

Climate/Environmental Gap Analysis



Environment Committee
Wednesday, October 7, 2020

Today's Agenda

1. Presentation
 - A Look Ahead: Potential Integrating Frameworks
 - Areas of Concern for Climate/Environmental Policy
 - Overview of 'State of the Art' precedents
 - Potential Next Steps in Nanaimo
2. Your Experience: Insights into Each Area of Concern
3. Next Steps & Questions

Nanaimo Climate + Environment



A Look Ahead: Potential Integrating Frameworks

The diagram is a circular doughnut shape. The outer ring is labeled 'ECOLOGICAL CEILING' and includes environmental factors like climate change, ocean acidification, and chemical pollution. The inner ring is labeled 'SOCIAL FOUNDATION for humanity' and includes social factors like water, food, health, education, income & work, peace & justice, political voice, social equity, gender equality, housing, networks, energy, and air pollution. The space between the two rings is labeled 'the safe and just space for humanity'. The bottom half of the diagram is labeled 'REGENERATIVE AND DISTRIBUTIVE ECONOMY' and includes land conversion and freshwater withdrawals. A 'SHORTFALL' arrow points from the social foundation towards the ecological ceiling, and an 'OVERSHOOT' arrow points from the ecological ceiling towards the social foundation.

Doughnut Economics

Meeting the needs of all within the limits of the planet

“How do my actions contribute to humanity living within the just and safe space between planetary and social boundaries?”

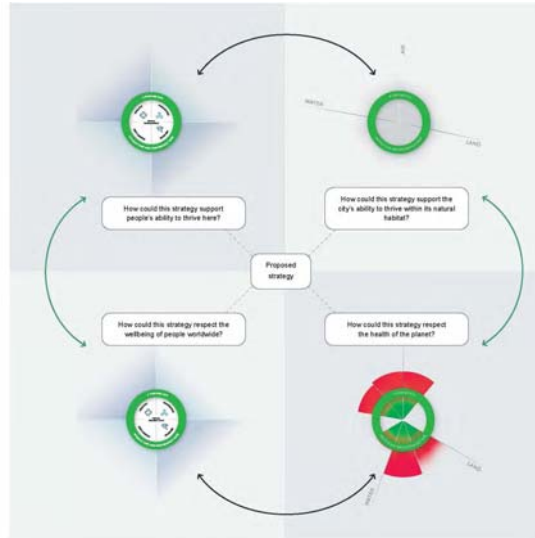
From Doughnut Economics, Kate Raworth, 2012, see kateraworth.com

Downscaling from global to local application:

Creating City Portraits Methodology

“The City Portrait methodology combines local aspirations – to be thriving people in a thriving place – with global responsibility – both social and ecological – that requires every place to consider its many complex interconnections with the world in which it is embedded.”

From Creating City Portraits Methodology, Kate Raworth, 2020, see kateraworth.com



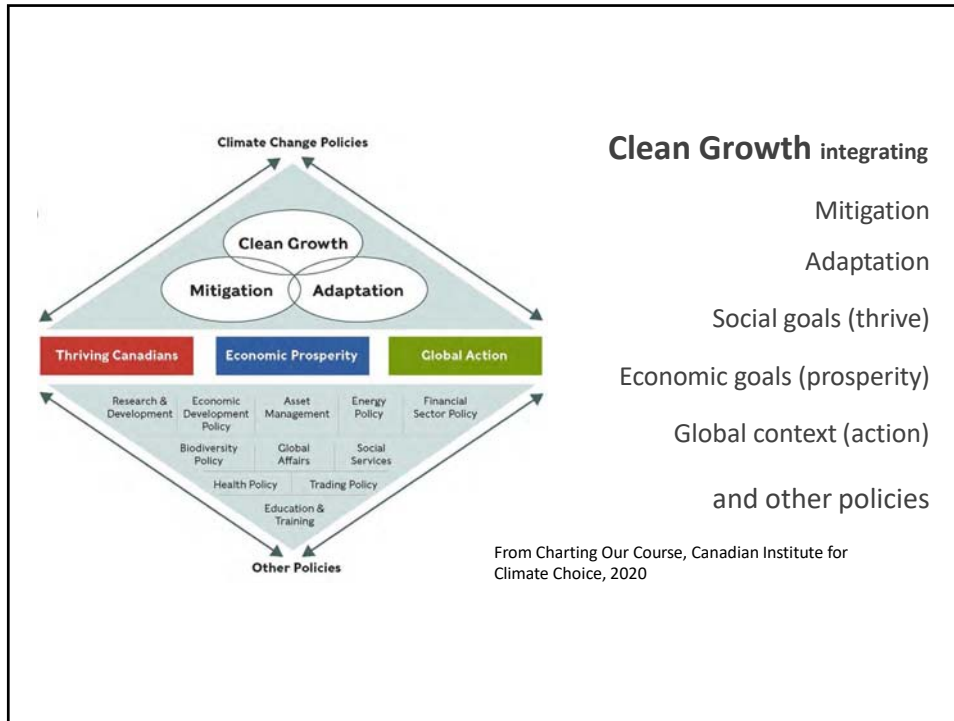
Positioning Nanaimo for goals, objectives and trends in global, federal, provincial, corporate and public opportunities

TABLE 2: CLIMATE CHANGE GOALS AND OBJECTIVES FOR CANADA

GOALS	OBJECTIVES
Thriving Canadians	Healthy Canadians
	Resilient Canadians
	Sustainable Ecosystems
	Intergenerational Fairness
Economic Prosperity	Low-Carbon Competitiveness
	Climate Resilience
	Cost-Effectiveness
Global Action	Global Emission Reductions
	Policy Spillovers
	Technology Spillovers

From Charting Our Course, Canadian Institute for Climate Choice, 2020

- Pandemic recovery
- Fuel switching
- Climate adaptation
- Green infrastructure
- Building retrofits
- Affordable housing
- Remote working
- Ex-urban migration



Attractions to Living at Mobility Hubs and Mixed-Use Nodes

- Compact and complete mixed-use nodes with transit hubs
- Walk to work, recreation, culture
- Vehicle charging, cycle parking/charging
- Fully connected walk/cycle networks 5 km around nodes
- Longer commuter and e-bike, transit connections to link nodes/corridors
- Urban node attractions and walk/cycle amenities e.g. weather protection and streetscape, permanent patios, public art and performance programs

Integrating Strategy

Attractive Mobility Hubs & Nodes



Diverse housing/density with water/biodiversity stewardship:

- Support gentle densification and housing diversity (secondary suites, carriage homes, small multiple family) to include all ages and abilities
- Incorporate rainwater management and water conservation as densification occurs
- Encourage habitat restoration and biodiversity (naturescape) at home
- Increase tree planting and urban forest / parks management
- Support local food (community and private gardens)
- Cycle and walking connections to neighbourhood commercial/cultural/transit

Integrating Strategy

Green and Complete Neighbourhoods



Positive image of the city supporting tourism/growth/investment:

- Housing and social supports
- 'Spring Forward' entry employment program (contract training)
- Increased levels of maintenance of streetscapes / medians
- Management of urban interface / parks wildfire risks
- Invasive vegetation management
- Community garden supports
- Integrate with social support / skills training / volunteers in parks / stewardship

Integrating Strategy

Nanaimo Pride of People & Place



Areas of Climate/Environmental Concern

- Climate Mitigation: GHG targets & trends
- Climate adaptation: flood / rainfall / drought / heat / slope stability
- Watersheds: water quality & quantity
- Habitat conservation & restoration
- Urban forest & vegetation cover, urban agriculture
- Potential Integrating Options

Environmental Gaps: Provide Your Insights

- What leading successes do you know of?
- What issues/gaps are yet to be addressed?
- What integrated strategies could be considered?

