UBC School of Architecture and Landscape Architecture

UBC Vancouver Summer Program
Landscapes of Vancouver

GREEN NETWORKS
&
SUSTAINABLE URBANISM

Cynthia Girling, Landscape Architecture
OUTLINE

1. Principles of sustainable urbanism
2. Terminology
3. Sustainable urbanism in Vancouver

Four Case Studies:
4. Wesbrook Place at UBC
5. Southeast False Creek neighbourhood
6. UniverCity at SFU
7. East Fraser Lands neighbourhood
PROBLEM: URBAN LIFESTYLES
Douglas Farr SUSTAINABLE URBANISM

The American (and Canadian) Dream > single family detached house > sprawl

Love affair with the automobile > huge GHG outputs

An indoor, mechanically supported lifestyle > nature deficit

Consumer society > acquisition of more and more stuff > larger houses, more waste

→ CLIMATE CHANGE
→ UNSUSTAINABLE ECOLOGICAL FOOTPRINT/ CAPITA
→ OBESITY- A HUMAN HEALTH CRISIS
→ WATER DEPLETION AND POLLUTION
→ MOUNTAINS OF WASTE
SUSTAINABLE URBANISM (Douglas Farr)

“... an integration of walkable, transit-served urbanism with high performance buildings and high performance infrastructure.”

Compact communities

Complete communities

CORE ATTRIBUTES of SUSTAINABLE URBANISM

Connected communities

Biophilia (access to nature)

+ 

High performance buildings

High performance (green) infrastructure
COMPACT COMMUNITIES
mixed uses and densities- to support good transit and commercial services

ARIZONA SPRAWL
(below 35 people/hectare)
(Tim Roberts Photography Shutterstock)

X NOT THIS

OLYMPIC VILLAGE, VANCOUVER BC

✓ THIS
COMPLETE COMMUNITIES
jobs, services, schools, parks close to people’s homes

X NOT THIS

✓ THIS
CONNECTED COMMUNITIES
street networks that prioritize transit, biking and walking over vehicles

X NOT THIS

✓ THIS
ACCESS TO NATURE
a short walk from home to urban greenspace

Smith Park at Wesbrook Place

Habitat Island at South East False Cr

Trail at UniverCity

Boardwalk at East Fraser Lands
THEMES:
compact, complete & diverse neighborhoods
connectivity & accessibility for people
reconnect the city’s ecological structure
“working” urban forests/ green infrastructure
water health & balance
Green Networks
ecological systems informs urban form understanding networks across scales

Green & Gray Networks
negotiated networks multiple functions

Gray Fabric
compact and diverse neighborhoods

Urban Water
treatment trains OR follow the water amplifying green, cleaning blue

Green Fabric
urban forest as green infrastructure defining neighborhood space

STAPLETON, CO
HERITAGE PK, MN
VOCABULARY

GREEN  serving primarily ecological functions

GRAY   serving primarily urban functions

NETWORK spatial corridors and systems

FABRIC  residual spaces ‘within’ networks

Villebois, Wilsonville, OR 2003
20 cases by % Public Open Space

1995
Civano
Tucson, AZ

1996
Orenco Station
Hillsboro, OR

1997
Garrison Woods
Calgary, AB

2002
East Clayton
Surrey, BC

2002
Heritage Park
Minneapolis, MN

1995
Civano
Tucson, AZ

1990
NW Landing
DuPont, WA

2001
Royal Node
Eugene, OR

2003
Fairview
Salem, OR

1975
Village Homes
Davis, CA

2003
Villebois
Wilsonville, OR

1996
Cornell
Markham, ON

1998
Beaches
Toronto, ON

2000
Auguston
Abbotsford, BC

1996
Playa Vista
Los Angeles, CA

2000
Lowry AFB
Denver, CO

1996
Stapleton
Denver, CO

1998
Coffee Creek
Chesterton, IN

2003
SE False Creek
Vancouver, BC

1998
Prairie Crossing
Grayslake, IL
4 GOALS

1. Protect the Green Zone

Protect the agricultural land reserve

Protect the watershed & ecosystem resources
2. Compact Metropolitan Region
   Growth centers
   Significant infill development
   Attached and stacked forms of housing

3. Complete communities
   Jobs, services, recreation close to residences

4. Transportation choices
   Expanding and improving transit
   Improving bicycle networks
   Emphasizing walkable neighborhoods
VANCOUVER’S RESPONSE: GREENEST CITY

