varies annually creating challenges for a consistent base flow in the stream

MAINTAINING A SUFFICIENT BASE FLOW

STEEP GRADE CHANGE AT STREAM OPENING

TATLOW CREEK'S SMALL SIZE PROVIDES LIMITED HABITAT TO SUSTAIN SALMON AND TROUT POPULATIONS IN THE LONG-TERM.

OBSTACLES PREVENTING THE CREATION OF FISH HABITAT IN THE STREAM

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5 - PUBLIC CONSULTATION: RESULTS

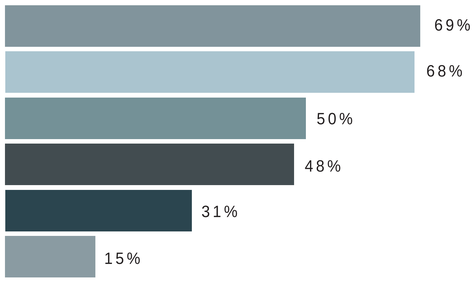
PUBLIC CONSULTATION No. 1

We held our first Public Open House on March 8, 2017 to present design options for the project. An online questionnaire was open for feedback through to April 3, 2017. Feedback gained from this process will help refine the final design concept. The following is a summary of what we heard.

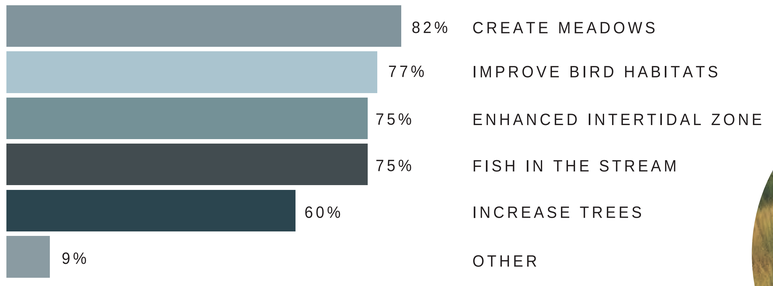
218
QUESTIONNAIRES WERE COMPLETED

89%
OF RESPONDENTS LIVE IN KITSILANO

WHAT DO YOU DO WHEN VISITING THE PARKS?



WHICH BIODIVERSITY INITIATIVES DO YOU SUPPORT IN THE PARK?



66%
OF PARTICIPANTS BELIEVE THE PROPOSED STREAM RESTORATION WILL HAVE A POSITIVE IMPACT ON THE USAGE OF THE PARK

77%
OF PARTICIPANTS SUPPORT INCLUDING EDUCATIONAL FEATURES IN THE PARK DESIGN

PROPOSED SITE SECTION + TOPOGRAPHY

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6 - DESIGN PROPOSALS : PREFERENCES

WE ASKED: WHICH AMENITIES WOULD YOU MOST LIKE TO SEE IN VOLUNTEER PARK?

55% WANT A WOODEN BRIDGE LOOKOUT

"THIS IS A GREAT IDEA AND INITIATIVE AND I'M VERY EXCITED BY IT!"

50% LIKE INFORMAL STEPPING STONE STREAM CROSSINGS

MAXIMIZES HABITAT CREATE AND BIODIVERSITY **CONCEPT A**

54% WANT EXTENSIVE NATIVE RIPARIAN PLANTING NEAR THE STREAM

"I'D LIKE TO SEE WILDFLOWERS AND MILKWEED PLANTED FOR BUTTERFLIES AND HONEYBEES."

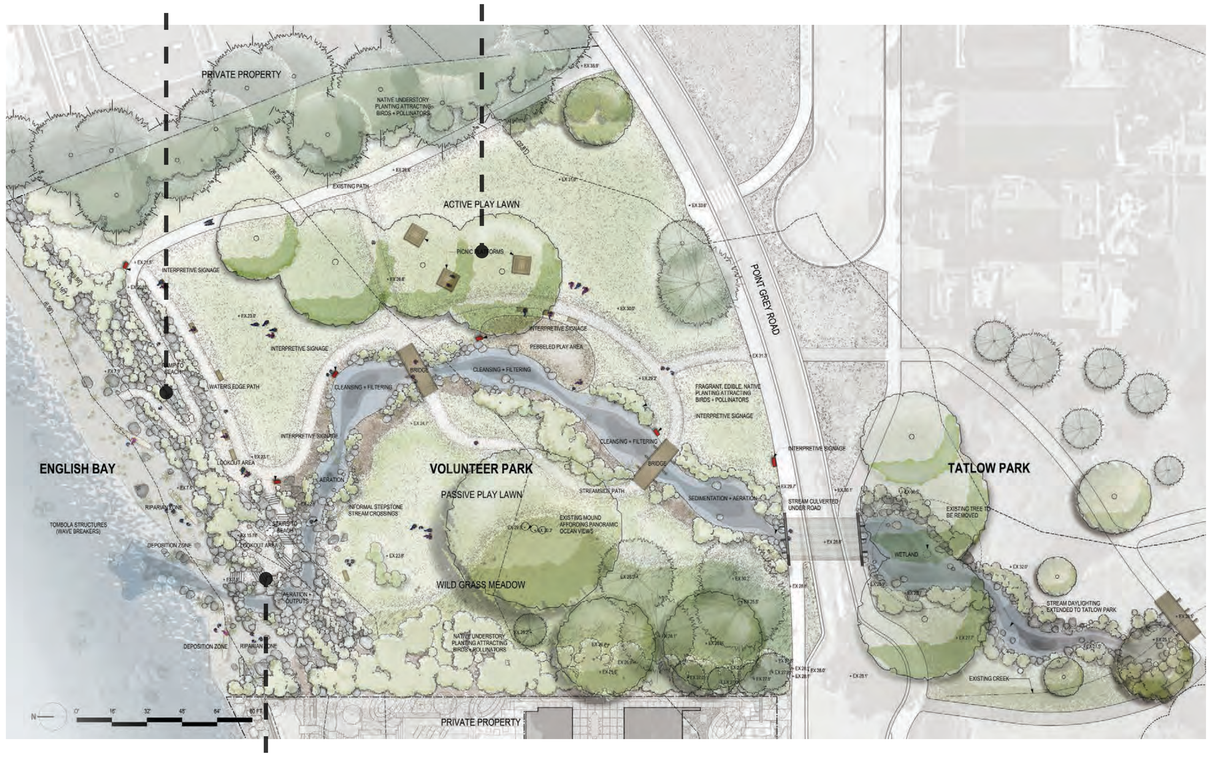
50% WANT A LARGE NATURAL MEADOW INSTEAD OF LAWN

