False Creek South

Sustainability Workshop

December 2, 2017

CITY OF VANCOUVER

Overview

1. Sustainability – what is it? - Lisa Brideau
2. Environmental City Policies - Lisa Brideau
3. Environmental Sustainability
    1. Ecological Overview of FCS - Nick Page
    2. Rainwater Management - Cameron Owen
4. Social Sustainability - Mark Pickersgill

SUSTAINA-WHAT?

Lisa Brideau

Sustainability Group

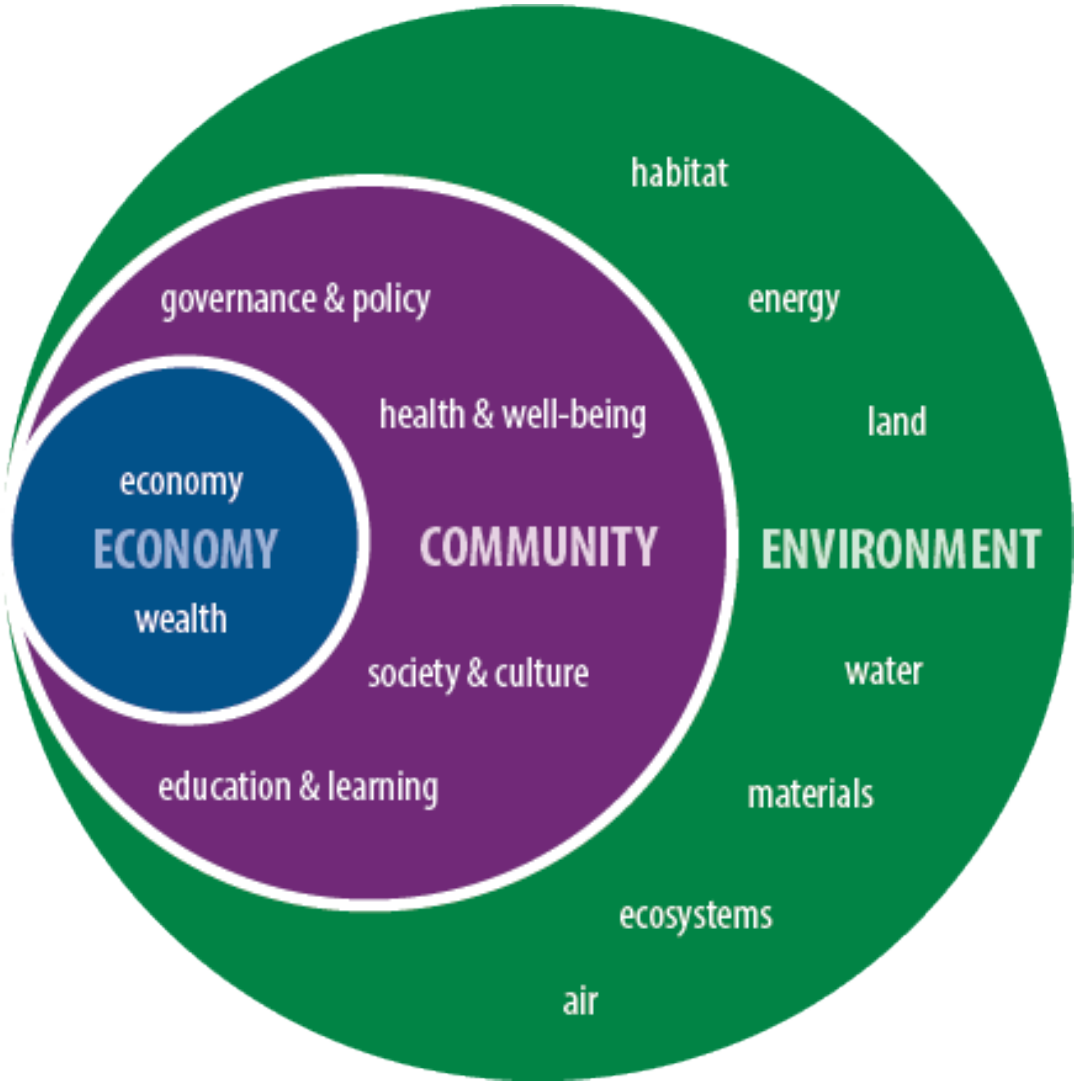
SUSTAINABILITY

Meeting our needs without compromising the ability of future generations to meet their own needs.

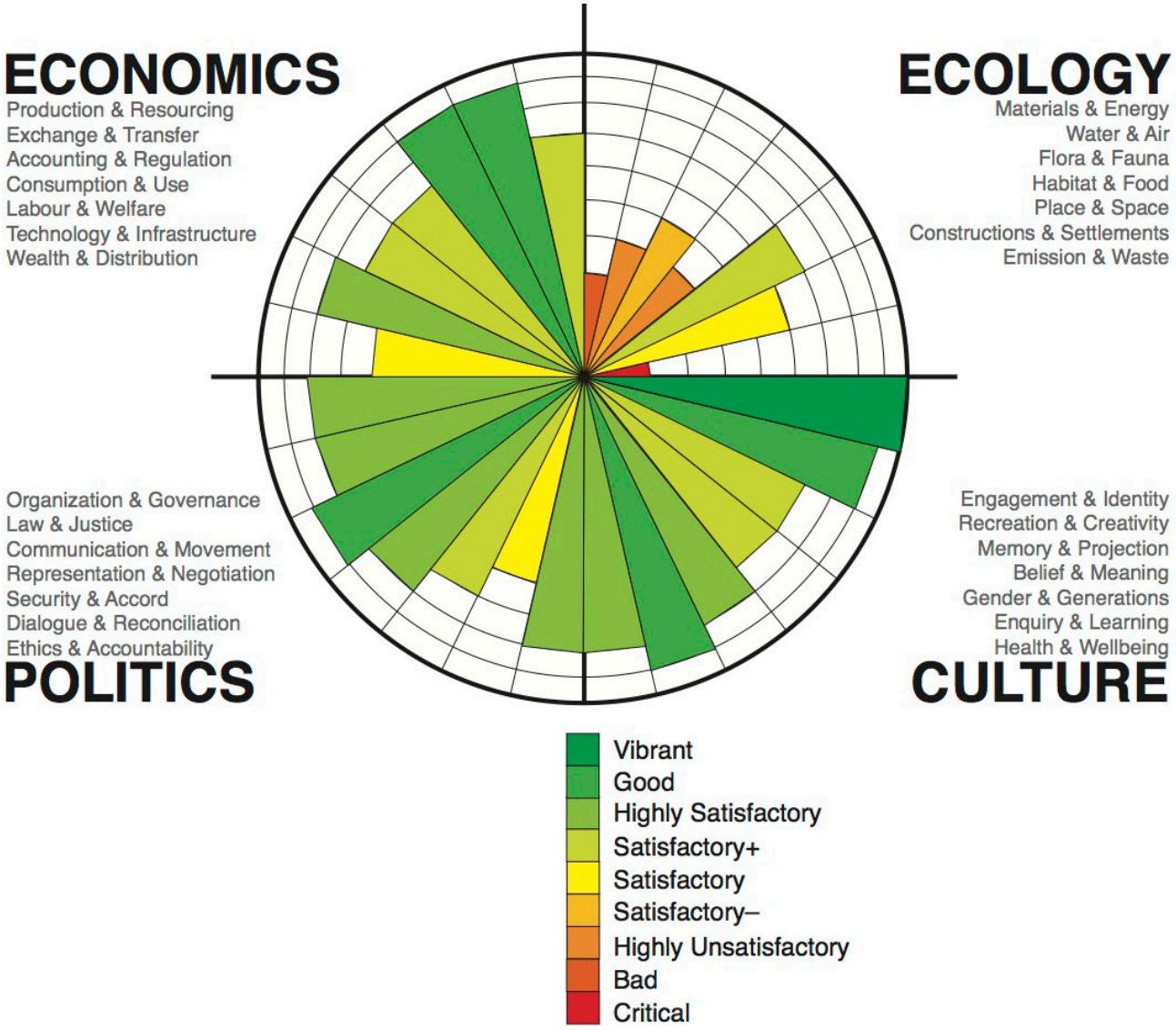
Three Legged Stool

Overlapping Spheres

Nested Spheres



Many, many models...



Overlapping Policies

GROUP DISCUSSION

Introduce yourself to your table & share:

What is sustainability to you?

Overview

1. Sustainability – what is it? - Lisa Brideau
2. Environmental City Policies - Lisa Brideau
3. Environmental Sustainability
    1. Ecological Overview of FCS - Nick Page
    2. Rainwater Management - Cameron Owen
4. Social Sustainability - Mark Pickersgill

ENVIRONMENTAL SUSTAINABILITY

Lisa Brideau

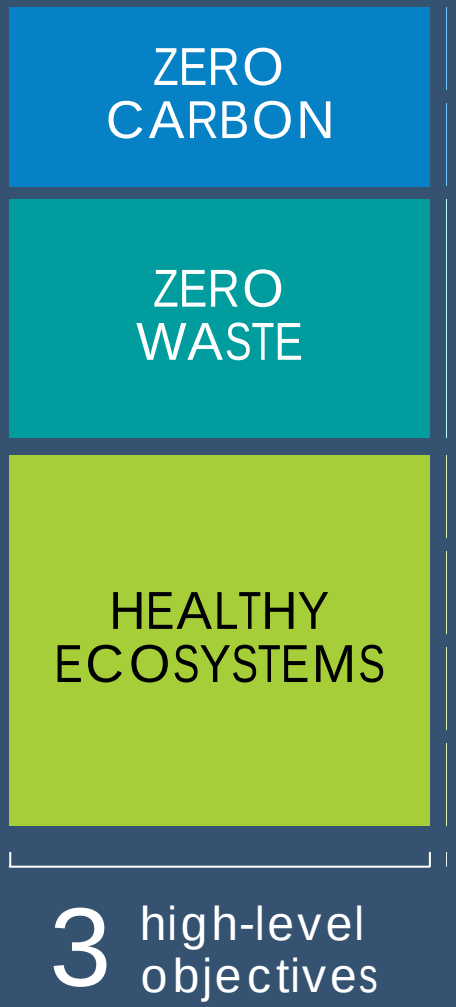
Sustainability Group

3 HIGH-LEVEL OBJECTIVES

10 GOAL AREAS

17 TARGETS TO MEASURE

GREENEST CITY FRAMEWORK



GREENEST CITY FRAMEWORK

3 high-level objectives

10 goal areas

CLIMATE AND RENEWABLES

Target: Reduce community-based greenhouse gas emissions by 33% from 2007 levels.

GREEN BUILDINGS

Target 1: Reduce energy use and GHG emissions in existing buildings by 20% over 2007 levels.

Target 2: Require all buildings constructed from 2020 onward to be carbon neutral in operations.

GREEN TRANSPORTATION

Target 1: Make the majority of trips (over 50%) by foot, bicycle and public transit.

Target 2: Reduce average distance driven per resident by 20% from 2007 levels.

ZERO WASTE

Target: Reduce total solid waste going to the landfill or incinerator by 50% from 2008 levels.

ACCESS TO NATURE

Target 1: Ensure that every person lives within a five minute walk of a park, greenway or other green space.

Target 2: Plant 150,000 additional trees in the city.

Target 3: restore or enhance 25ha of natural areas between 2010 and 2020

CLEAN WATER

Target 1: Meet or beat the most stringent of British Columbian, Canadian and appropriate international drinking water quality standards and guidelines.

Target 2: Reduce per capita water consumption by 33% from 2006 levels.

LOCAL FOOD

Target: Increase city-wide and neighbourhood food assets by a minimum of 50% over 2010 levels.