Climate Mitigation




GHG: Targets & Trends



**Greenhouse Gas (GHG) Mitigation
OCP Technical Backgrounder**
City of Nanaimo

Oct 7 2020





Nanaimo has committed to:

Reduce greenhouse gas emissions **50%*** from 2010 levels by 2030

Reduce greenhouse gas emissions **94%*** from 2010 levels by 2050

* 50 to 57% by 2030, 94 to 107% by 2050
Climate Emergency Declaration, April 2019

What causes Nanaimo's emissions?

Burning of fossil fuels by residents is primary driver:

- gasoline/diesel for vehicles
- natural gas/oil for heating/hot water



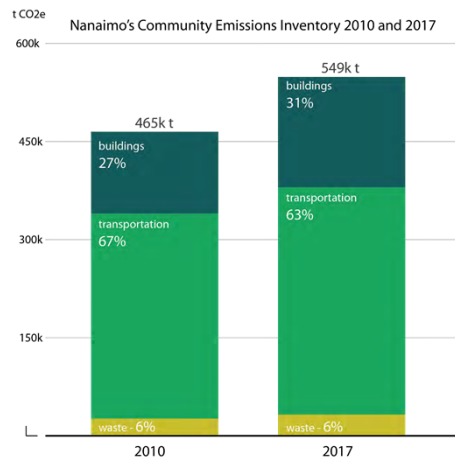
Nanaimo's climate policies

- ❑ 2008 OCP had policies to reduce energy use
- ❑ 2010 GHG targets of **33% reduction by 2020** from 2007
- ❑ Community Sustainable Action Plan (2012) suggested policies and indicators
- ❑ Transportation master plan describes a multi-modal vision of transportation
- ❑ Energy Step Code policy (2018) for increased energy efficiency for new buildings
- ❑ Rezoning policy incentivizes exceeding Energy Step with density bonus points. Rezoning policy under review re additional Energy Step Code requirements
- ❑ 2020 parking bylaw introduced EV charging requirements for new construction
- ❑ City promotes the Clean BC top-up incentives for home or work/apartment EV charging stations, and EV purchase incentives

But emissions are still rising.

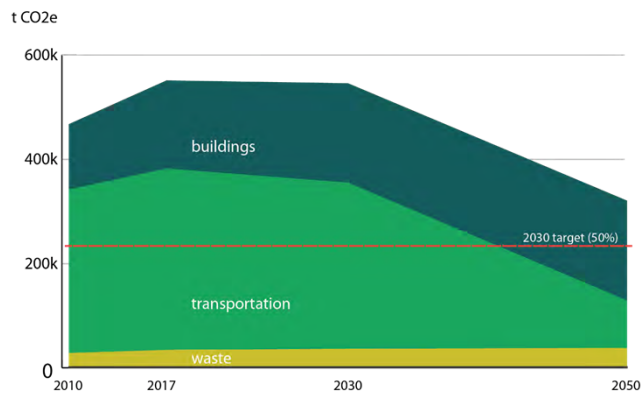
In 2010, council set a target of 33% reduction in emissions by 2020.

Emissions in 2017 increased **18%** since 2010.



Current policy and planning is not enough.

BAU modeling projects a 32% reduction from 2010 GHG emissions by 2050.

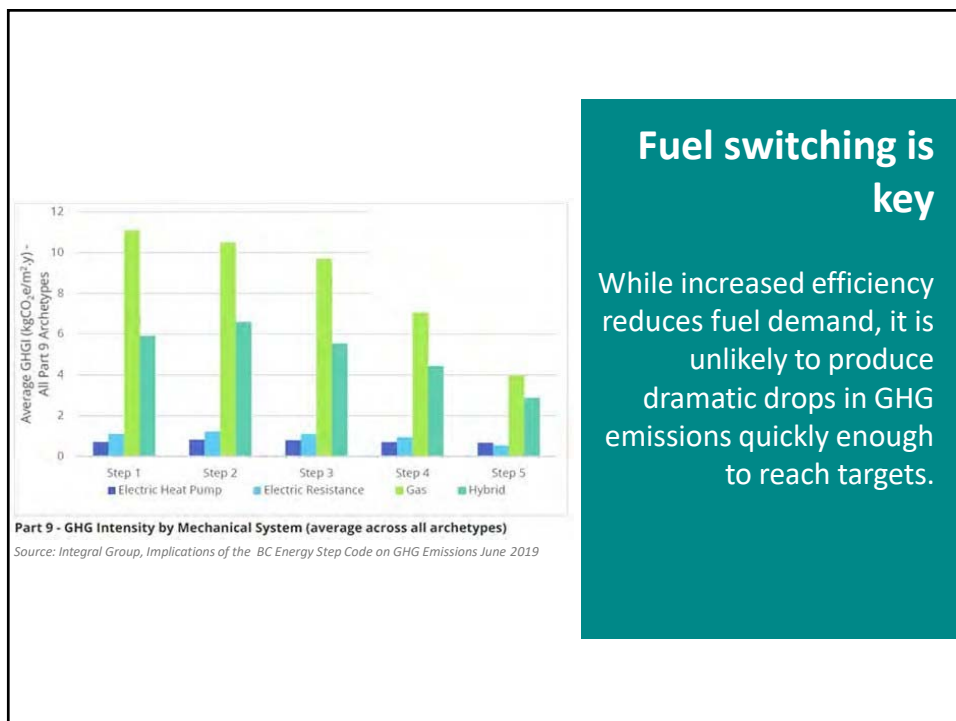
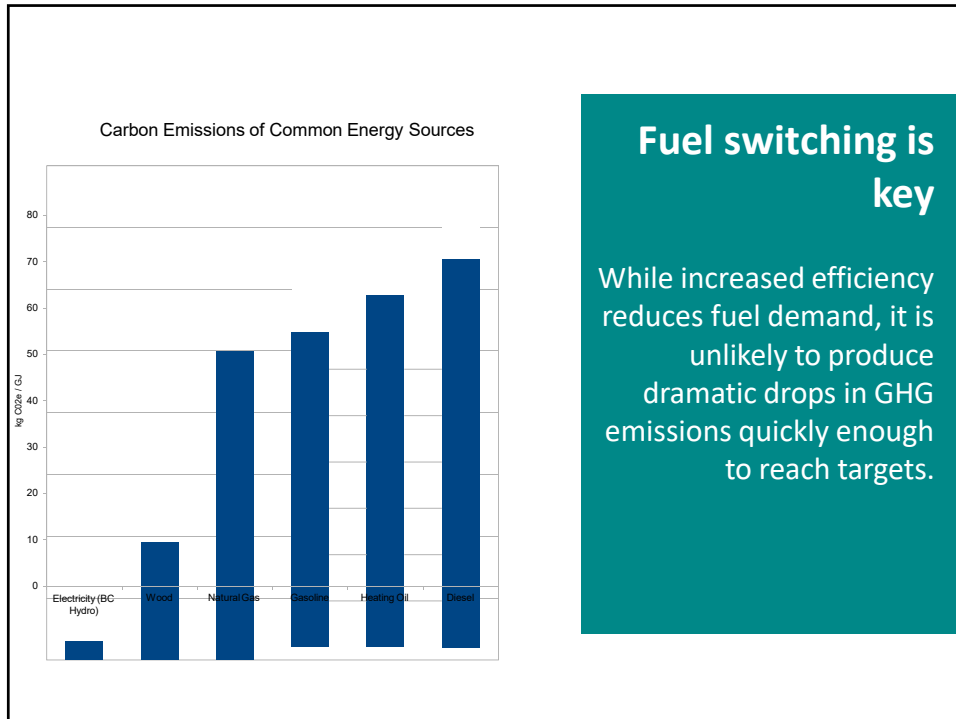


