Green System Planning – Day 1
SALA – Vancouver Summer Program
OUTLINE

1. Introduction
   A. Instructor Introductions
   B. Course Overview
   C. Assignments + Journal + Daily photos
   D. Class introduction exercise

2. Lecture 1 A

3. Break

4. Lecture 1 B

5. Lunch

6. Field Trip – Pacific Spirit and Jericho Beach
Jeffery Fitzpatrick

is a landscape architect and planner with a background in research, teaching and professional practice in North America and abroad. Throughout his career he has focused on the planning, design and construction of the public realm from the neighborhood to inter-regional scale. He currently works with Metro Vancouver as the Division Manger of Regional Parks, West Area. Jeff believes in the role of active transportation, accessible nature and greener infrastructure in helping to create healthy communities. He uses his experience in collaborative planning, communication, place making and project management in his work with allows him to contribute to regional ecological health and help connect people with nature.
Course 1 – Green System Planning

Professor Jeffery Fitzpatrick
June 6-8, 12-14

Course 2: Design in the Public Realm

Professor Isabel Kunigk
June 13-15, 20-22

COURSE OVERVIEW
Introduction

COURSE OVERVIEW

public space
connect green networks
ecosystem services
nature experience
COURSE OVERVIEW

Vancouver is a beautiful and sustainable city in a dramatic natural setting. What role do the natural areas in and around the city play in sustaining a metropolitan area such as Vancouver? How has this system been intentionally planned?

This course will introduce how park and conservation areas in the region clean air and water, sustain wildlife, and provide psychological and other health benefits to people. Students will learn how the parks, greenways and natural areas in the Greater Vancouver region are planned to sustain this dynamic and growing region.
Learning Objectives

• Understand how biogeography, jurisdictional authority and planning context influence the layout and design of green spaces in Metro Vancouver
• Understand the core concepts of green system and park planning
• Develop an experience-based understanding of representative greenspaces in Metro Vancouver
• Understand basic terminology and concepts of ecosystem services
• Understand how to conduct analysis of urban park spaces from an ecosystem services perspective
INTRODUCTIONS

1. NAME

2. SCHOOL OF ORIGIN

3. WHAT ARE YOU CURRENTLY STUDYING?

4. WHAT DO YOU WANT TO GET OUT OF THIS CLASS?

5. TELL ME ABOUT YOUR FAVORITE PARK, NATURAL AREA OR PUBLIC SPACE?
Lecture 1A – Regional Context: Flood Plain + Coast + River + Mountains
- Context
- Ecology + geography
- Iconic Landscape Elements
- Regional Growth + Development

- break -

Lecture 1B – Parks of the Region – Role + Mandate + Characteristics + Connections
- Park Providers
- Greenways
- Why it matters
- Trends – responding to challenges
1- Regional Context:
Flood Plain + Coast + River + Mountains

Landscapes and Parks of Greater Vancouver
June 3
Geography

MOUNTAINS + OCEAN + RIVER + FLOODPLAIN

North Shore Mountains
Fjords
Wetlands
Cascade Mountains
Beaches
Urban
Fraser River
Bog
Farming
Pacific Ocean
Fraser River Delta
Metro Vancouver

- A Federation of 23 municipalities, 1 First Nation
- 2877 square kilometers
- 2.4 million residents
Stanley Park Totem Poles

Musqueam First Nation Representatives
- Canada's tallest trees, the
- Warmest, wettest part of Canada
- Long, deep fiords
- Rugged mountains
- Glaciers
- Incredibly productive forest
- River Deltas
Ecology

PACIFIC MARINE ECOSYSTEM

Cathedral Grove, Vancouver Island

Joffre Lakes Provincial Park
Ecology

PACIFIC MARINE ECOSYSTEM

VEGETATION
- Western Red Cedar
- Yellow Cedar
- Hemlock
- Douglas fir
- Hemlock
- Sitka spruce
- Alder
- Big Leaf Maple
- Dogwood
- Ferns
- Salal

WILDLIFE
- Black Bear
- Grizzly Bear
- Mountain Lion
- Resident and transient birds
- Seals
- Dolphin
- Whales (resident and transient)
- Salmon
ICONIC LANDSCAPES OF METRO VANCOUVER
(Iconic) Landscapes of Vancouver