CLEAN AIR

Target: Meet or beat the most stringent air quality guidelines from Metro Vancouver, British Columbia, Canada, and the World Health Organization.

GREEN ECONOMY

Target 1: Double the number of green jobs over 2010 levels.

Target 2: Double the number of companies that are actively engaged in greening their operations over 2011 levels.

LIGHTER FOOTPRINT

Target: Reduce Vancouver's ecological footprint by 33% over 2006 levels.

TOWARD ZERO CARBON THROUGH:
CLIMATE LEADERSHIP

GOAL: Eliminate Vancouver's dependence on fossil fuels

2020 target:
Reduce community based greenhouse gas emissions 33**%** from 2007 levels.

TOWARD ZERO CARBON THROUGH:
GREEN TRANSPORTATION

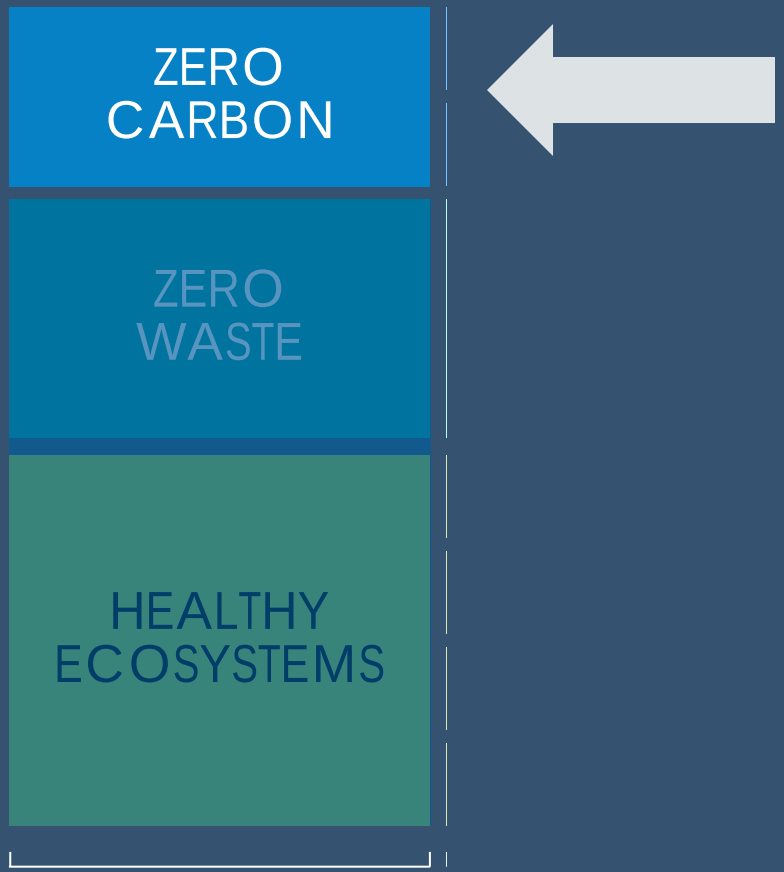
GOAL: Make walking, cycling, & public transit preferred transportation options

2020 targets:

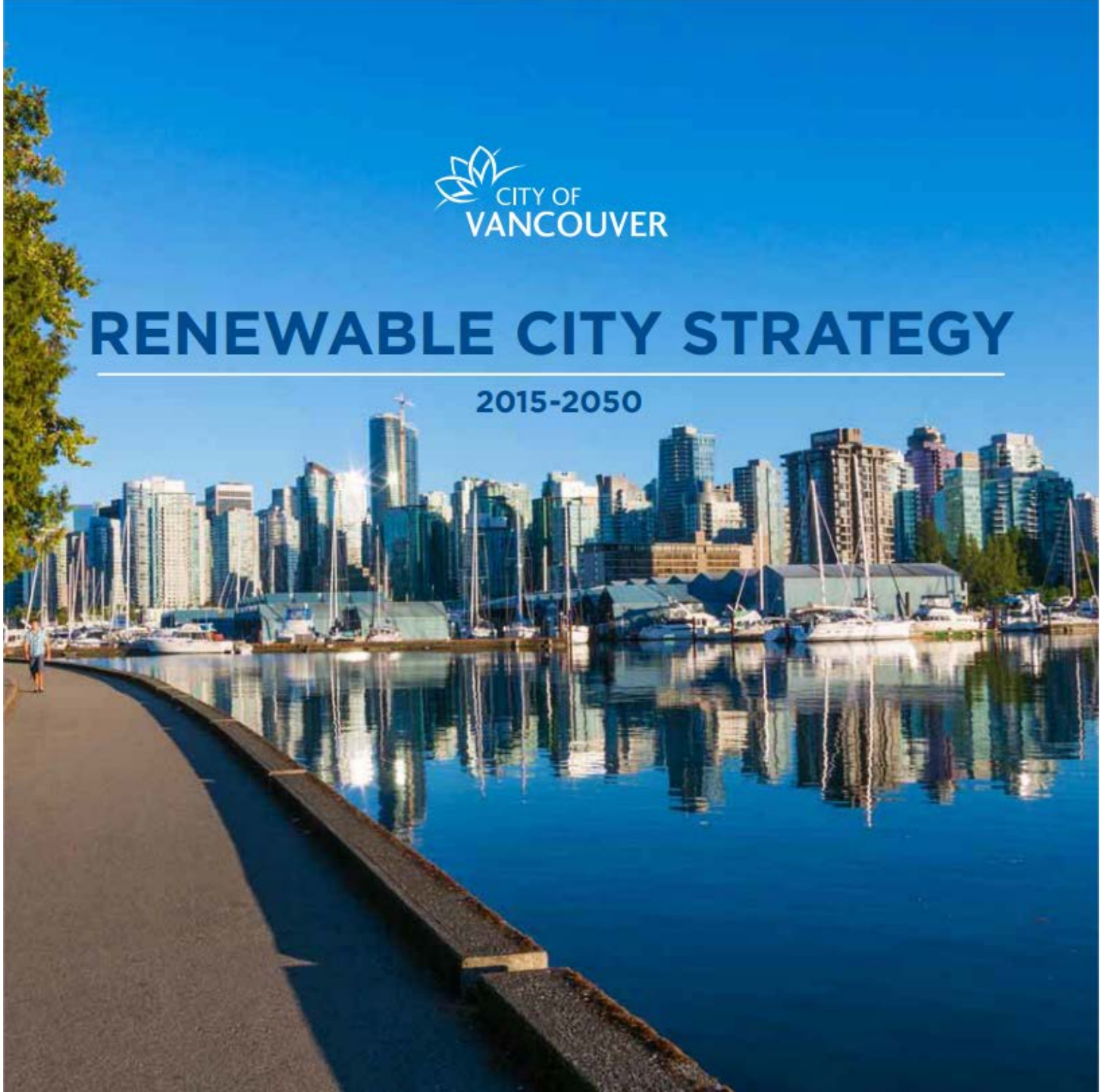
1) Make the majority of trips (over 50%) on foot, bicycle, and public transit.

2) Reduce distance driven per resident by 20% from 2007 levels.