How do we reduce GHG emissions?

Increase efficiency / reduce demand

Switch to zero-carbon energy sources





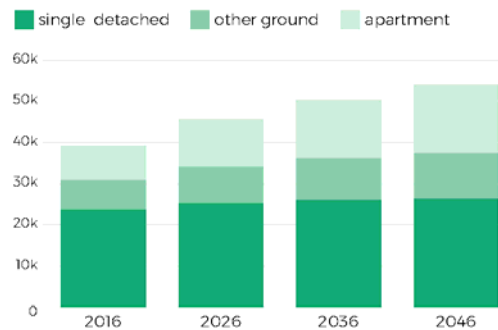
Renewables don't always reduce GHG emissions.

Nanaimo has access to low-emission hydroelectricity

Replacing grid electricity with renewables in BC doesn't significantly reduce GHG emissions



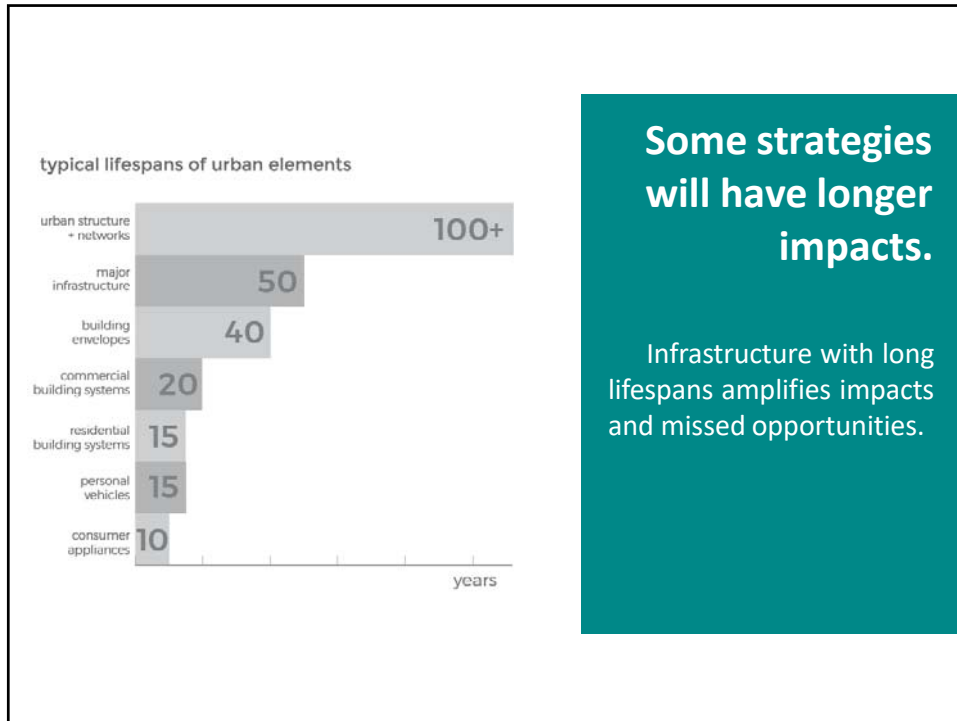
Residential unit mix




Source: Vann Struth Consulting, City of Nanaimo Population, Housing & Employment Projections, June 2020

~60% of buildings in 2050 have already been built.

75% of 2050 buildings will be built before 2032 Net-zero building code is implemented.



Possible GHG Options




RETROFITS







- Education
- Increase Incentives
- Target Oil Heating
- Provide financing for upgrades

Possible GHG Options




NEW CONSTRUCTION
STEP CODE



- Increase Energy Step Code Requirements
- Add GHG intensity alternative pathway
- Density bonusing for zero carbon buildings

Possible GHG Options

ELECTRIC VEHICLES



Improve public charging infrastructure

Target charging investments for buildings that are expensive to upgrade

Increase EV charging requirements in new construction

Possible GHG Options

WASTE REDUCTION




Waste reduction programs

Continue to improve organic waste diversion

Explore integrated waste management for reducing GHG emissions from waste

Possible GHG Options

ACTIVE TRANSPORTATION




Increasing investment in active transportation infrastructure

focus development in nodes and corridors to reduce need for driving

Investigate e-bike infrastructure needs

Climate Adaptation




Coastal Flood Hazard



Climate Adaptation - Coastal Flood Hazard

- Campbell River Rising Seas (2019)
- Surrey Coastal Flood Adaptation Strategy (2019)
- Vancouver Coastal Flood Risk Assessment (2014)
- North Saanich - DRAFT Coastal Flooding Mitigation Bylaw 1439 (2018)



Note: Climate adaptation to increased rainfall will be discussed in the Watersheds topic later on



CAMPBELL RIVER RISING SEAS

FLOOD MANAGEMENT PROCESS

Case Study

2020.03.09



FLOOD CONSTRUCTION LEVELS: DOWNTOWN

Map shows Flood Construction Level (FCL) determination – but only the first step!

What needs to follow is a public process to identify local values (what is most important), assemble adaptation options and select/visualize the best combination of options, partnerships, priorities and finance.