56% SUPPORT REGRADING THE SLOPE TO THE BEACH FOR A MORE ACCESSIBLE INCLINE

"IMPROVED RAMP ACCESS TO THE BEACH IS WELCOMED."

"THE PARK NEEDS MORE BENCHES AND A PICNIC TABLE OR TWO."

59% ASKED FOR MORE BENCHES AND SEATING



INCREASES PASSIVE RECREATION **CONCEPT B**

"KEEP THE SHORELINE LOOKING NATURAL."

61% LIKE A NATURALIZED PUBLIC BEACH

VANCOUVER BOARD OF PARKS AND RECREATION

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7 - STREAM RESTORATION: PRECEDENTS

WEST VANCOUVER STREAM

FIRM: Paul Sangha Landscape Architecture
District of West Vancouver
West Vancouver Stream Keepers Society

LOCATION: West Vancouver, BC

COMPLETION: 2011

ACHIEVEMENTS:
- Creation of public access to beach along public right of way
- Foreshore enhancement supports valuable wildlife habitat and protection from storm events
- Creek supports salmon spawning


Image Credit: Nic Lehoux


Image Credit: Nic Lehoux


Image Credit: Nic Lehoux


Image Credit: Nic Lehoux

SPANISH BANKS CREEK

FIRM: Raincoast Applied Ecology
Department of Fisheries + Oceans
Vancouver Parks Board
BC Ministry of Environment
Spanish Bank Creek Stream Keepers

LOCATION: Vancouver, BC

COMPLETION: 2000

ACHIEVEMENTS:
- Return of Chum and Coho salmon spawning
- Creation of valuable wildlife habitat
- Supports community stewardship and engagement

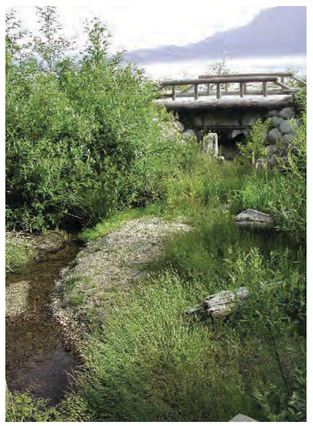
Image Credit: www.seatoskygreenguide.ca


Image Credit: Nick Page


Image Credit: Raincoast Applied Ecology

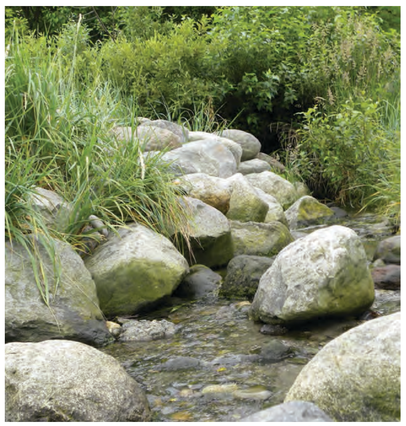
Image Credit: Raincoast Applied Ecology

THORNTON CREEK

FIRM: SvR Design Company
City of Seattle
Northgate Stakeholders Group
Walsh Construction

LOCATION: Seattle, WA

COMPLETION: 2009

ACHIEVEMENTS:
- Added public open space to the area
- Catalyzed surrounding re-development
- Treats stormwater flows using a tiered system with a series of channels and pools
- Reintroduction of native plant species

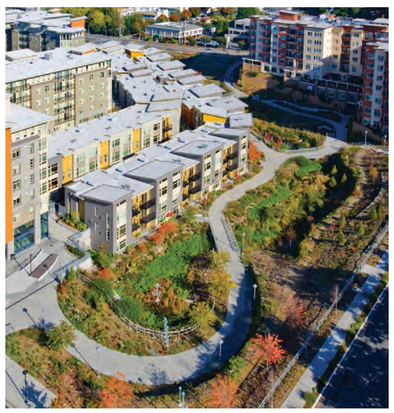
Image Credit: www.svrdesign.com


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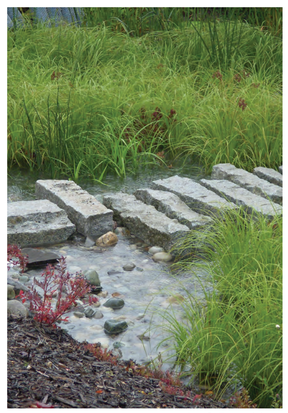
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