GREENEST CITY FRAMEWORK



3 high-level objectives

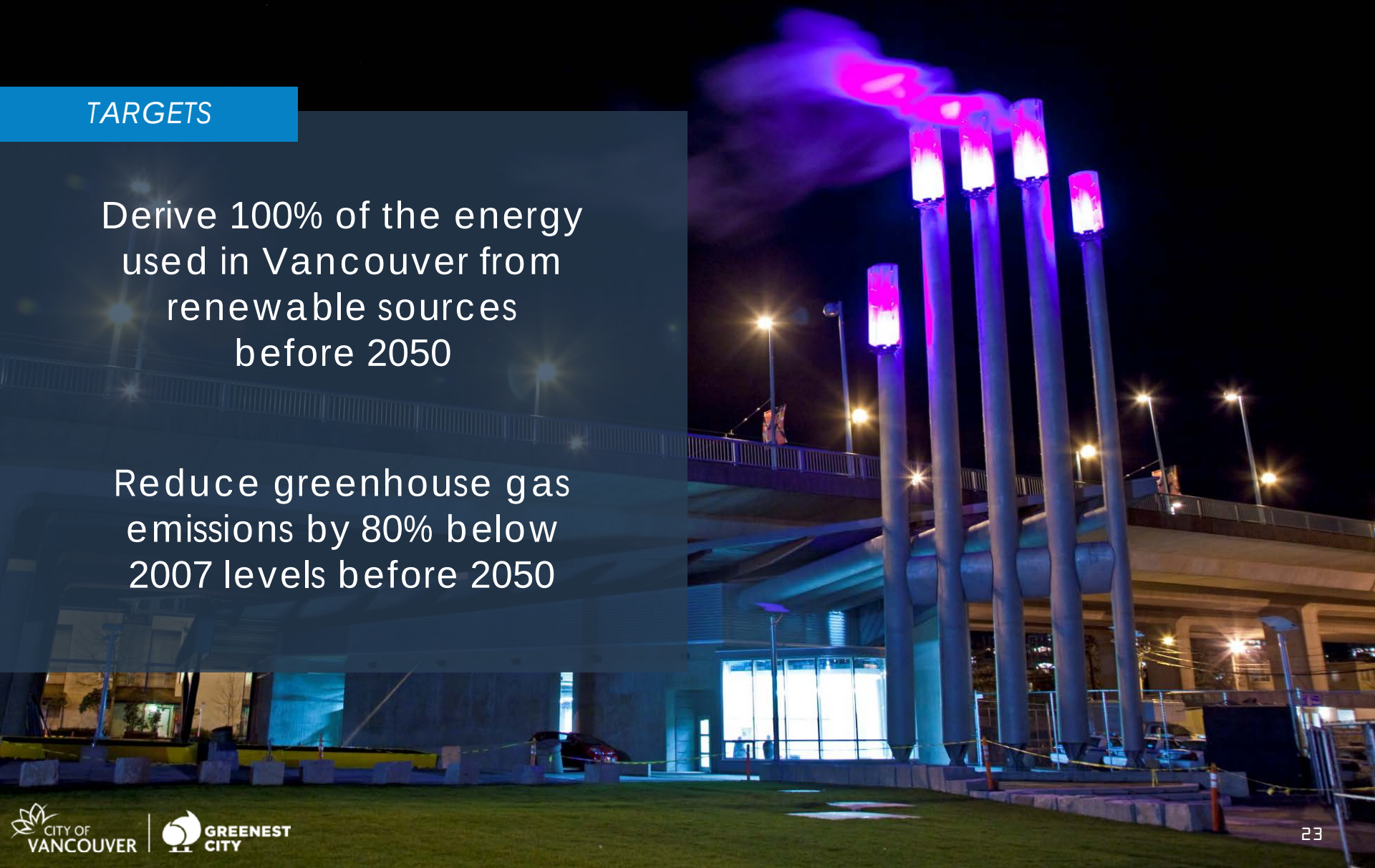

CITY OF
VANCOUVER
RENEWABLE CITY STRATEGY
2015-2050

AFTER 2020: RENEWABLE CITY

TARGETS

Derive 100% of the energy used in Vancouver from renewable sources before 2050

Reduce greenhouse gas emissions by 80% below 2007 levels before 2050



1

IMPROVE ENERGY EFFICIENCY

2

SWITCH TO RENEWABLE SOURCES

Our approach to 100% renewable

BUILDINGS

54%

OF VANCOUVER'S CARBON POLLUTION

Electric Vehicle Ecosystem Strategy

Transportation 2040

TRANSPORTATION

41%

OF VANCOUVER'S CARBON POLLUTION

CITY OF VANCOUVER | GREENEST CITY

CITY OF VANCOUVER

GREENEST CITY 2020
Climate Adaptation

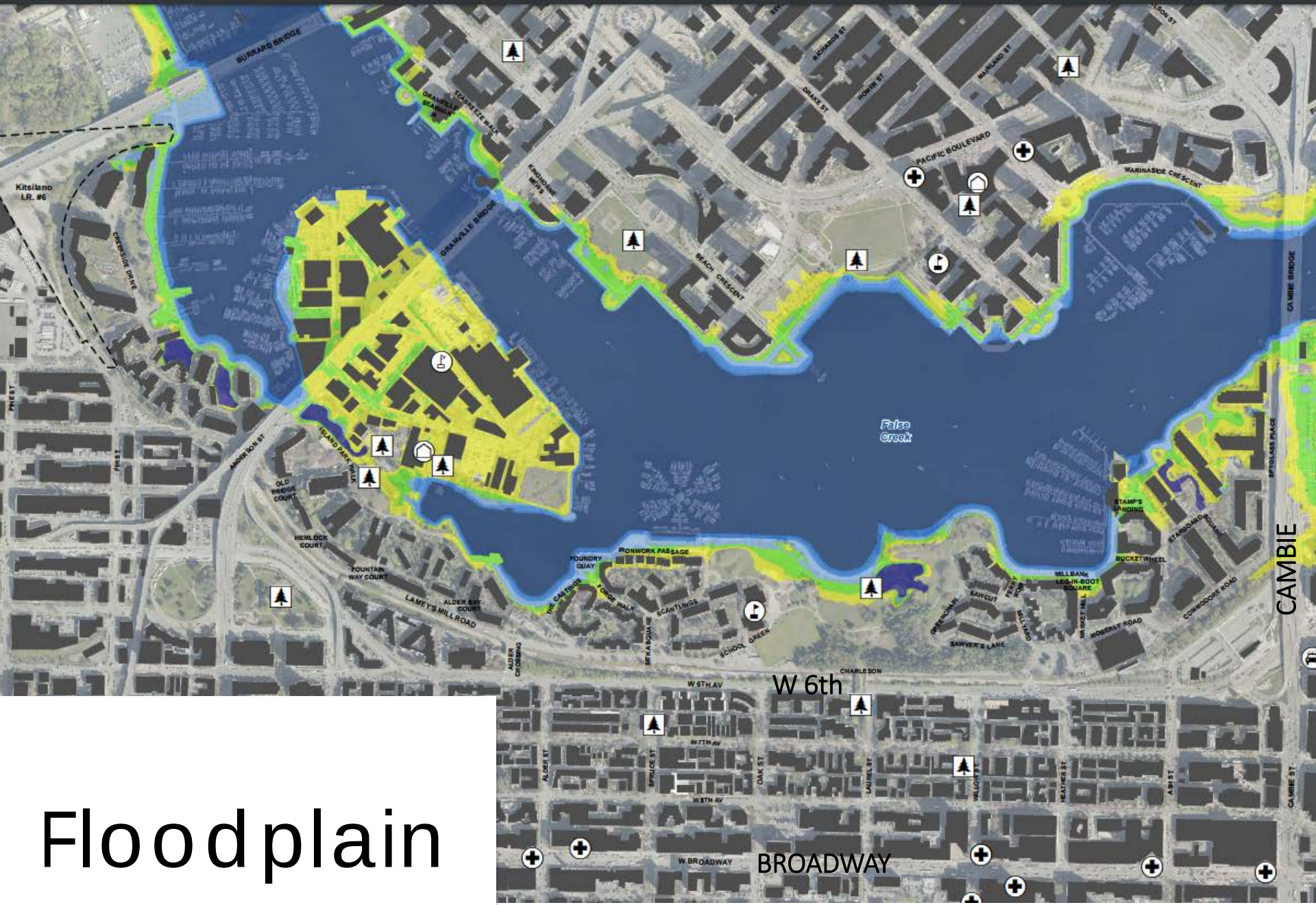
CLIMATE CHANGE ADAPTATION STRATEGY

Vancouver adopted its Climate Change Adaptation Strategy in 2012

- Sea level rise
- Hotter, drier summers
- More frequent & more intense storms


Planning for Sea Level Rise:
1m by 2100
2m by 2200


Coal Harbour
Port
Jericho
False Creek
Vancouver's Floodplain
(includes 1m sea level rise)
Southlands
Fraser River



Floodplain

MODEL of Scenario 3: Year 2100, 1m of sea level rise, 1/500 year storm

(SOURCE: City CFRA, 2014)

A family of strategies

A family of strategies

CITY OF VANCOUVER | GREENEST CITY

Overview

1. Sustainability – what is it? - Lisa Brideau
2. Environmental City Policies - Lisa Brideau
3. Environmental Sustainability
    1. Ecological Overview of FCS - Nick Page
    2. Rainwater Management - Cameron Owen
4. Social Sustainability - Mark Pickersgill