- North Shore Mountains
- Fraser River
- Beaches
- West Coast Temperate Rain Forest
- Bog
(Iconic) Landscapes of Vancouver
NORTH SHORE MOUNTAINS
Wilderness ‘at your doorstep’
100s km of hiking trails
World class hiking
Metro Vancouver's water supply
Protected as park/watershed
3 ski resorts
Landscapes of Vancouver

North Shore Mountains
• Defining public space in Vancouver
• Urban/suburban + River/oceans
(Iconic) Landscapes of Vancouver

UBC

BEACHES
(Iconic) Landscapes of Vancouver

BEACHES

Stanley Park, Vancouver

Jericho Beach, Vancouver
WEST COAST FOREST – TEMPERATE RAINFOREST

- Old growth / Second growth
- Highly productive
- Coniferous Forest
• 1375 km long
• Basin drains a 1/3 of BC and is home to 2.4 million people
• First Nations have lived, travelled and traded along the river for thousands of years
• Designated a Canadian Heritage River to honor its rich cultural and natural history
• Economic activity within the basin accounts for 80% of provincial, 10% of national GDP
• Largest salmon producing river along the Pacific Coast and is one of three rivers in BC in which white sturgeon spawn
• Great diversity of parks opportunities (local, regional, provincial and national)
Fraser River, looking west along Matsqui Trail Regional Park to Sumas Mountain
(Iconic) Landscapes of Vancouver

WETLANDS

Burns Bog
ACCESSIBLE WILDERNESS
PLANNING + LANDUSE
• Regional Growth Strategy
• Land Use
• Livability
• Growth
• 3.4 million residents by 2040
• 35,000 new people a year
• Over 50% of provincial population
• Growth Driven by immigration
Competing, legitimate, land uses on a constrained land base…..

….by 2040 all development will happen by redevelopment
• Metro Vancouver – 80% densification
• Toronto – 50% densification
• Calgary – 25% densification
- Culturally diverse
- Decreasing family size
- Smaller homes
TRANSPORTATION Planning + Landuse

The chart illustrates the transportation methods used from 2013 to 2015. The data is sourced from 2013-2015 Panel Surveys, excluding recreational trips.

From 2013 to 2015:
- **Motor Vehicle** usage has consistently been the highest, ranging from 53% to 51%.
- **Transit** usage has remained relatively steady at around 18% in all years.
- **Walking** has seen a slight increase from 4% to 7%.
- **Cycling** has increased from 26% to 27%.

The chart shows a slight decrease in motor vehicle usage from 2013 to 2014, followed by a small increase in 2015.
Regional Growth Strategy

PLANNING FOR A GROWING REGION

Create a Compact Urban Area

Support a Sustainable Economy

Protect the Environment and Respond to Climate Change

Create Complete Communities

Support Sustainable Transportation
Regional Growth Strategy

URBAN CONTAINMENT BOUNDARY
CREATING COMPLETE COMMUNITIES

Regional Growth Strategy
Regional Growth Strategy

AGRICULTURAL LANDS
• Climate change
• Sea level rise
• Earthquake

Predicted sea level rise, 1950-2100

- 0.5m
- 1.0m
- Warmer temperatures
- A decrease in snowpack
- Hotter summers
- More (extreme) precipitation in fall, winter, and spring
- More intense extreme events
1 in 3 chance of magnitude 9 earthquake in the next 50 years
WHAT WE LEARNED

- Vibrant and growing region
- World class landscapes, parks and conservation areas and recreational opportunities
- 2.4 million population, with 1,000,000 more people over 20 years
- Growing up, not out (densification)
- More density, more transit, less cars
- More people, limited land
- The unkNowns
WHAT WE LEARNED
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• More density, more transit, less cars
• More people, limited land
• The unknowns

WHAT IT MEANS FOR PARKS AND GREENSPACE
• More people in parks
• People are using parks differently
• Need for more parks
• Need for higher quality park and open space
• Increased pressure on parks and greenspace
• Need for nature close to home
• Need for a diversity of parks (wild to urban)
• Need for Ecological services (clean air, food, recreation, water, etc.)
• Need for More resilient parks and greenways
2 – Parks of the Region:
Role + Mandate + Characteristics + Connections

Landscapes and Parks of Greater Vancouver
June 3
1. Made up of a large number of entities, components or parts
2. Contain a dense web of casual connections among components
3. Exhibit interdependence among components
4. Are not self-contained
5. Have a high degree of synergy among components – the whole is more than the sum of the parts
6. Are non-linear