Might be done by study area e.g. Departure Bay, Newcastle Channel, Downtown/Port, Nanaimo Estuary



Multiple Benefits of Adaptation?

- Integrate waterfront walks, parks, public improvements with private adaptation
- Visualizations can be powerful tools to communicate potential impacts, scenario options, and spatial relationships



Without mitigation



With mitigation



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Primer I: Introducing Risk And Solutions

Primer II: Adaptation Best Practices



Adaptation (Primer I)	Water	Waves (Primer II)
Beach nourishment	Beach nourishment / beach	<ul style="list-style-type: none"> • Evaluate the current beach width, allowing for increased public access and use • Reduce wave run-up and wave effect potentials at natural boundaries
Living shorelines	Living shorelines / beach	<ul style="list-style-type: none"> • Provide increased complexity of shoreline habitat and coastal vegetation • May help improve water quality • Provide educational opportunities • Must be separated from ocean
Dikes	Dikes / beach	<ul style="list-style-type: none"> • Will result storm waves when surface is properly maintained • Land on top of dikes can be used for parks or roads • May block views of the sea
Claypans	Claypans / beach	<ul style="list-style-type: none"> • Can extend lifespan of beach nourishment projects • Wide range of construction methods and materials • Maintenance to walking along the shore • Can increase beach erosion • Can create riprap habitat • Provide recreational opportunities



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EVALUATING OPTIONS

Round Two Public Engagement

Primer III: Local Adaptation Options and Evaluation Process

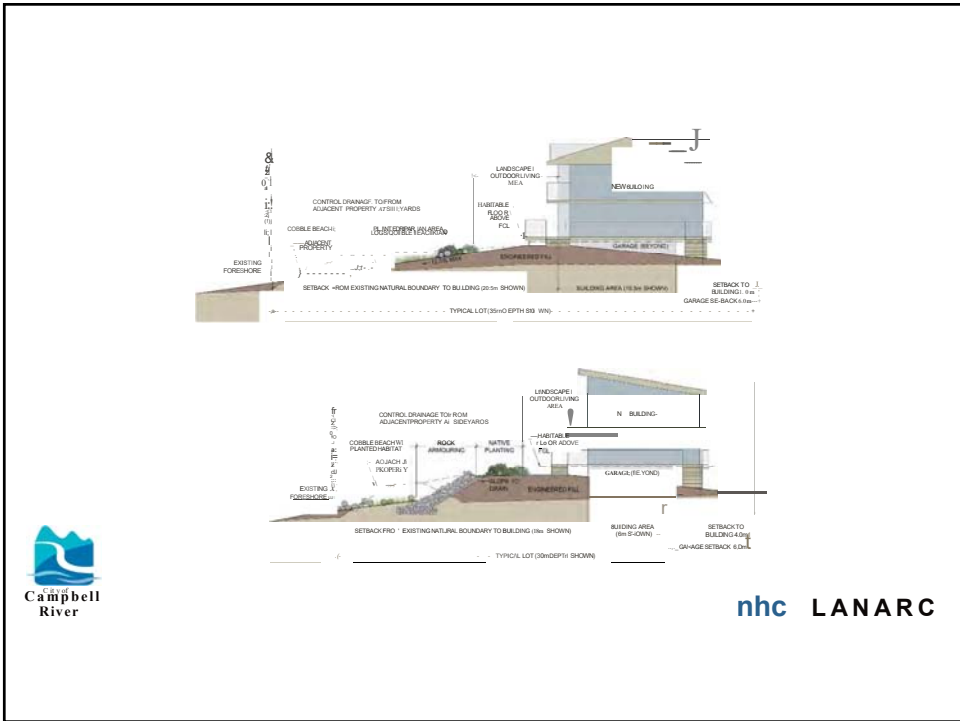
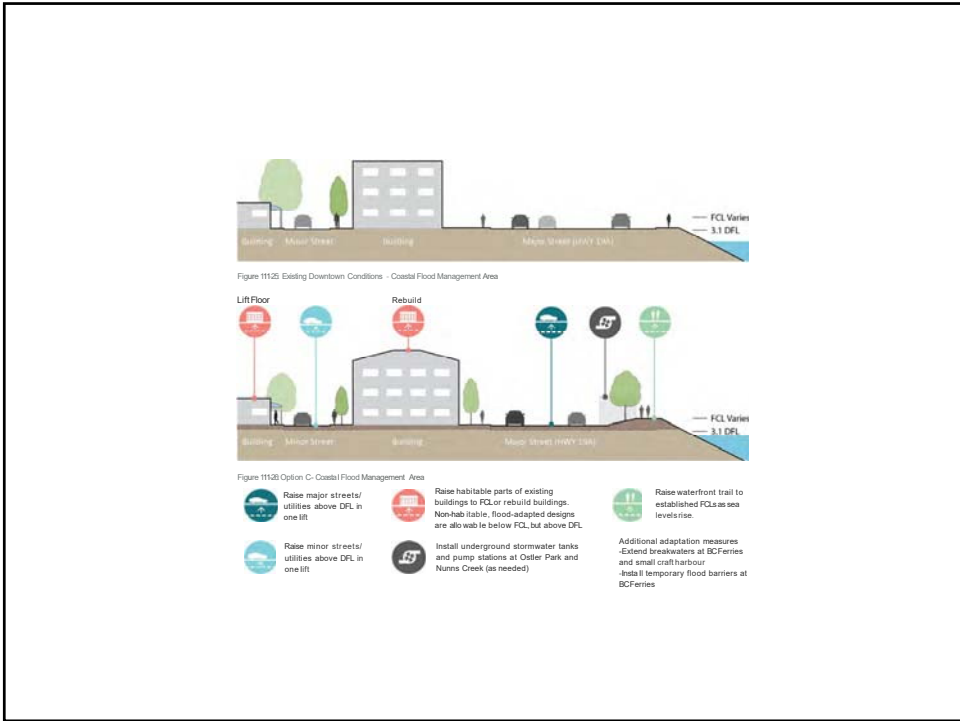


RECOMMENDED STRATEGIES

Round Three Public Engagement

Primer IV: Strategy & Action Plan





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Climate Adaptation: Coastal Flood Hazard



Potential Next Steps in Nanaimo

- Finalize Flood Construction Levels for buildings - based on SLR at end of building life
- Provide info to support well-informed private and public investment
- Consider 'multiple benefits' possible in concert with adaptation
- Design a 'Line of Defense'
- Consider 'retreat' in some locations
- Manage 'bathtub' areas of inland flood risk
- Phase adaptations as infrastructure comes to end of service life where possible
- Plan ahead for required land acquisition, capital budgets
- Take advantage of senior government funding

Climate Adaptation

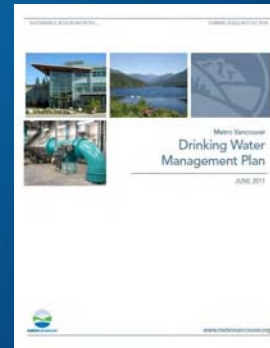


Drought Management

Climate Adaptation - Drought Management

BULK WATER SUPPLY:

- Nanaimo Water Supply Review (underway as parallel process)



Climate Adaptation - Drought Management

WATER STEP PRICING:

- Portland - Water Conservation Rate Structure Review
- Seattle - Third Tier Water Rates
- Lantzville - Tiered Pricing

Third-Tier Water Rates

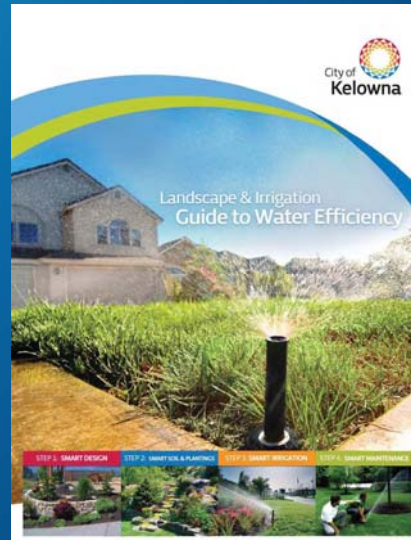
Peak residential water rates are in effect from May 16 through September 15 each year. Peak rates incorporate a three-tiered rate structure with progressively higher rates as water consumption increases. Third-tier water rates are included in this rate structure.

Effective January 1, 2020:

Water Usage	Inside Seattle	Outside Seattle	Shoreline & Lake Forest Park*
Off-Peak Usage (Sept. 16 - May 15)	\$5.40	\$6.16	\$6.39
Peak Usage (May 16 - Sept. 15)			
First-Tier: Up to 10 CCF in 60 days	\$5.55	\$6.33	\$6.73
Second-Tier: Next 26 CCF in 60 days	\$6.86	\$7.82	\$8.32
Third-Tier: Over 36 CCF in 60 days	\$11.80	\$13.45	\$14.31

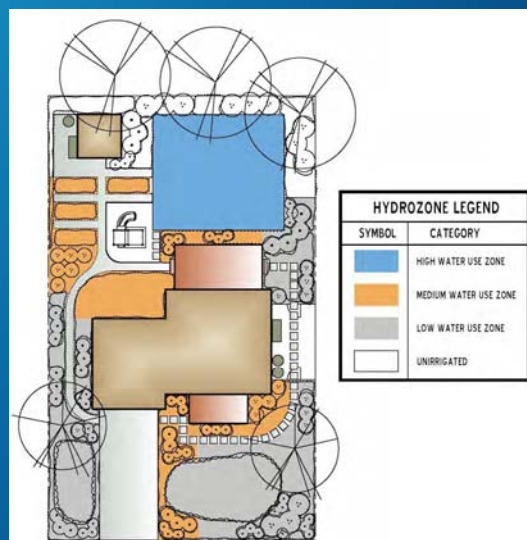
Education

- Landscape & Irrigation Guide to Water Efficiency - also in RDN
- Four Steps to Water Conservation:
 - Smart Design
 - Smart Soil & Plantings
 - Smart Irrigation
 - Smart Maintenance



Guidelines

- Smart Design
- Hydrozones
 - High Water Use
 - Lawns - for active use only
 - Ornamentals-reserve for high-impact planting
 - Medium Water Use
 - Less water to look great all year round
 - Use drip or low volume irrigation
 - Low Water Use/ Unirrigated
 - Little or no water once established-native plants
 - Use permeable surfacing for unplanted areas



Guidelines

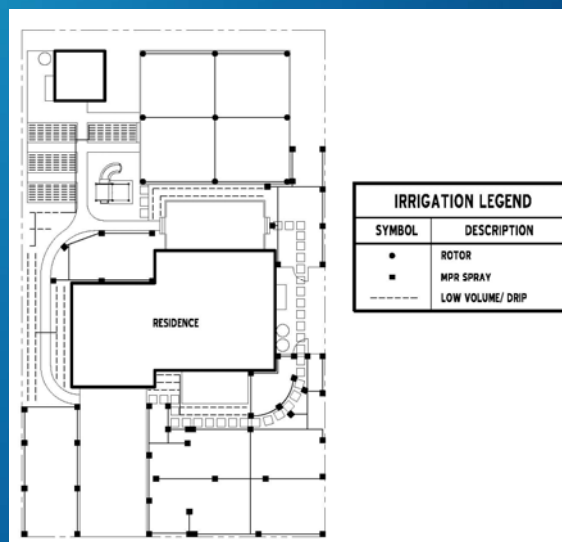
- Meeting a Water Conservation Target
- (15% - 30%)
 - Design 15% - 30% of site to not require watering
 - Limit turf to 25-50% of landscape
 - Lawn alternatives: ground cover, meadowgrass/ flowers, cobble, mulch, stone/ gravel, interlocking brick, permeable unit paving, decking, etc..
- Use large areas of low water use plants
- Ensure growing medium depth and quality and provide mulch
- Use high efficiency irrigation and weather or sensor-based controllers



Guidelines

Smart Irrigation and Controls

- Group by Hydrozones
 - Never irrigate turf and shrubs on same zone
 - Provides healthier plant material
 - May require more zones initially, but will save water in the long run
- Head-to-head Coverage
 - To avoid dry spots and overwatering sprinklers spray should touch the next
- Match precipitation rates
 - Rotors, spray and/or drip never share a zone
 - Up to 30% savings with even application
- Site Contours
 - Avoid extreme elevation changes that causes low head drainage, or use check valves
- Avoid Over-Spray
 - to adjacent structures, paving or properties
- Smart Controller
 - Adjusts automatically to changing weather



Rainwater Capture System

A future priority?