ECOLOGICAL OVERVIEW

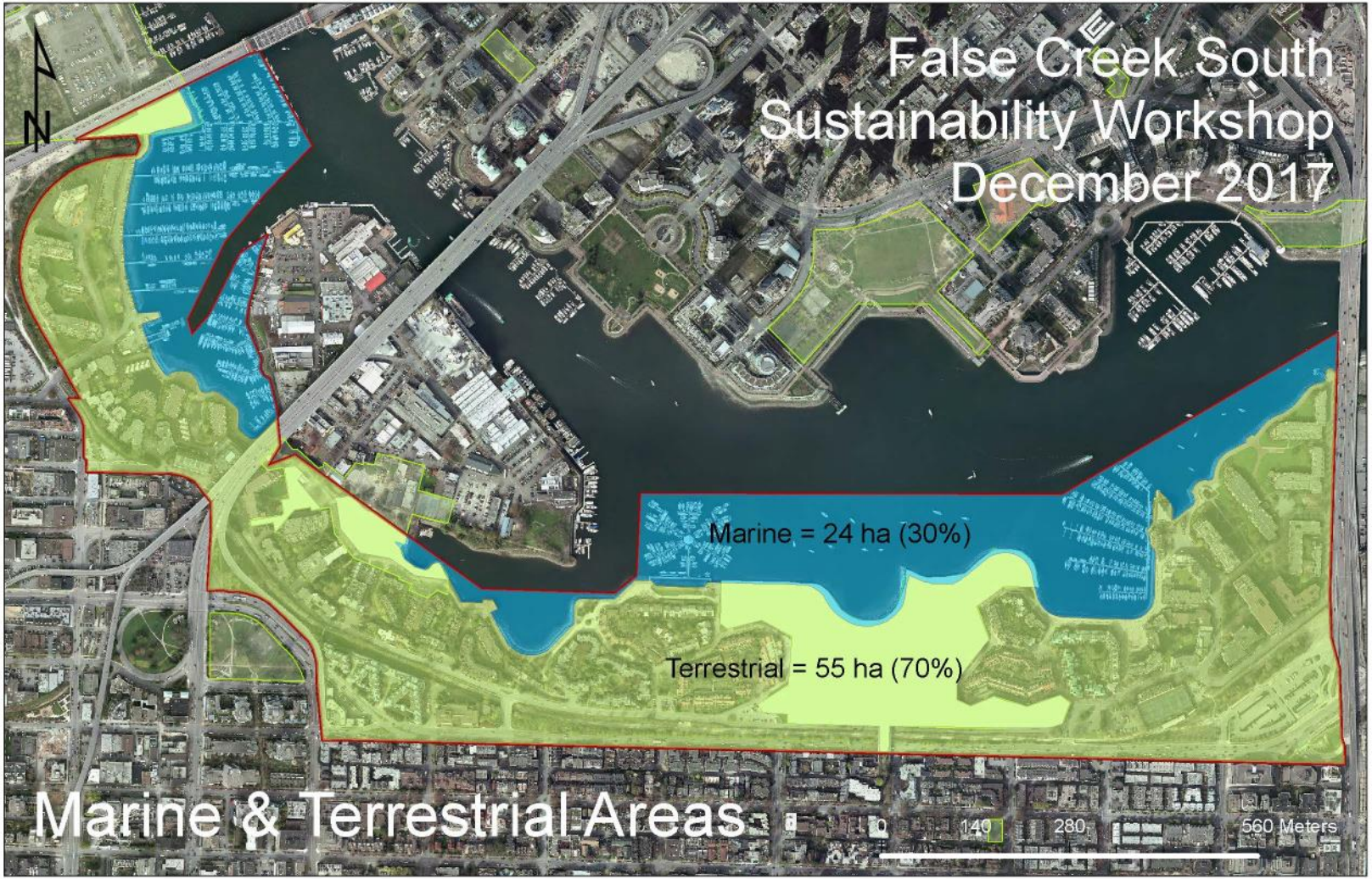
Nick Page

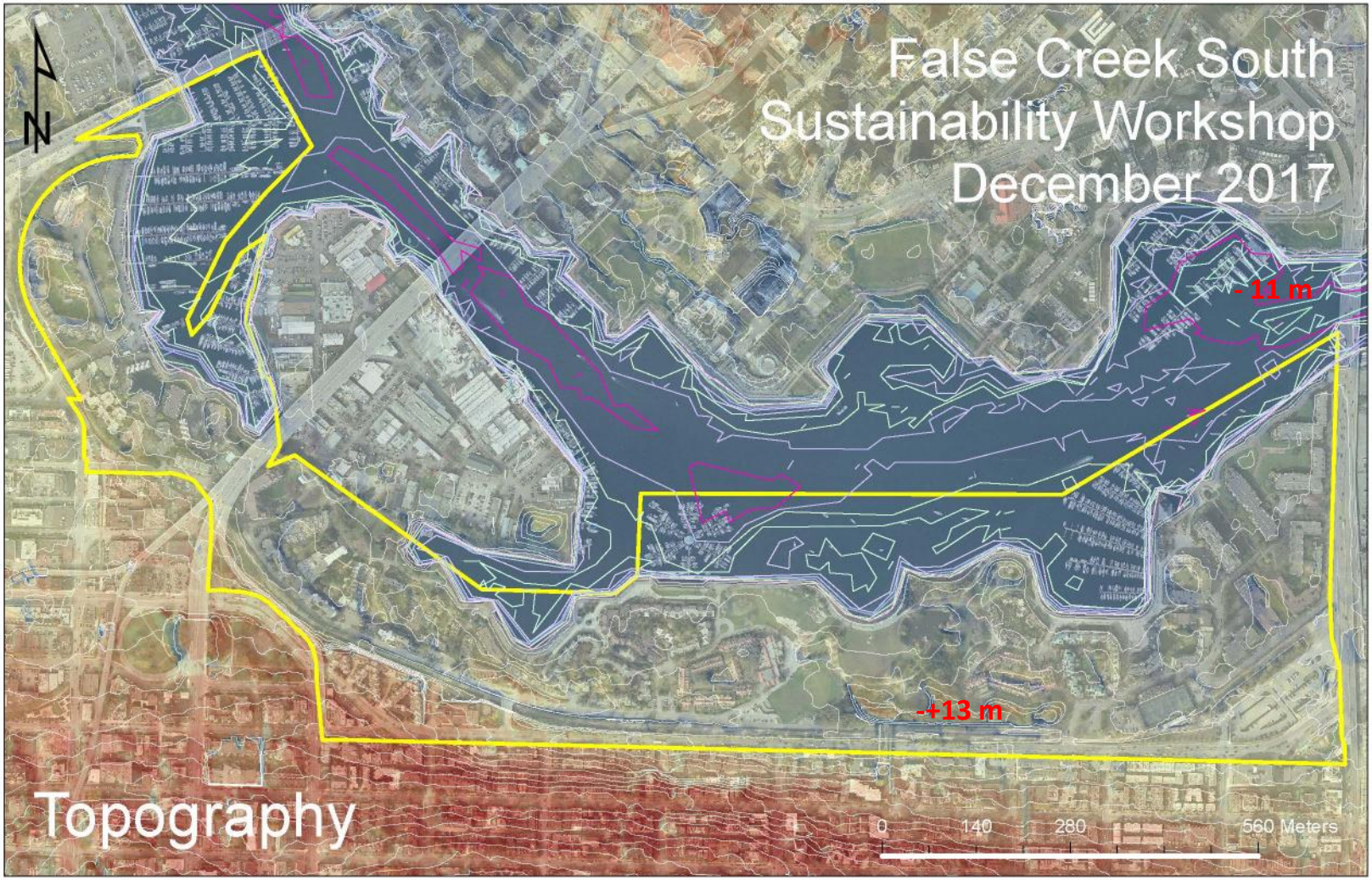
Park Board

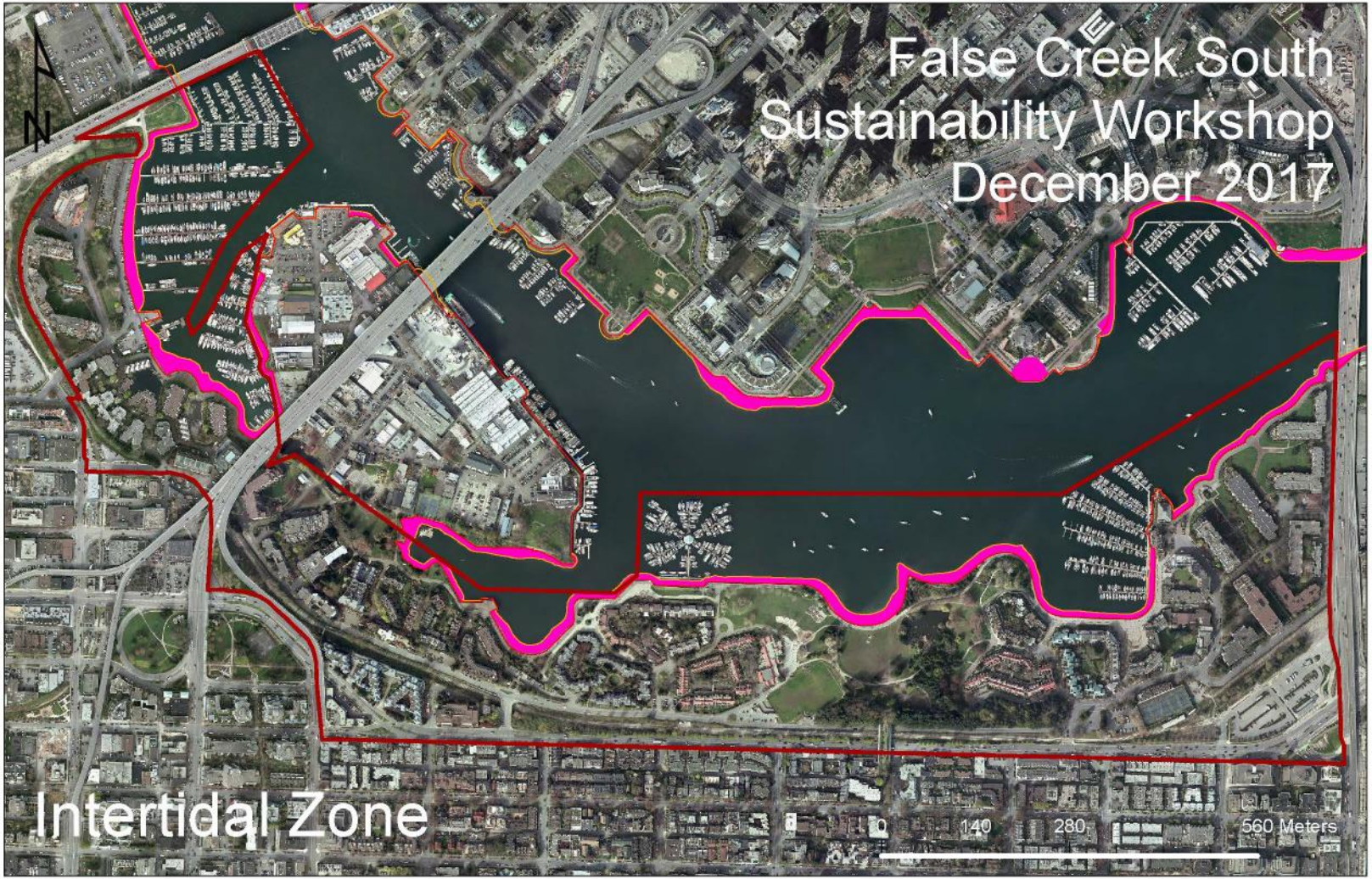
Environmental Scan

False Creek South Sustainability Workshop

Nick Page, Biologist
Vancouver Park Board
December 2017

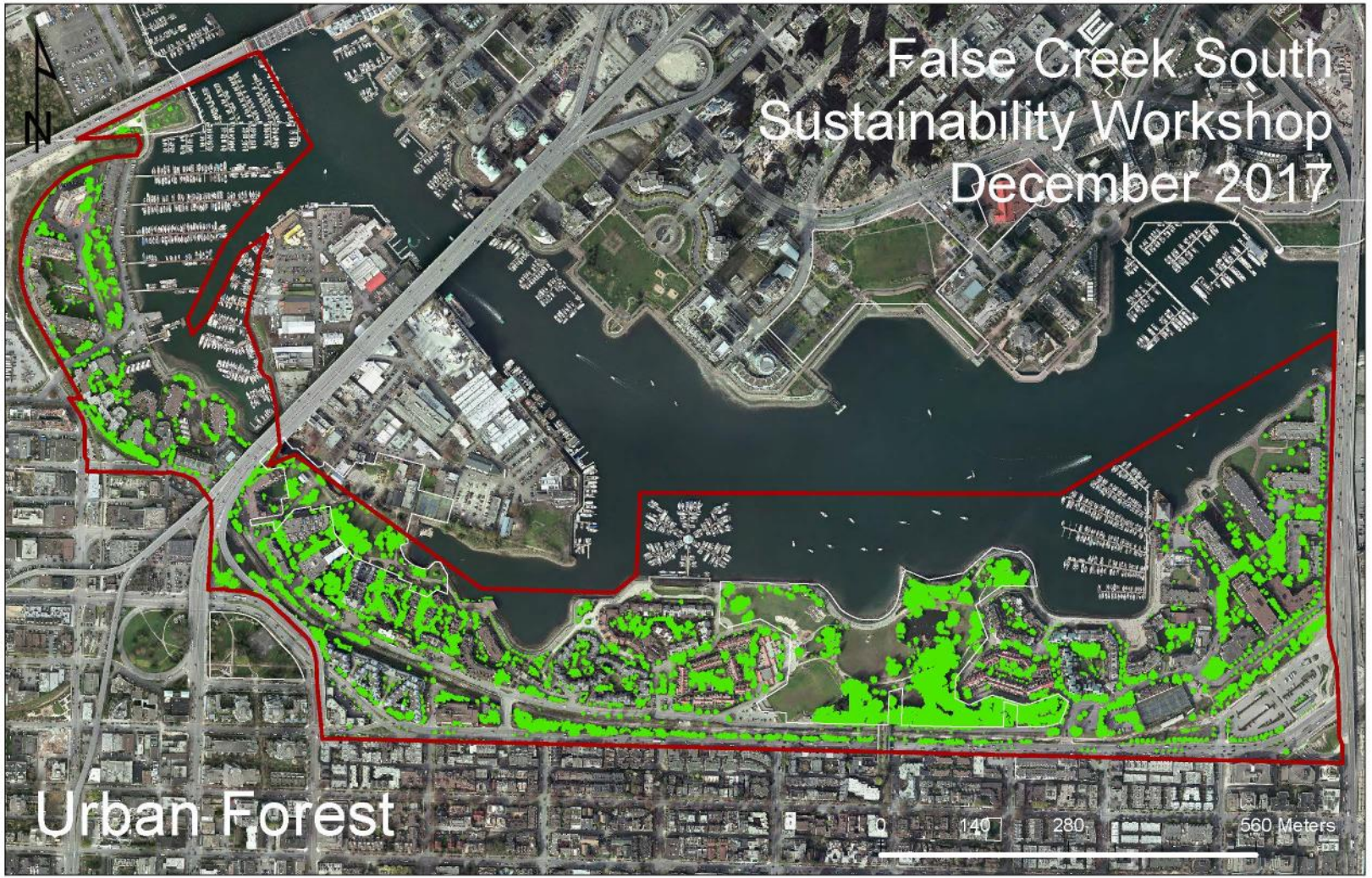

False Creek South
Sustainability Workshop
December 2017
Marine = 24 ha (30%)
Terrestrial = 55 ha (70%)
Marine & Terrestrial Areas
0
140
280
560 Meters


False Creek South
Sustainability Workshop
December 2017
- 11 m
-+13 m
Topography
0
140
280
560 Meters


False Creek South
Sustainability Workshop
December 2017
Intertidal Zone
0
140
280
560 Meters

Shoreline

- 2.9 km of shoreline
- Heavily modified and structurally simple
- Several docks and marinas
- Very little marine riparian zone
- Shoreline structure limits deposition of organic materials and fine sediment which sustain the food-web

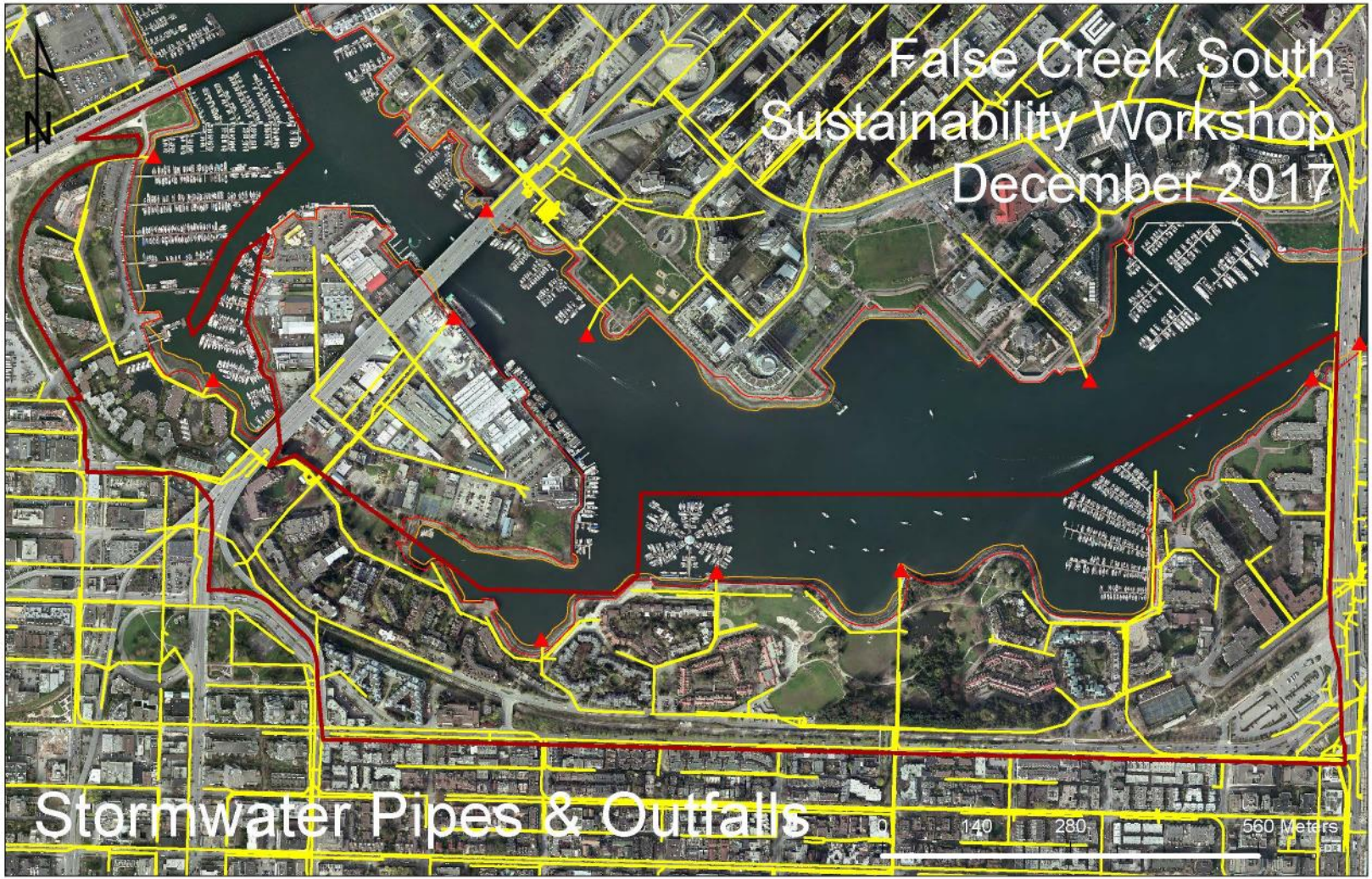

False Creek South
Sustainability Workshop
December 2017
N
Urban Forest
0
140
280
560 Meters