Erickson – 10
<table>
<thead>
<tr>
<th>Park Type</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Municipal parks</strong></td>
<td>provide facilities and opportunities for sports, leisure activities and cultural programs.</td>
</tr>
<tr>
<td>(24 municipalities)</td>
<td></td>
</tr>
<tr>
<td><strong>Regional parks</strong></td>
<td>protect a system of natural and significant landscapes and provide opportunities for outdoor recreation, nature study and stewardship.</td>
</tr>
<tr>
<td>(1 regional district)</td>
<td></td>
</tr>
<tr>
<td><strong>Provincial/National Parks</strong></td>
<td>protect nationally and internationally significant natural and cultural features and provide access to outdoor experiences.</td>
</tr>
<tr>
<td>(1 province / 1 Nation)</td>
<td></td>
</tr>
<tr>
<td>Park Type</td>
<td>Typical Features and Characteristics</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Municipal parks** | • Tot lots / sports fields / playgrounds  
                         • Community centers and pools  
                         • Community programming  
                         • Serves a neighborhood / several neighborhoods / municipality                           |
| **Regional parks**     | • Nature focused facilities (trails, picnic areas)  
                           • Landscapes and features of regional interest  
                           • Nature based programming and resource management  
                           • Serves a regional population                                                                |
| **Provincial parks**    | • Backcountry access / trails / camping  
                           • Conservation focused – include wilderness/remote areas  
                           • Includes landscapes of nation and international significance  
                           • Serves a provincial / national population                                                  |
CASE STUDY – HINGE PARK (CITY OF VANCOUVER)

Hinge Park
CASE STUDY – HINGE PARK (CITY OF VANCOUVER)

**Size:** 1 hectare

**Elements:** playground, dog off leash area, lawn areas, storm water management habitat ponds

**Character:** post industrial urban park along the seawall
CASE STUDY – PACIFIC SPIRIT REGIONAL PARK

Pacific Spirit Regional Park
CASE STUDY – PACIFIC SPIRIT REGIONAL PARK

Size: 870 hectare

Elements: large forested area, bog, gravel hiking trails, natural beaches

Character: natural, forested
CASE STUDY – PACIFIC SPIRIT REGIONAL PARK

Pacific Spirit Regional Park
CASE STUDY – GOLDEN EARS PROVINCIAL PARK

Size: 60 900 hectare

Elements: mountains, lakes, streams, hiking trails, camping

Character: Large natural area, wilderness
GREENWAYS OF THE REGION
A CONNECTED NETWORK

Map 9: Regional Recreation Greenway Network

Note: As stated in Section 6.13.2, this map is included in the Regional Growth Strategy as reference only.

The Metro Vancouver Regional Recreation Greenway Network map illustrates existing, planned and desired connections of regional significance. The map is conceptual and is not a regional land use designation. Although primarily intended for recreational use, greenways are multi-functional, generally connected at a landscape level and offer ancillary ecological benefits by linking Conservation and Recreation areas, protecting natural areas along the corridors, and improving resilience. They provide locations for recreational activities, and cycling and walking routes. Because of the variety of uses and intents, these greenways often vary in funding, development and ownership and management arrangements. The Regional Recreational Greenway Network is a conceptual network, and greenway alignments are determined collaboratively with municipalities and other agencies.
The Metro Vancouver Regional Recreation Greenway Network map illustrates existing, planned, and desired connections of regional significance. The map is conceptual and is not a regional land use designation. Although primarily intended for recreation, greenways are multi-functional, pathways connected at a landscape level and offer ancillary ecological benefits by linking Conservation and Recreation areas, protecting natural areas along the corridors, and improving resiliency. They provide destinations for recreational activities, and cycling and walking routes. Because of the variety of uses and interests, greenways often vary in design and ownership and management arrangements. The Regional Recreation Greenway Network is a conceptual network, and greenway alignments are determined collaboratively with municipalities and other agencies.
“a linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridgeline, or overland along a railroad right-of-way converted to recreational use, a canal, scenic road or other route. It is a natural or landscaped course for pedestrian or bicycle passage; an open-space connector linking parks, nature reserves, cultural features, or historic sites with each other and with populated areas”

-Charles Little, Greenways for America (1990)
1. Benefits are maximize working at large special scales
2. Continuous corridors are better than fragmented ones
3. Wider corridors are better than narrow ones
4. Structurally diverse corridors are better than those with simple structures
5. Two or more corridor connections between patches are better than one
6. Natural connectivity should be maintained or restored