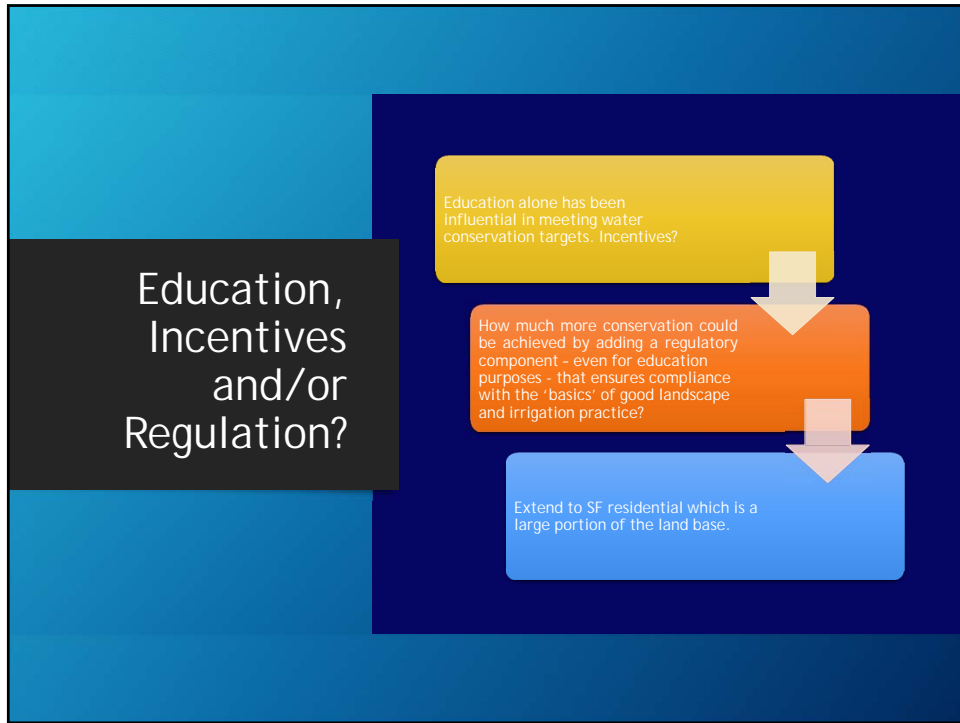


Climate Adaptation: Drought Management



Potential Next Steps in Nanaimo

- Continue work with RDN Water Smart
- Update water conservation information/education materials and social marketing
- Review water pricing - stepped and/or seasonal peak rates?
- Provide simple information on landscape 'hydrozones' and 'water budgeting'
- Move towards permitting for irrigation systems to enforce best practices
- Mandate use of 'Smart' weather-based controllers
- Review timing of increase in bulk water supply



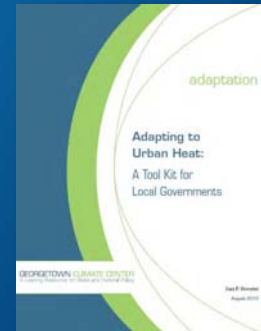
Climate Adaptation



Changing Heat Patterns

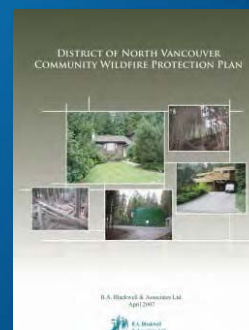
Climate Adaptation - Urban Heat Island

- Georgetown Climate Centre - Adapting to Urban Heat: A toolkit for local Governments (2012)
- Toronto - Green Roof Bylaw
- Philadelphia - Cool Roof Law



Climate Adaptation - Wildfire Management

- City of Nanaimo has prepared a Wildfire Protection plan
- UBCM is very active on this topic, with ongoing funding
- Updates and joint implementation with RDN?



Climate Adaptation: Changing Heat Patterns



Potential Next Steps in Nanaimo

- Review development checklists for urban heat island mitigation
- Update and implement urban interface wildfire best practices in development and parks
- Continue urban forest and street tree implementation with an eye on climate change resilience and urban heat management

Watersheds: Water Quality and Quantity



Rainwater Management

Watersheds - Rainwater Management



INFILTRATE TO SOILS:

- Seattle - Plan to Protect Waterways (2015)
- Seattle - Stormwater Manual Vol. 3-Project Stormwater Control (2017)
- Vancouver-Rain City Strategy (2019)

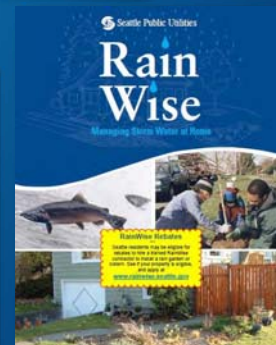


Watersheds - Rainwater Management



INCENTIVE PROGRAMS:

- Seattle - RainWise Rebate Program
- Victoria - Stormwater Utility Charges
- Portland - % for green program



Managing Trends to Increased Impervious



Support gentle densification and housing diversity: secondary suites, coach houses?

Manage impervious area and rainwater management implications?



70% impervious area

35% impervious area

59% impervious area



PARKING TO BIOSWALE



RAIN GARDEN



COURTYARD WITH RAINGARDEN



Deep Soil / Compost Mixes



Recreate the 'sponge' of the forest floor

Single Family with Suite + Coach House- Absorbent Soils & Infiltration Chamber (Impervious Area = 77%)

- Direct all impervious areas to absorbent landscape at a maximum 2:1 ratio
- Direct all roof impervious areas to infiltration trench
- Proprietary system with an assumed porosity of 0.98

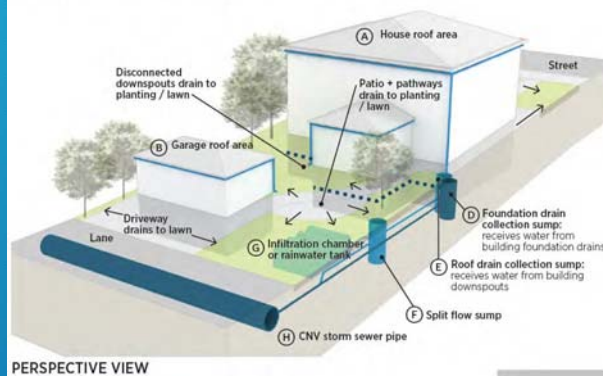
Areas directed to absorbent landscape	Accessory building, driveway, patio
Areas directed to BMP	Principal building
Total BMP Area (not including absorbent soil)	48.6
% of landscaped area required as absorbent landscape to meet target	100%
Depth of absorbent landscape (mm)	450.0
% of baseline achieved	97%



North Vancouver Precedent



④ ABSORBENT LANDSCAPES: NORTH-FACING LOT



Climate Adaptation: Rainwater Management



Potential Next Steps in Nanaimo

- Expand implementation to single/duplex/triplex residential
- Integrate with carriage/lane home housing projects
- Create standard details and specifications for best practices in engineering standards (e.g. for rain gardens, pervious paving, infiltration chambers)
- Consider a stormwater utility to incentivize changes
- Move towards regulations/enforcement for developments above an impervious area threshold

Watersheds: Water Quality and Quantity

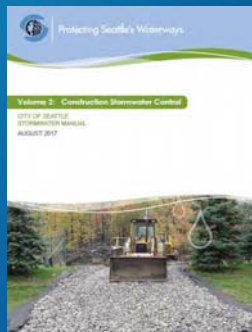


Sediment, Erosion, Pollutant Control

Watersheds – Sediment, Erosion, Pollution Control



- Nanaimo encourages erosion and sediment control - others are more aggressive in implementation
- King County - Stormwater Pollution Prevention Manual (2016)
- Seattle - Stormwater Manual Vol. 2: Construction Stormwater Control (2017)