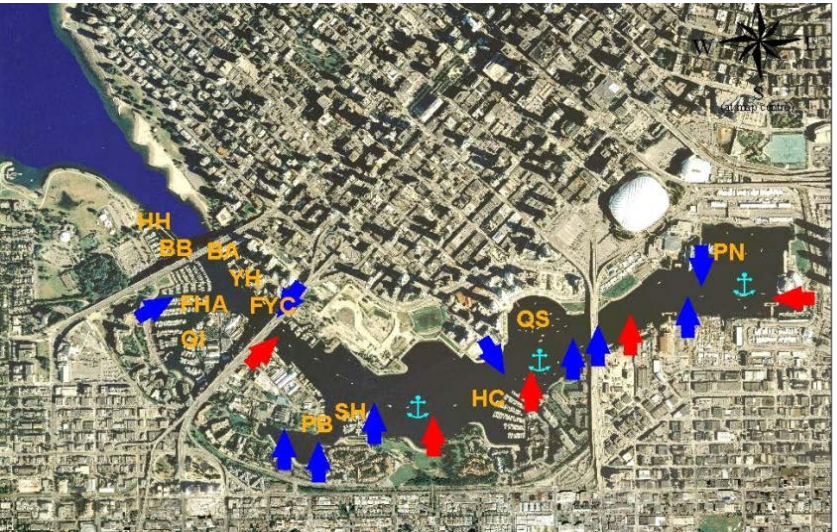

False Creek South
Sustainability Workshop
December 2017
N
Urban Forest
0
140
280
560 Meters

Urban Forest

- 10.2 ha of forest canopy (13% urban forest canopy in FCS study area compared to 19% city-wide)
- Mostly ornamental park and landscape trees around 40 years old
- Some closed canopy Douglas-fir forest in Charleson Park


False Creek South
Sustainability Workshop
December 2017
Ponds & Wetlands
140
280
560 Meters


False Creek South
Sustainability Workshop
December 2017
N
Stormwater Pipes & Outfalls
0
140
280
560 Meters



Storm Water Outfall

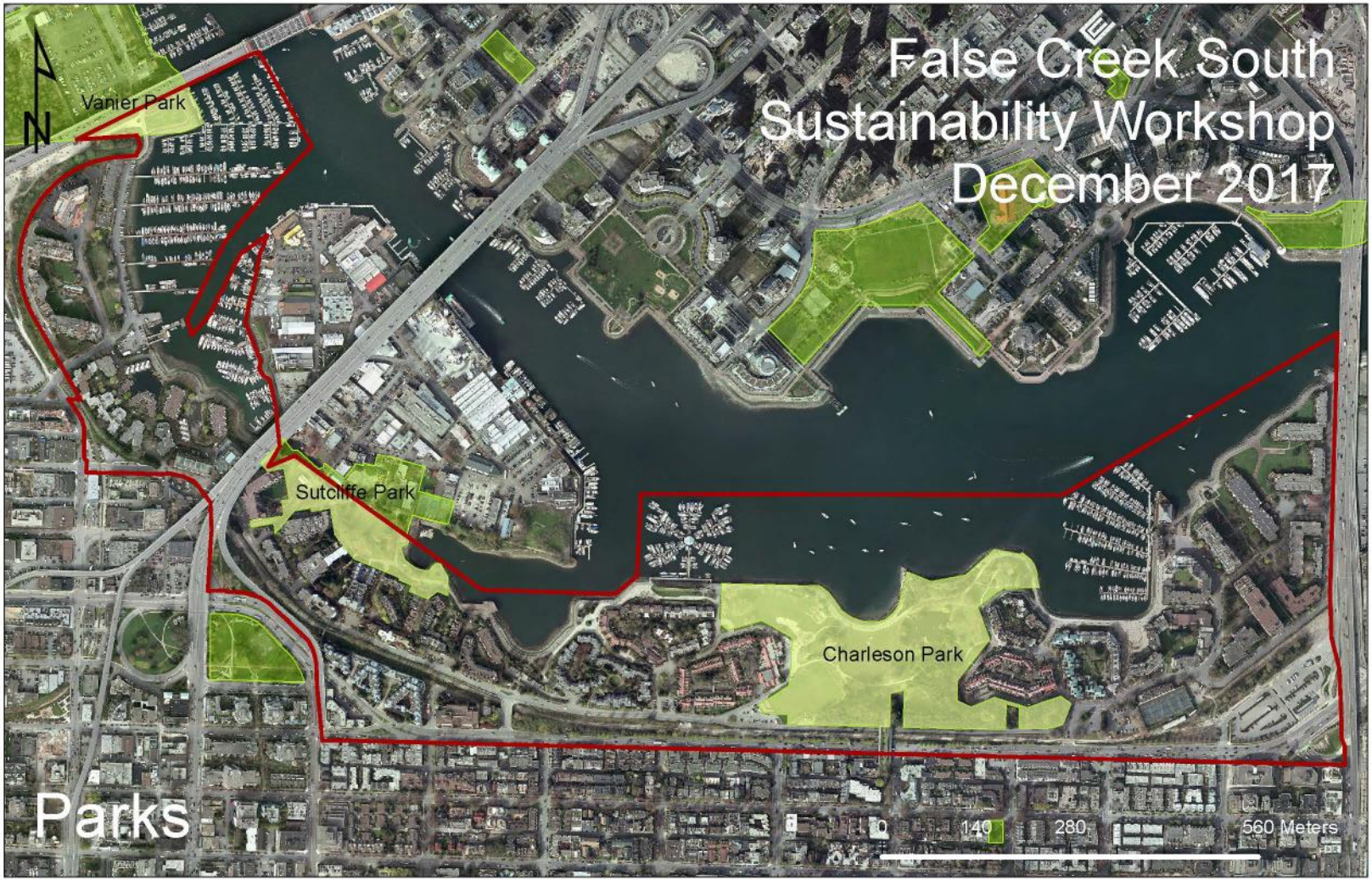
Combined Sewer Outfall

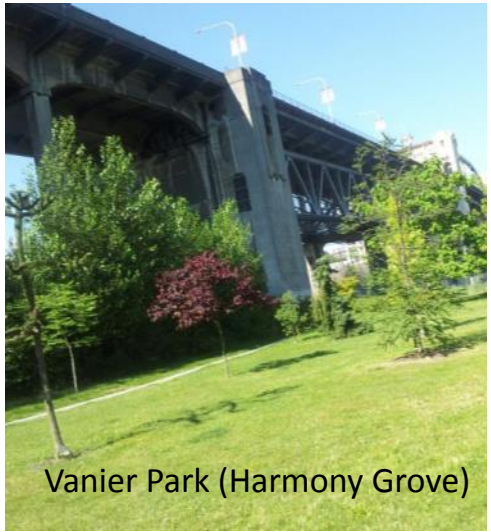
Marinas

BA - Beach Avenue
YH - Yacht Harbour
FYC - False C. Yacht
QS - Quayside
PN - Plaza of Nations
HC - Heather Civic
SH - Spruce Harbour
PB - Pelican Bay
GI - Granville Island
FHA - False C. Harb. Auth
BB - Burrard Bridge
HH - Heritage Harbour

Water

- Small number of ponds and water features which are important for aesthetics and biodiversity
- All are potable water fed (not storm or rainwater)
- Stormwater system is complex: 8 outfalls discharge to False Creek (3 CSOs)


False Creek South
Sustainability Workshop
December 2017
Vanier Park
Sutcliffe Park
Charleson Park
Parks
0
140
280
560 Meters



Parks

- Three parks: Charleson (7.4 ha), Sutcliffe (1.0 ha), and Vanier (0.4 ha)
- Total park area = 8.8 ha
- Greenways and smaller semi-private greenspaces are important but are not defined as parks


Gray whale feeding in False Creek (2010)