Vancouver 2020:
A Bright Green Future
AKA Greenest City action plan

Make Vancouver the greenest city in the world by 2020
### VANCOUVER’S RESPONSE: GREENEST CITY

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<td><strong>GREENER COMMUNITIES</strong></td>
<td><strong>HUMAN HEALTH</strong></td>
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<td>World-wide mecca of green jobs</td>
<td><strong>Green mobility</strong>: walking, cycling and public transit</td>
<td><strong>Clean water</strong>: beat WHO standards and reduce consumption</td>
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<td>Eliminate dependence on fossil fuels</td>
<td>Zero waste</td>
<td><strong>Clean air</strong>: beat WHO guidelines</td>
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<td>World leadership in green building design &amp; construction</td>
<td><strong>Easy access to nature</strong></td>
<td><strong>Local food</strong>: global leader in urban food systems</td>
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<td>Achieve a one-planet eco-footprint</td>
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VANCOUVER
CASE STUDIES:

Wesbrook Place, UBC
Southeast False Creek
UniverCity, SFU
East Fraser Lands
EACH CASE STUDY:
Compact community
Complete community
Connected community
Green networks/Green space
Green infrastructure
WESBROOK PLACE
University of British Columbia
WESBROOK PLACE
An urban village in the woods

Plan completed in 2005
First residents moved in 2008

NOTABLE FOR:
A compact, pedestrian-oriented community

Adds full time residents to a commuter campus

50% of residents study or work at UBC

Green network-off-street pedestrian paths habitat connections

Requires green buildings
COMPACT COMMUNITY

SITE: 55.6 ha
6225 units at build-out
12,500 people

at completion:
225 people/hectare

EMPLOYMENT

Primarily at UBC
~ 14,000 faculty and staff
> 50,000 students
COMPLETE COMMUNITY

SERVICES
Grocery store/pharmacy
Liquor store
Bank
Dentist, eyecare
Healthcare
Restaurant/pub
7 food services (deli, coffee, fast food)
8 other services
COMPLETE COMMUNITY

COMMUNITY CENTRE

SCHOOLS
1 High school
Future elementary school on site

DAYCARE
75 daycare spaces on site
~ 750 daycare spaces on UBC campus

Top: Community Centre
Image by Robert Stefanowicz
Bottom: Playground in Smith Park
CONNECTED COMMUNITY

Fine-grained network
Walkable streets
Separated greenway network
GREEN NETWORKS

Regionally important habitat areas

UBC South Campus
Green spaces and networks
GREEN SPACE AND GREEN NETWORKS

15 hectares of parks, open spaces
1.2 ha/ 1000 people

4 parks
4 playgrounds
Playing fields

100% within 5 minute walk of green space
HABITAT/TREE PROTECTION

2003- the site before development

WESBROOK PLACE
4.6 ha or 10% of site are protected forest buffers
HABITAT CONNECTIVITY

1400 trees planted from 2005 - 2015
420 planted in public spaces
~ 40% of trees are native trees
GREEN INFRASTRUCTURE

Partial “surface” drainage system
Rainfall supplies water to canal system/
filtered and recirculated
LOCAL FOOD: UBC FARM

CENTRE FOR SUSTAINABLE FOOD SYSTEMS
academically rigorous and globally significant research into sustainable and secure food future

24 hectare “living laboratory” grows over 200 varieties of fruits, vegetables, and herbs

Public market every Tuesday & Saturday
June to October
SOUTHEAST FALSE CREEK

AKA the Olympic Village
SOUTHEAST FALSE CREEK

NOTABLE FOR

Brownfield redevelopment
2010 Olympics Athletes Village
LEED Platinum neighborhood
Integrates habitat, water & agriculture
COMPACT COMMUNITY

BUILD-OUT

SITE: 32 hectares
~5500 dwellings

12,000 people

GROSS DENSITY =
375 persons/hectare

3 distinct neighborhoods

Commercial square @ heritage building
COMPLETE COMMUNITY

COMMERCIAL:
- Full Grocery Store
- Cafes & Pubs
- Drug Store
- Liquor Store
- Lots of shops

CIVIC:
- Large community center
- 1 Elementary school
- 3 big, 8 small daycares
- 1 religious center