SOURCE CONTROL – PROVIDE FULL COVER



SEDIMENT TRAP



ROCK ACCESS PAD



STABLE SILT FENCE



CATCH BASIN INSERT



Watersheds: Water Quality and Quantity

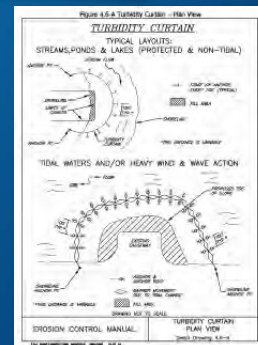


Instream Erosion & Deposition

Watersheds - Instream Erosion & Deposition



- Nanaimo watershed stormwater planning program is restarting (e.g. Cottle Creek)
- Nanaimo stream enhancement projects support streamkeepers (e.g. Departure Bay Creek)
- Portland - Erosion and Sediment Control Manual (2008)
 - Instream Sediment Trapping Devices
- Seattle - Instream Flow Monitoring and Research





Climate Adaptation: Watersheds

Potential Next Steps in Nanaimo

- Complete watershed hydrology / rainwater management planning
- Update best practice information and training - industry and small builder
- Create standard details and specifications for best practices in engineering standards (e.g. for erosion and sediment control techniques during construction, pollution control practices and devices, instream and riparian restoration)
- Consider a ticketing offense for small infractions
- Review and upgrade catch basin cleaning operations

Environmental Gaps: Provide Your Insights



- What leading successes do you know of?
- What issues/gaps are yet to be addressed?
- What integrated strategies could be considered?

Habitat Conservation & Restoration

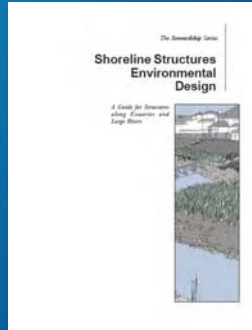


Biodiversity Management

Habitat Conservation - Fish / Amphibian Habitat



- Nanaimo / BC Riparian Area protection guidelines are well established
- DFO - Shoreline Structures Environmental Design (2002)
- Portland - Salmon Safe Certification Report (2016)
- Seattle - Cedar River Watershed Aquatic and Riparian Restoration Strategic Plans (2008)



Streamside/Wetland Restoration



Overview of streamside revegetation



Live stake through soil wrap



Unmanicured riparian



Habitat Conservation – Biodiversity Planning



- Vancouver - Biodiversity Strategy (2016)
- Seattle - Landscape Synthesis Framework for Cedar River Watershed (2009)
- Edmonton - Wildlife Passage Engineering Design Guidelines (2010)
- Toronto - Guidelines for Biodiverse Green Roofs (2013)



BUTTERFLY GARDEN PLANTING

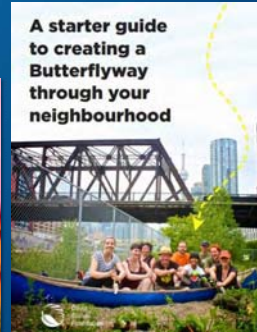


COMMUNITY AWARENESS SIGNAGE



Habitat Conservation – Pollinator Populations

- Pollinator Partnership Canada - Selecting Plants for Pollinators Lower Mainland (2017)
- Toronto - Pollinator Protection Strategy (2018)
- Suzuki Foundation - Butterfly Ways



WILDLIFE TREE



WILDLIFE TREES FOR WOODPECKERS / CAVITY NESTERS



BIRD FEEDING, WATERING AND NESTING STATIONS



Habitat Conservation – Bird / Bat Populations

- Vancouver - Bird Strategy (2015)
- Vancouver-Bird Friendly Landscape Operational Guidelines (2015)
- Vancouver-Bird Friendly Design Guidelines for DP (2015)
- Toronto-Best practices for effective lighting (2017)
- Toronto-Bird Friendly Best Management Practices “Glass” (2016)
- Calgary - Responsible Pet Ownership Bylaw



Biodiversity Management: Habitat Restoration



Potential Next Steps in Nanaimo

- Maintain streamside protection policies
- Continue co-operative stream / riparian restoration projects
- Integrate with Sea Level Rise coastal and estuary adaptation
- Consider 'Green Shores' principles
- Promote 'Naturescape' approaches (target both public and private sites)
- Review and create bird, bat, butterfly and pollinator habitat policy / design guidelines

Urban Forest & Vegetation Cover



Urban Forest Management

Urban Forest & Vegetation - Invasive Species



- Portland - Invasive Plants Management Strategy (2008) and Invasive Plant Policy Review (2011)
- Portland - Integrated Pest Management Program (2019)
- Vancouver - Integrated Pest Management Policy
- Metro Vancouver - Livestock Invasive Plant Control Pilot (\$150K, 3-year program)



Urban Forest & Vegetation - Natural Woodlands



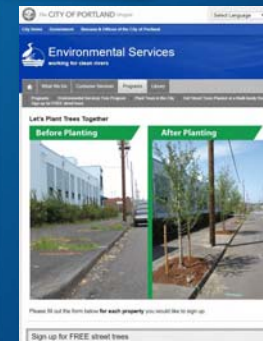
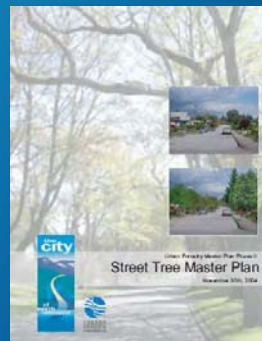
- Vancouver-Urban Forest Strategy (2018)
- Metro Vancouver - Urban Forest Climate Adaptation Framework (2017)
- King County - Forest Carbon Credit Program



Urban Forest & Vegetation - Public Street Trees



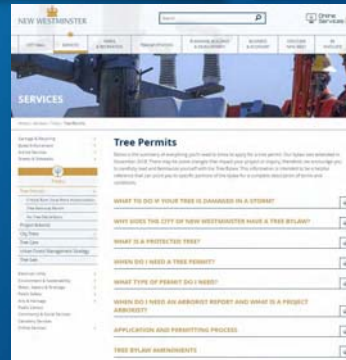
- Nanaimo requires new street trees during subdivision
- City of North Vancouver - Street Tree Master Plan (2004)
- Metro Vancouver - Design Guidebook Maximizing Climate Adaptation Benefits Trees (2017)
- Portland - Free Street Tree program



Urban Forest & Vegetation - Private Trees



- Nanaimo Tree Protection program protects approximately 20% of existing woodlands and requires tree replacement
- Seattle Green Factor Program (Code Chapter 23.86.019 Green Factor measurement)
- City of New Westminster - Tree Protection Program



Urban Forest / Vegetation Cover Management



Potential Next Steps in Nanaimo


- Finalize invasive plant inventory
- Scale-up community volunteer / low barrier employment program for invasives removal - both in park and also in streetscapes
- Consider noxious weed control bylaw and enforcement
- Review climate change effects on natural woodlands (e.g. red cedar)
- Implement the Urban Forest Management Strategy, adding further depth on management of trail braiding/encroachment, wildfire risk management and ecologically sensitive management of danger trees and riparian areas

Urban Agriculture




Local Edible Gardens

Urban Agriculture - Local Edible Gardens



- Vancouver - Urban Agriculture Policy for Parks (2015)
- Vancouver - Urban Agriculture Design Guidelines for Private Realm
- Vancouver - Community Garden Portal (web page)



PARK BOARD URBAN AGRICULTURE POLICY

The Park Board would like to acknowledge that those urban agriculture activities take place on the public lands under its jurisdiction.