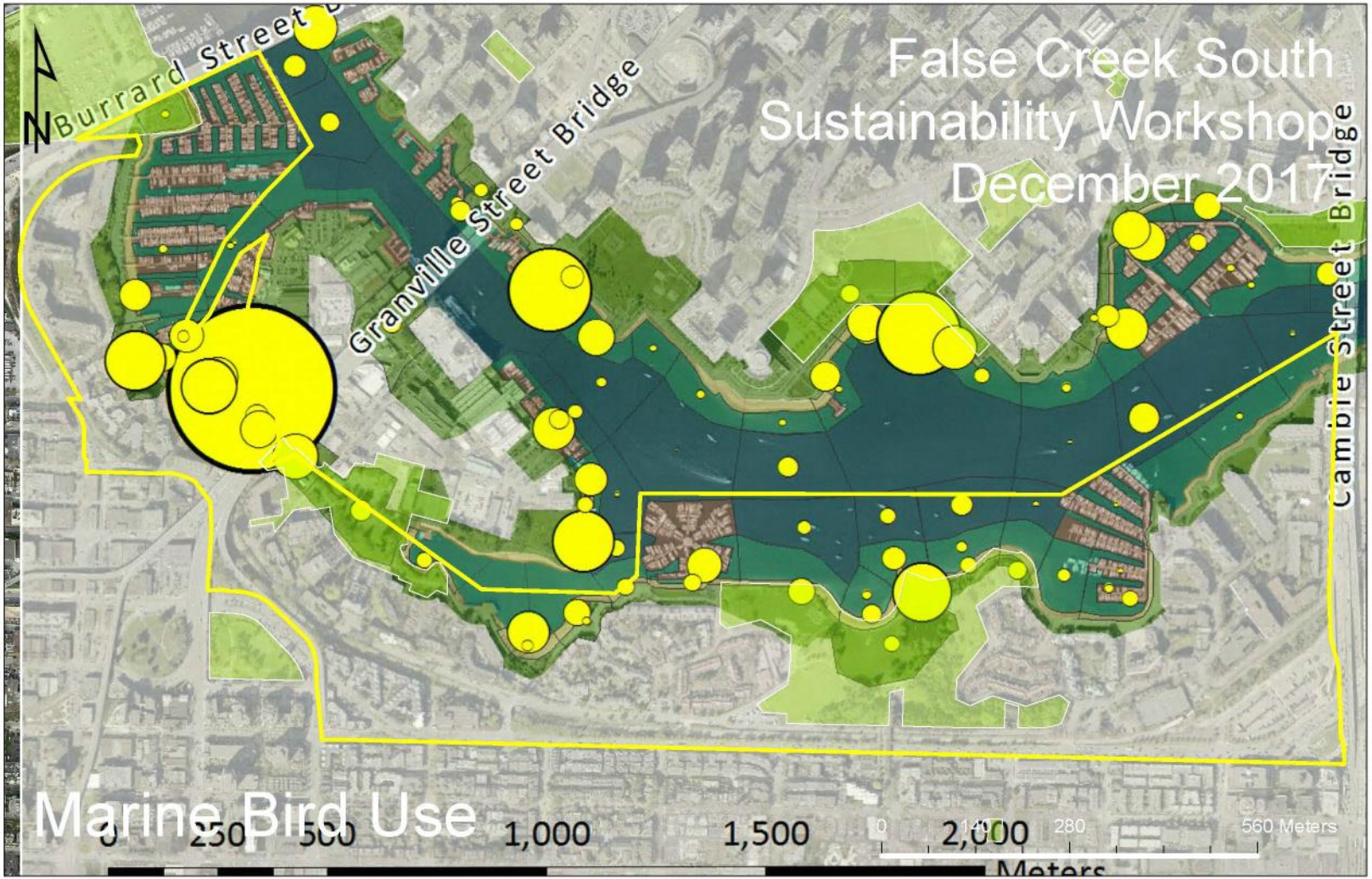

Marine Birds


Herring now spawn in shoreline areas of False Creek

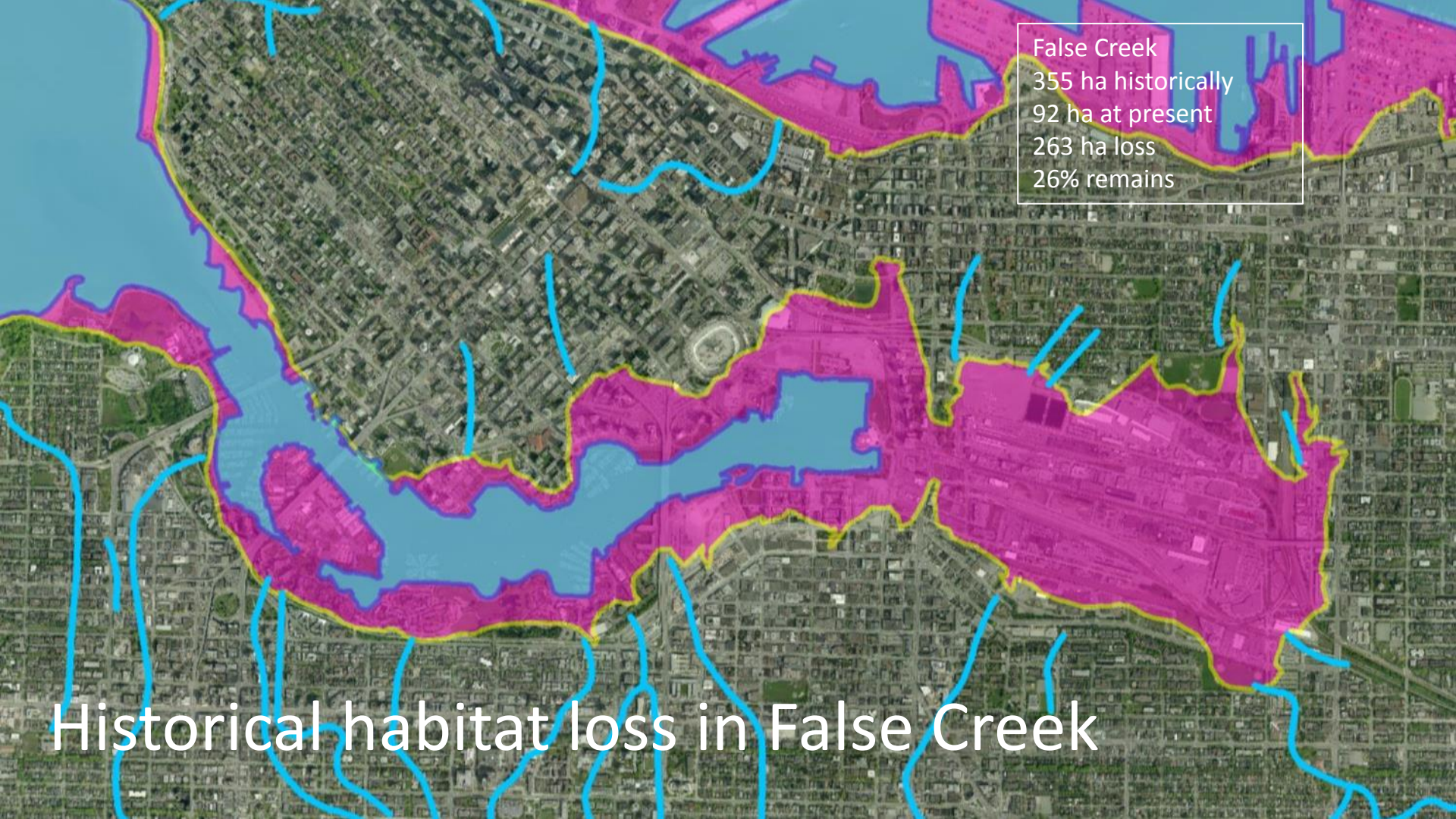

Marine Mammals

Biodiversity

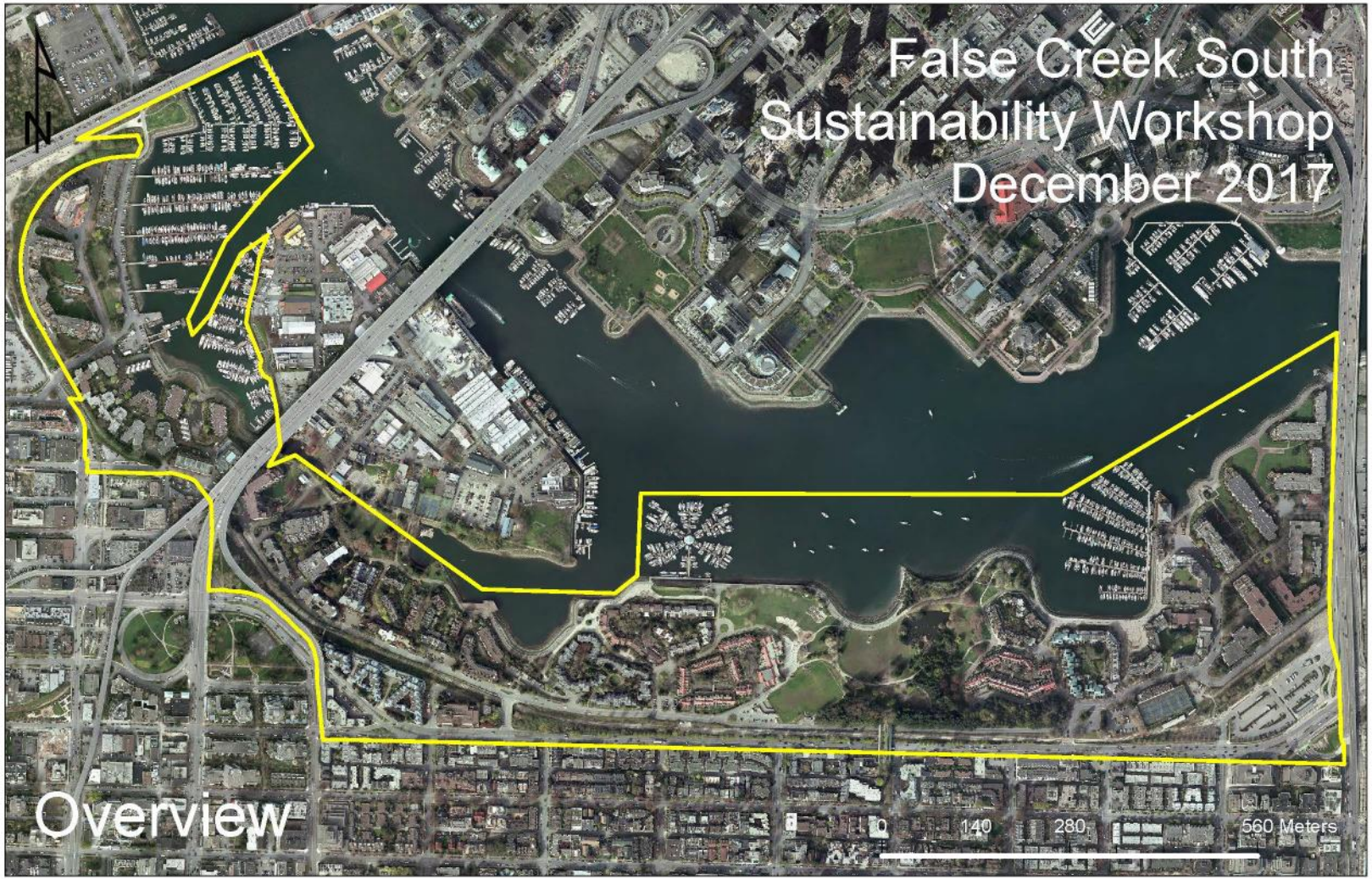
- Improving ecological health supports higher biodiversity
- Key components: intertidal communities, fish (including juvenile salmon), marine birds (ducks, geese, cormorants), marine mammals (seals, otters, occasional whales)


False Creek South
Sustainability Workshop
December 2017
Burrard Street
Granville Street Bridge
Cambie Street Bridge
N
Marine Bird Use
0
250
500
1,000
1,500
2,000
Meters
0
140
280
560 Meters


Looking way back…



Historical habitat loss in False Creek


False Creek South
Sustainability Workshop
December 2017
N
Overview
0
140
280
560 Meters