Erickson - 23
<table>
<thead>
<tr>
<th>Greenway Type</th>
<th>Typical Features and Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Greenways</td>
<td>• Urban</td>
</tr>
<tr>
<td></td>
<td>• Within 1 municipality</td>
</tr>
<tr>
<td></td>
<td>• Often paved, sometimes ‘on road’</td>
</tr>
<tr>
<td>Regional Greenway</td>
<td>• More natural</td>
</tr>
<tr>
<td></td>
<td>• Longer</td>
</tr>
<tr>
<td></td>
<td>• Between two municipalities</td>
</tr>
</tbody>
</table>
MUNICIPAL GREENWAYS – CITY OF VANCOUVER

- Bikeways and greenways overlap
- Greenways connect neighborhoods, parks, people, destinations
- Bicycle and pedestrian use
- Include landscaped areas, public art, drinking fountains
MUNICIPAL GREENWAYS

Stanley Park Seawall (Seaside Greenway)

Seaside Greenway
• 300km + network of trail
• Extends through 20+ municipalities
• Is associated with a major ecological feature
Connecting this....

REGIONAL GREENWAY – EXPERIENCE THE FRASER

...to this
REGIONAL GREENWAY – EXPERIENCE THE FRASER
VALUE.

Why parks and greenspace matter now more than ever
“Metro Vancouver natural landscapes which provide $5.6 billion of ecosystem services every year”

-David Suzuki Foundation-
• Clean air
• Water
• Climate regulation
• Flood protection
• Waste treatment
• Food
• Pollination
• Recreation
• Health and wellness (emotional and physical)
• Stormwater management
• Fertile soil
• Play

Ecosystem Services
“Children who experience high levels of contact with nature are reported to have higher levels of self-worth and higher cognitive function.”

N. Wells (2000)
(bio = life; philia = love).
• Access and proximity to safe high quality parks results in **increased physical activity levels and improved health outcomes, including mental health.**

• People living near more green space reported **less mental distress**, even after adjusting for income, education, and employment.

• Those who can see trees and grass have been shown to **recover faster** in hospitals, **perform better in school**, and even display **less violent** behavior in neighborhoods where it’s common.

• Parks foster **social connections** that are vital to community cohesion and contribute to social wellbeing.

• Time in nature **reduces stress hormones, heart rate and blood pressure**.

• Contact with nature through parks can enhance **spiritual health** (meaning in life) which underpins all other aspects of health.

• For children, accessible and safe parks foster active play, which is associated with **physical, cognitive and social benefits**.

• For adolescents, parks improve **mental and social health** during what is often a tumultuous time of life.

• Park use is linked to **physical and psychological health benefits** among adults, especially older adults.

- *Healthy Parks Health People, State of the Evidence (2015)*
Conclusion

HEALTHY PARKS HEALTHY PEOPLE

Your brain on Nature
LOOKING AHEAD

Building resilience for the future
Resilience

re·sil·i·ence
rəˈzilyəns/
noun

1. the capacity to recover quickly from difficulties; toughness.

2. an ability to recover from or adjust easily to misfortune or change.
Building Resilience – *core questions*

1. How do you ensure residents *value and connect with nature* in a rapidly growing region?

2. How do you *protect ecological integrity* of natural areas in a rapidly growing region?

3. How do you *preserve a meaningful and authentic nature experience* in a rapidly growing region?
• Build New Parks
• Make it easier to access parks
• Improve the ecology of existing parks
• Engage people in the parks
• Protect existing parks/natural areas
• Repurpose old infrastructure
• Consider ‘flexible’ landscapes
Existing

Future

BUILDING RESILIENCE
BUILDING RESILIENCE

Existing

Future
Coal infrastructure

Transportation infrastructure

Petroleum infrastructure

Landfill
Towards 2067

Repurposed Waste Infrastructure
Towards 2067

- 320 ha
- Metro Vancouver Zero Waste Goal
- Will close in 2037
- Located next to Burns Bog
- Serves 1.1 million residents
- 500,000 tonnes of waste a year
Towards 2067

Repurposed Carbon Infrastructure
Towards 2067

- 80 ha
- Coal – carbon
- Roberts Bank – salmon, orca and migratory bird habitat
QUESTIONS?