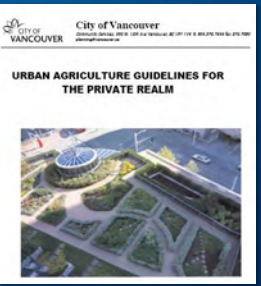
OBJECTIVE

The objective of this policy is to encourage, support and facilitate the use of public lands for urban agriculture activities that are consistent with the City's vision for a sustainable, resilient and vibrant community. This policy will support the development of urban agriculture projects that are consistent with the City's vision for a sustainable, resilient and vibrant community. This policy will support the development of urban agriculture projects that are consistent with the City's vision for a sustainable, resilient and vibrant community.

For the purpose of this policy, urban agriculture is defined as a community development project that is consistent with the City's vision for a sustainable, resilient and vibrant community. This policy will support the development of urban agriculture projects that are consistent with the City's vision for a sustainable, resilient and vibrant community.


Urban agriculture includes, but is not limited to, the following types of activities:

- Community gardens
- Community farms
- Community orchards
- Community greenhouses
- Community aquaponics
- Community hydroponics
- Community vertical farming
- Community rooftop gardens
- Community urban farms
- Community urban forests
- Community urban meadows
- Community urban wetlands
- Community urban prairies
- Community urban savannas
- Community urban steppes
- Community urban tundra
- Community urban wetlands
- Community urban prairies
- Community urban savannas
- Community urban steppes
- Community urban tundra



City of Vancouver

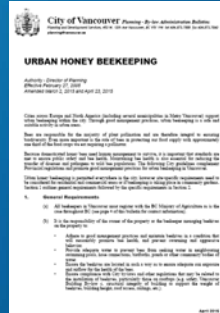
URBAN AGRICULTURE GUIDELINES FOR THE PRIVATE REALM



Urban Agriculture - Food Livestock



- Vancouver - Urban Honey Beekeeping Bulletin (2015)
- Vancouver - Backyard Hens Guidelines (2010)
- Seattle - Urban Agriculture Permits
- Metro Vancouver - Livestock Invasive Plant Control Pilot (\$150K, 3-year program)

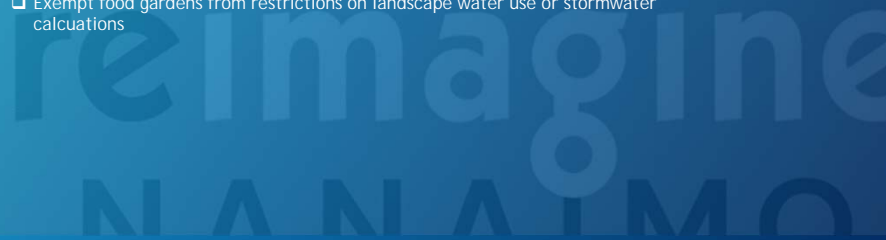


Urban Agriculture



Potential Next Steps in Nanaimo


- Consider interest in additional community gardens as densification occurs
- Encourage food gardens in private lands
- Exempt food gardens from restrictions on landscape water use or stormwater calculations



Environmental Gaps: Provide Your Insights

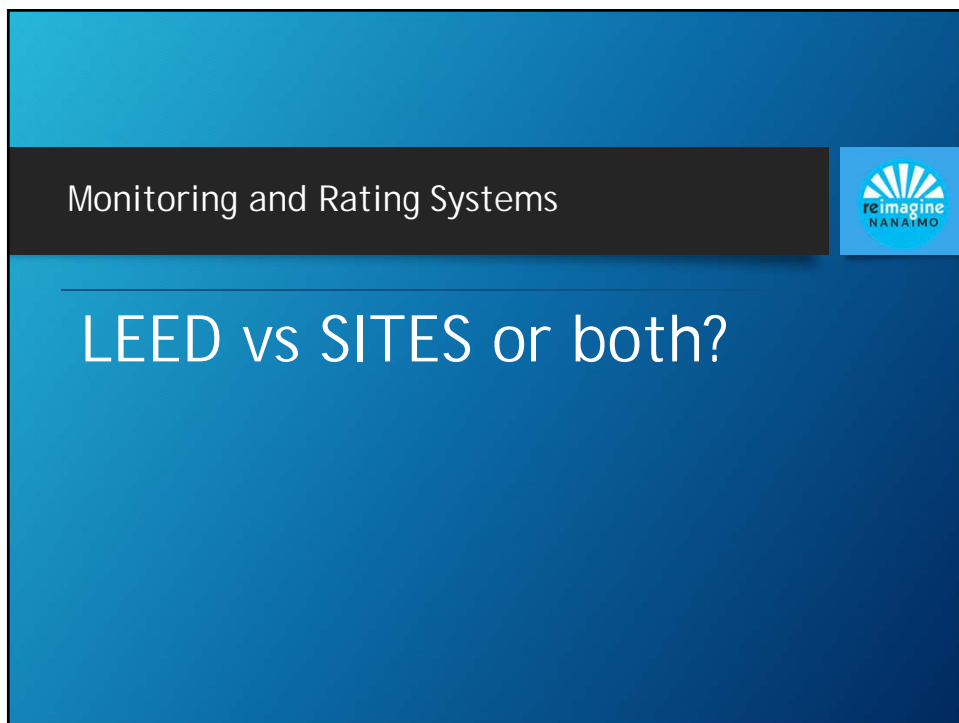


- What leading successes do you know of?
- What issues/gaps are yet to be addressed?
- What integrated strategies could be considered?

An aerial photograph showing a city with a grid street pattern, green spaces, and a large body of water in the background. The image is split into two panels: a clear view on the left and a faded, semi-transparent view on the right.

Next Steps: Options

- Principles
- Indicators
- Public values
- Comparisons



Project Rating Systems - LEED / Green Bldg

- City of Vancouver requires that all new municipal facilities be built to Leadership in Energy and Design (LEED) Gold - focus on energy but not site design
- Seattle Green Factor - score-based code requirement (Code Chapter 23.86.019)
- Seattle - Code Chapter 23.58D Green Building Standard
- Seattle - Sustainable Buildings and Sites Policy (2011)



Project Rating Systems - SITES

- SITES Rating System for Sustainable Land Development
 - Greenfield conservation
 - Stormwater management
 - Soil conservation
 - Habitat conservation
 - Building materials
 - Construction practices
 - Human health and well-being
 - Education and Performance Monitoring