RAIN MANGEMENT

Cameron Owen

Engineering

Cameron Owen | Green Infrastructure Implementation | December 2, 2017

BUT A LOT OF THE NATURAL WATERSHEDS HAVE CHANGED…

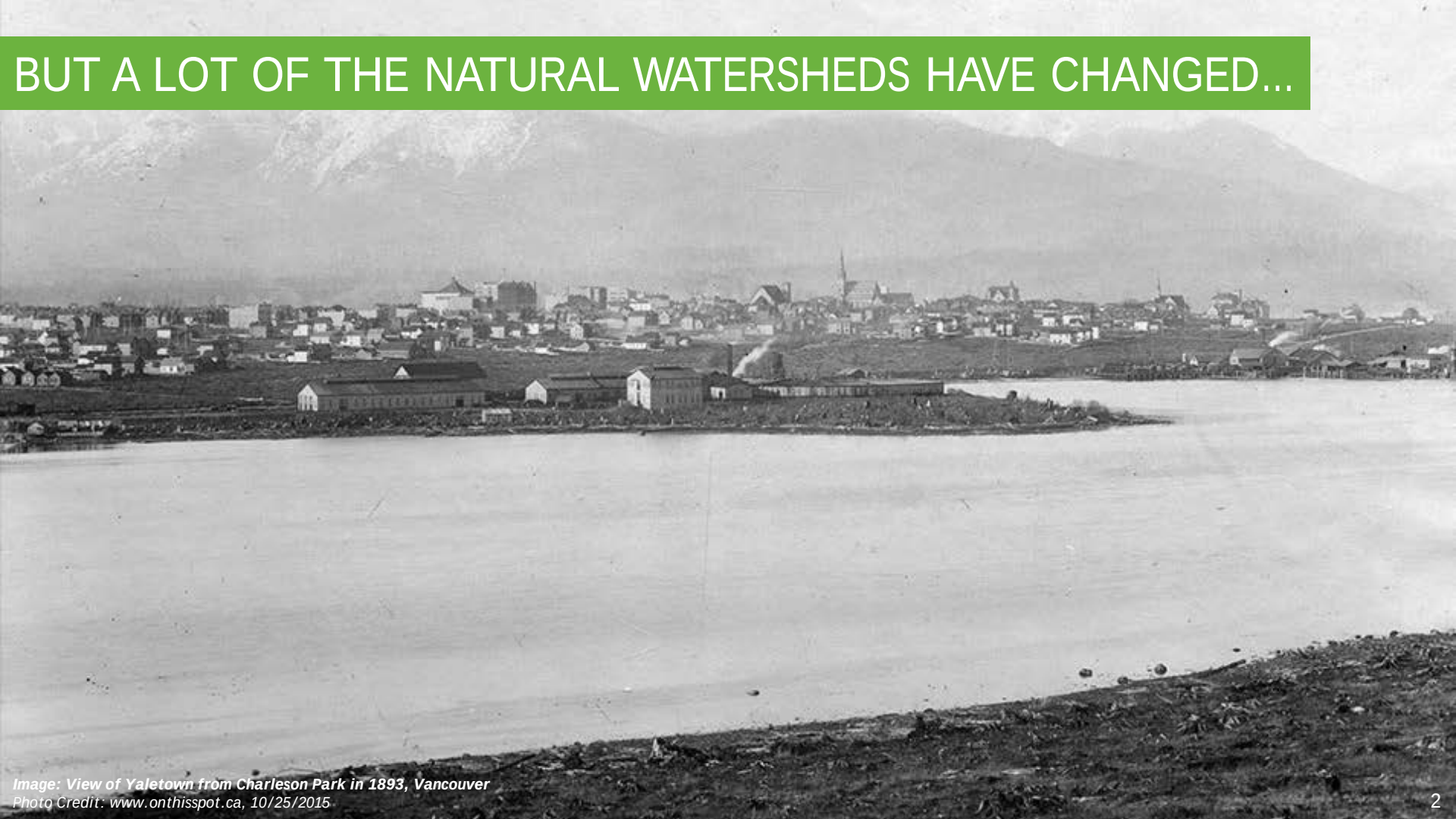
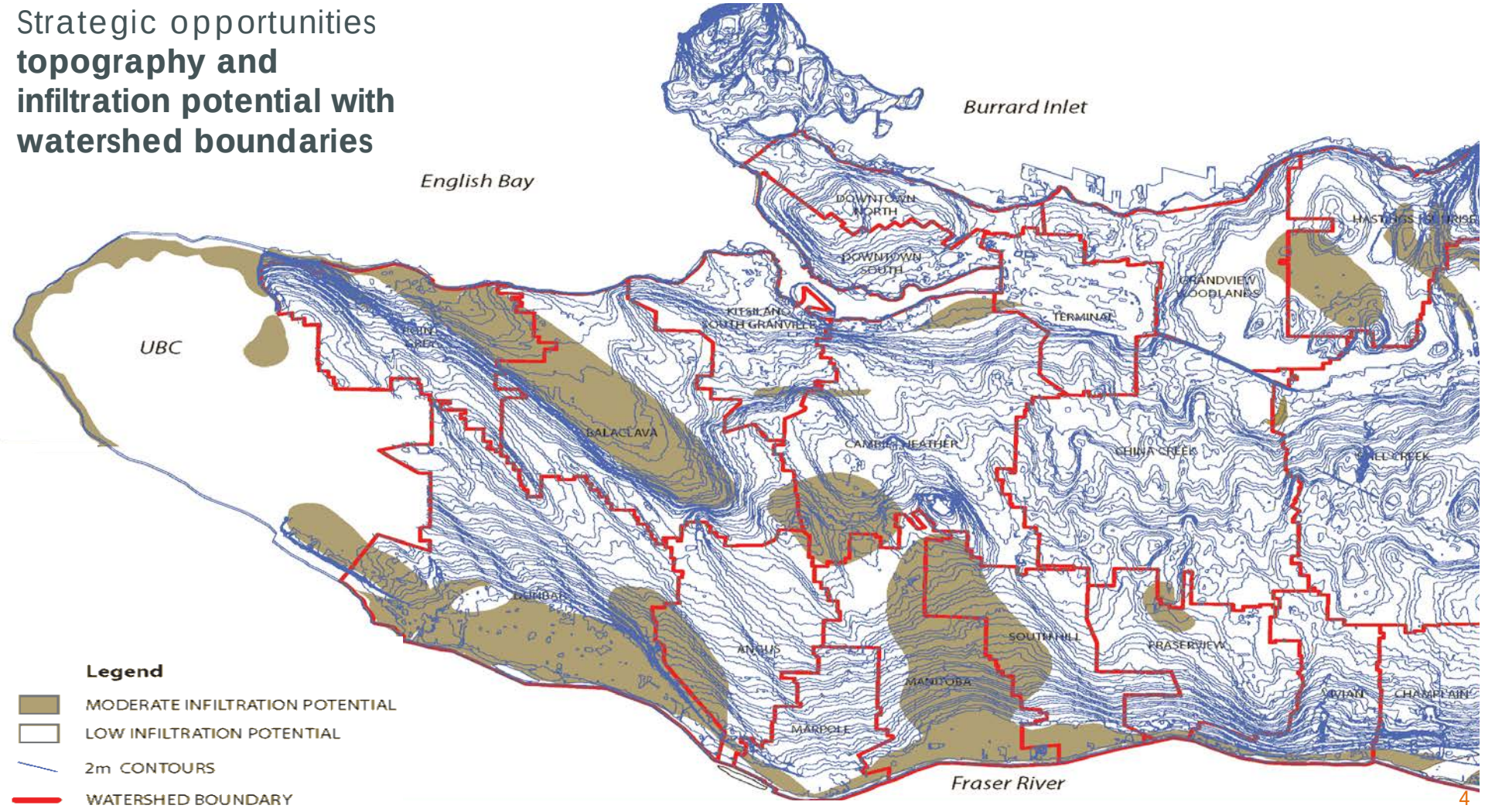


Image: View of Yaletown from Charleson Park in 1893, Vancouver
Photo Credit: www.onthisspot.ca, 10/25/2015

TO ALLOW RESIDENTS AND BUSINESSES TO PROSPER AND GROW

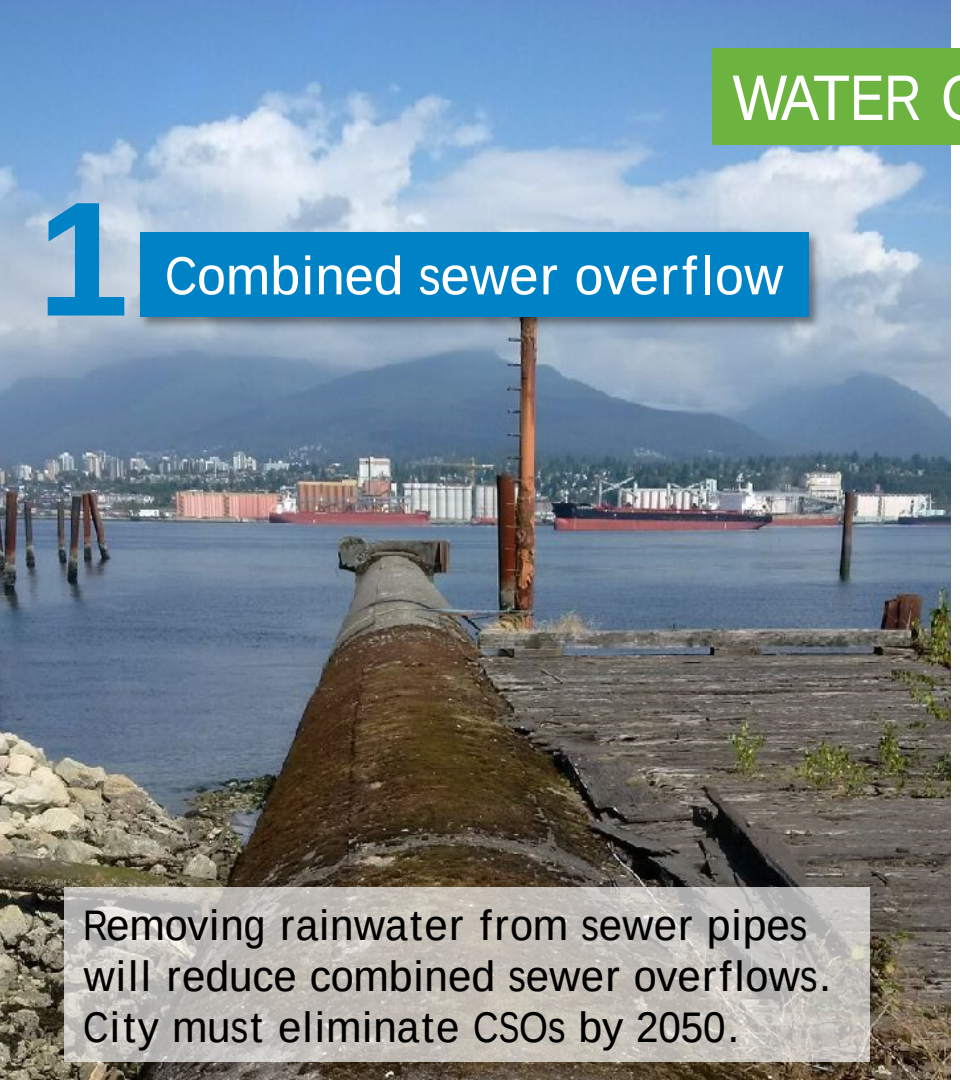
Image: View of Yaletown from Charleson Park in 2013, Vancouver
Photo Credit: Wendy de Hoog

Strategic opportunities
topography and infiltration potential with watershed boundaries



WATER QUALITY

1 Combined sewer overflow



Removing rainwater from sewer pipes will reduce combined sewer overflows. City must eliminate CSOs by 2050.