Central Square
CONNECTED COMMUNITY

Pedestrian
Bicycle
Bus
Streetcar
Rapid transit
Water ferry
Co-op cars

Target:
60% of all trips to be NON-auto based

< 1 parking space / unit
GREEN NETWORKS

City-wide function:
The last leg of a 25 km waterfront greenway

Connections to adjacent neighborhoods
GREEN SPACE AND GREEN NETWORKS

32% of the land is reserved for Public Open Space

- Fully public waterfront
- 3 major parks
- 1 public square
- Semi-public courtyards
- Community Centre and non-motorized boat launch
PUBLIC WATERFRONT
HABITAT CREATION

Wildlife returning to False Creek
Eagles
Waterfowl
Songbirds
Beaver
Coyotes
River otter
Herring

Beaver dam and birdhouse in Hinge Park
GREEN INFRASTRUCTURE

Stormwater wetland

Harvest rainwater for irrigation

40% effective impervious area
50% of roofs green

90% Native Plants
HINGE PARK:
PARK + PLAYGROUND + HABITAT + GREEN INFRASTRUCTURE
UNIVERCITY
A Sustainable Community

Plan adopted 1996
First residents moved in 2004

NOTABLE FOR:

Adds full time residents to a commuter campus

50% of residents study or work at UBC

Green network-
off-street pedestrian paths
habitat connections

Requires green buildings

No impact on downstream aquatic habitat!
COMPACT COMMUNITY

SITE: 29.5 ha
3878 units at build-out
8500 people

288 people/hectare

2012 RESIDENT: JOBS balance
47% study or work on campus
COMPLETE COMMUNITY

SERVICES
Grocery store
Liquor store
Drugstore
Bank
Post office
Dentist

18 food services (restaurant, deli, coffee)
Few other services

NEEDED SERVICES:
Medical services
More daycare
CONNECTED COMMUNITY

31% of residents within 5 minute walk of village centre (2008)

100% are within a 10 minute walk

Street network plan

Green network plan
GREEN NETWORKS

Burnaby Mountain Conservation Area
Regionally important habitat area

UniverCity preserved habitat areas and parks
ACCESS TO NATURE

Connect to Burnaby Mtn. Conservation Area and trail system

96% reported the natural setting was important to their choice to live at UniverCity

84% said outdoor recreation opportunities were important
PARKS AND GREEN SPACES

Centrally located school, daycare and park

UNIVERCITY
5 hectares of parks, open spaces
.58 ha/ 1000 people
HABITAT/TREE PROTECTION

UNIVERCITY

3.4 ha or 11% of site are conservation easements

100% of new plants in conservation areas are natives

By 2008, 4560 trees were planted

Trees planted by 2008
GREEN INFRASTRUCTURE

OBJECTIVES
Minimize impacts on salmon stream below

Mimic pre-UniverCity hydrology

Preserve water purity and chemistry

100% runoff “managed”
EAST FRASER LANDS
AKA River District

downtown
NOTABLE FOR:

Brownfield redevelopment

Connects neighbourhoods to the river

Adds parks and services to existing neighbourhoods

Bird habitat creation

Developer: Parklane Homes

Lead urban designers: James KM Cheng Architects PWL Partnership
COMPACT COMMUNITY

AREA: 52.6 hectares
7200 Dwellings

~14,000 new residents

GROSS DENSITY
266 people/hectare

View from river to new neighbourhood
COMPLETE COMMUNITY
Town centre

Town Square
CPR Railway
High Street
Community Center
Waterfront Plaza
Beach

Major anchor grocery store
1 other major anchor store
660,000 sq. ft retail, office, flex
GREEN NETWORKS
HABITAT CONNECTIVITY

Regional habitat functions

Connects habitat area to the river

Provides new on-site habitat

Everett Crowley Park
PARKS AND PUBLIC SPACES

Public riverfront

A new beach

25 acres of parks

1 elementary school
1 secondary school
1 community center

Public spaces Phase 1
HABITAT CREATION

Songbird habitat emphasis

Nesting, forage and connectivity to adjacent habitat area

Songbird habitat plan

mixed forest  hedgerow  park  old field  riparian  meadow  deciduous forest  wetland
HABITAT ENHANCEMENT

Foreshore restoration:

Intertidal marshes
Habitat island
Off-river fish channel
Increased riparian area
BC’S SUSTAINABLE URBANISM

**Sustainable Urbanism:**
- Compact communities
- Complete communities
- Connected communities
- Access to nature
- High performance buildings
- Green infrastructure

**Green space functions:**
- Social, political activity
- Day to day human interaction
- Recreation
- Connectivity/ Transportation
- Climate mitigation
- Wildlife habitat
- Stormwater management
- Food production
QUESTIONS?