2 Urban stormwater pollution

Rainwater carries urban pollutants, such as gasoline, motor oil, heavy metals, sediments, litter, organics & fertilizer

VANCOUVER'S VISION

Project: Mid Main Park Vancouver
Photo Credit: HAPA Collaborative

VISION, GOALS & TARGET

VISION

Vancouver's rainwater is embraced as a valued resource for our communities and natural ecosystems

TARGET

Capture and clean 90% of Vancouver's rainfall on both public and private property

Coho spawners before and after filtering runoff through bioretention

Slide Source: Dr. Jennifer McIntyre, Salish Sea Conference 2016

GREY INFRASTRUCTURE

- Necessary but costly
- Less adaptable
- Single purpose
- Limited integration with other City priorities

GREEN INFRASTRUCTURE

- Cost-effective
- Adaptable
- Multi purpose
- Leverages co-benefits for other City priorities

evapotranspiration

infiltration

harvest & reuse

ENVISIONING GREEN INFRASTRUCTURE

Project: University of British Columbia, Vancouver
Photo Credit: www.ubc.ca

TOOLKIT

tree well structure

rain garden & infiltration bulge

green roof

non-porous asphalt

porous asphalt

street car

TOOLKIT

Project: Jellicoe Street, Auckland
Photo Credit: waal.co.nz

bioswale

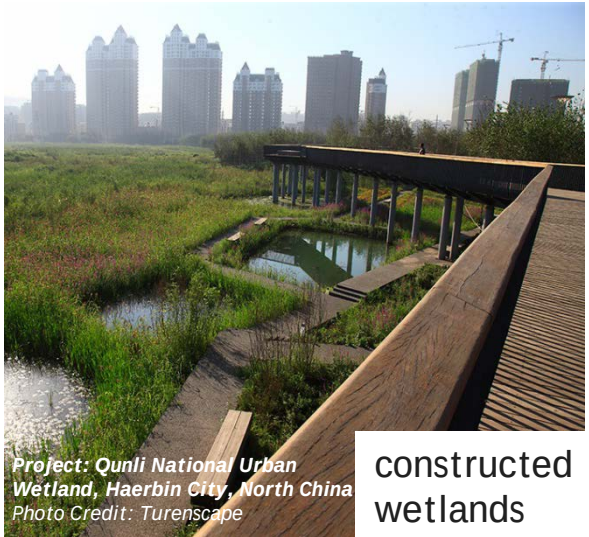
rainwater harvesting

Project: Hastings Creek, Vancouver
Photo Credit: Dan Toulgoet

daylighting streams

Project: Rochetaillée banks of the Saone, Lyon
Photo Credit: IN SITU

absorbent landscape



Project: Qunli National Urban Wetland, Haerbin City, North China
Photo Credit: Turenscape

constructed wetlands

Project: Museumppark garage, Rotterdam
Photo Credit: City of Rotterdam

detention tanks

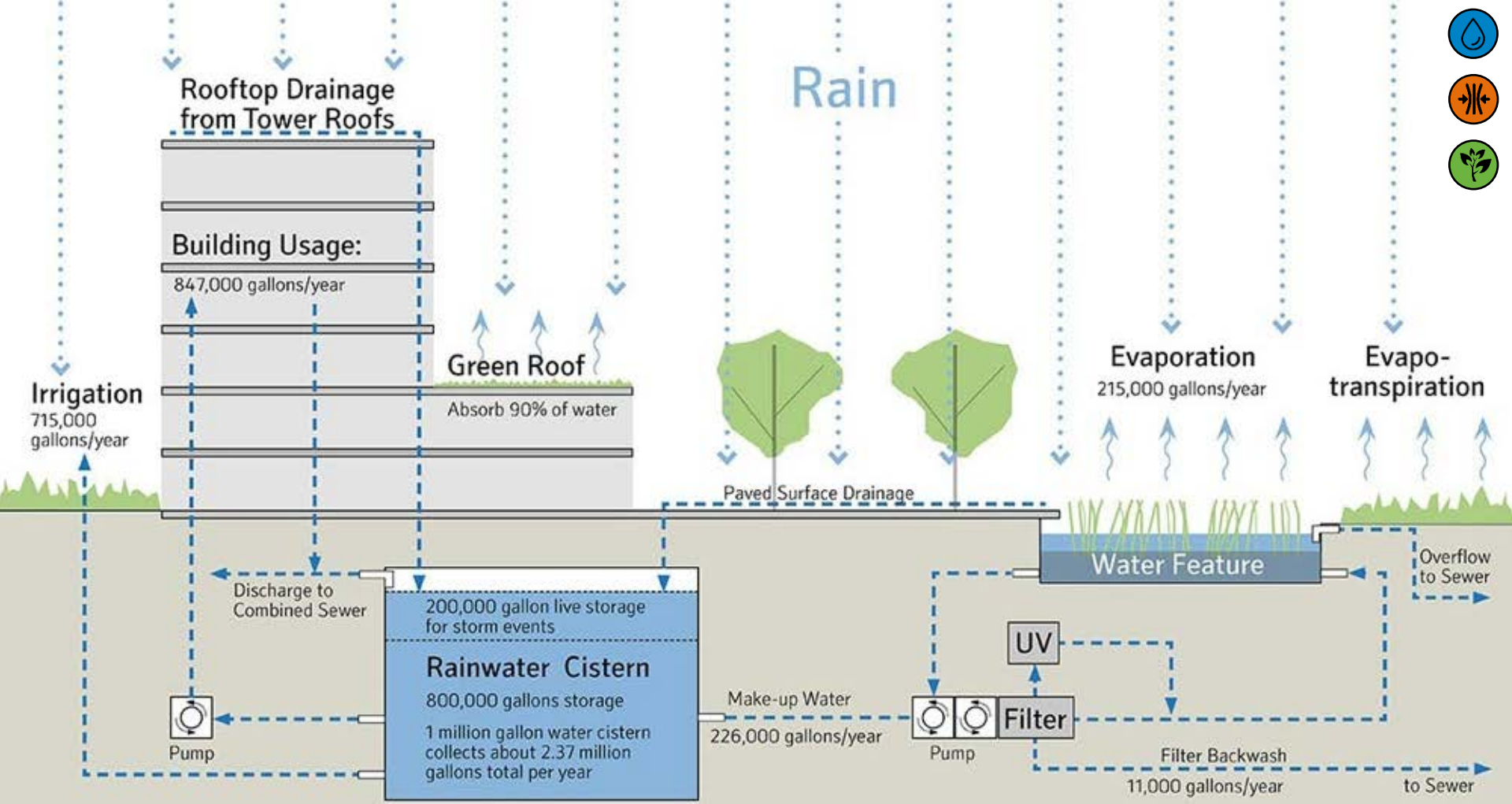
Project: Vine Street, Seattle
Photo Credit: Mike Nakamura

Project: The soul of Nørrebro, Copenhagen
Photo Credit: SLA / Beauty and the Bit

Project: The soul of Nørrebro, Copenhagen
Photo Credit: SLA / Beauty and the Bit

Project: Benthem square by De Urbanisten, Rotterdam
Photo Credit: De Urbanisten

Project: Bill & Melinda Gates Foundation Campus, Seattle
Photo Credit: Timothy Hursley



Project: Bill & Melinda Gates Foundation Campus, Seattle
Photo Credit: Gustafson Guthrie Nichol

THANK YOU!

Cameron Owen | Planning Policy Lead BCSLA CSLA MCIP RPP
RAIN CITY INITIATIVE | Green Infrastructure Implementation
City of Vancouver

Overview

1. Sustainability – what is it? - Lisa Brideau
2. Environmental City Policies - Lisa Brideau
3. Environmental Sustainability
    1. Ecological Overview of FCS - Nick Page
    2. Rainwater Management - Cameron Owen
4. Social Sustainability - Mark Pickersgill

SOCIAL SUSTAINABILITY

Mark Pickersgill

Social Planning

Overlapping Policies

Healthy City Strategy

A Social Sustainability Plan for Health & Well-Being for All

CITY OF VANCOUVER | Healthy City Strategy

Social Determinants of Health:
What Makes Canadians Healthy?

50% YOUR LIFE

- INCOME
- EARLY CHILDHOOD DEVELOPMENT
- DISABILITY
- EDUCATION
- SOCIAL EXCLUSION
- SOCIAL SAFETY NET
- GENDER
- EMPLOYMENT/WORKING CONDITIONS
- RACE
- ABORIGINAL STATUS
- SAFE AND NUTRITIOUS FOOD
- HOUSING/HOMELESSNESS
- COMMUNITY BELONGING

25% YOUR HEALTH CARE

- ACCESS TO HEALTH CARE
- HEALTH CARE SYSTEM
- WAIT TIMES

15% YOUR BIOLOGY

- BIOLOGY
- GENETICS

10% YOUR ENVIRONMENT

- AIR QUALITY
- CIVIC INFRASTRUCTURE

THESE ARE CANADA'S SOCIAL DETERMINANTS OF HEALTH #SDOH

Canadian Medical Association

Healthy City Strategy – Focus Areas

Healthy People

- Access to affordable, quality childcare
- Diverse and affordable housing choices
- Access to healthy and affordable food
- Spaces and places that encourage social connection, cultural expression and well-being (Seniors Centres, Family Places, Youth Centres, Neighbourhood Houses)

A Good Start

A Home for Everyone

Feeding Ourselves Well

Cultivating Connections

Healthy Communities

- Spaces and places that allow for creativity and personal expression
- Opportunities for learning
- Abundant opportunities to earn a living wage
- Inclusive public spaces
- Opportunities for meaningful participation in civic governance

Expressing Ourselves

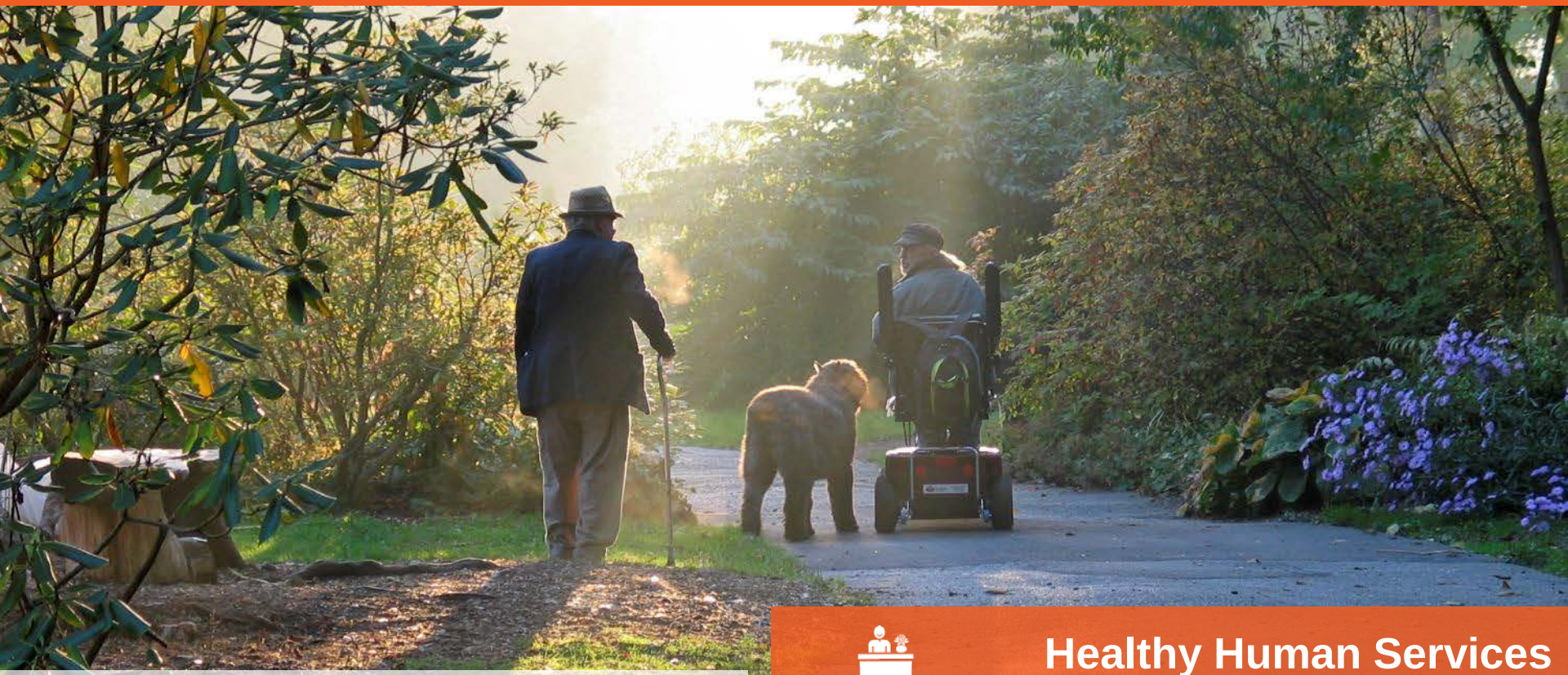
Lifelong Learning

Making Ends Meet and Working Well

Being and Feeling Safe and Included

Collaborative Leadership for a Healthy City for All

Healthy Environments



- Access to services
- Clean air and water
- Abundant sustainable and active transportation options
- Access to nature

Healthy Human Services

Environments to Thrive In

Getting Around

Active Living and Getting Outside

Looking Ahead

CITY OF VANCOUVER