

# Overview of Climate Action & Environmental Management in the City of Nanaimo





# Overview of Session

- Legislative Framework
- Environmental Management
- Storm Water Management

## BREAK

- Operations
- Environmental Stewardship & Community Involvement
- Climate Change
- Conclusion



# Legislative Framework

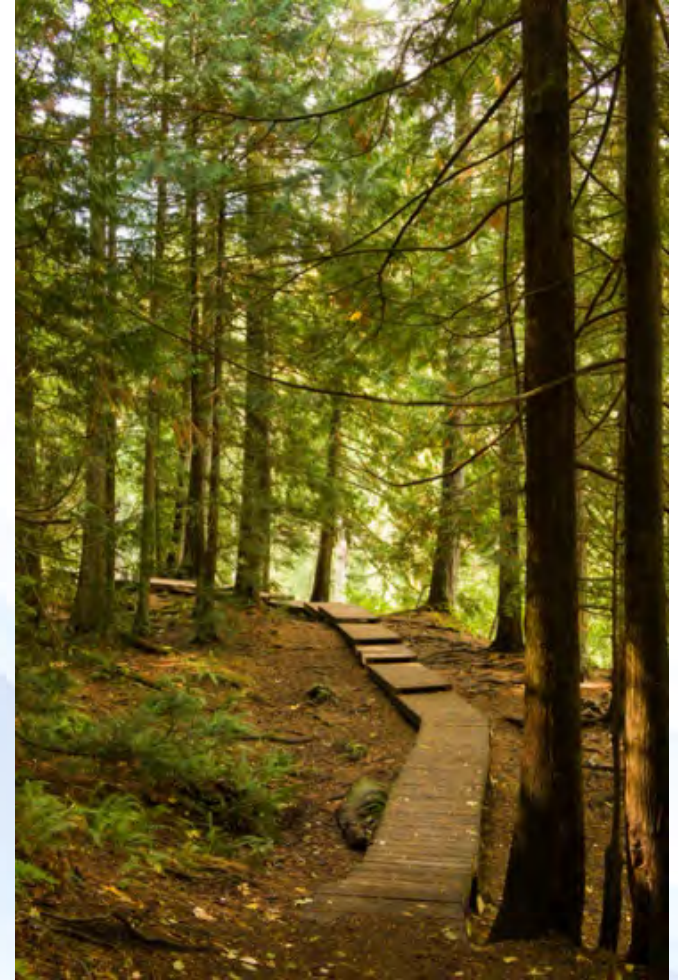
## Federal & Provincial Legislation

### Federal Legislation

- Fisheries Act
- Species at Risk Act

### Provincial Legislation

- Wildlife Act
- Riparian Areas Regulation Act
- Water Sustainability Act
- Contaminated Site Regulation



# Legislative Framework

## Plans / Bylaws / Policies

### Regional District

- Regional Growth Strategy

### City of Nanaimo

- Strategic Plan
- Official Community Plan
- Water Conservation Strategy
- Water Supply Strategic Plan
- Parks Master Plan
- Transportation Master Plan
- Neighbourhood Plans



### Bylaws

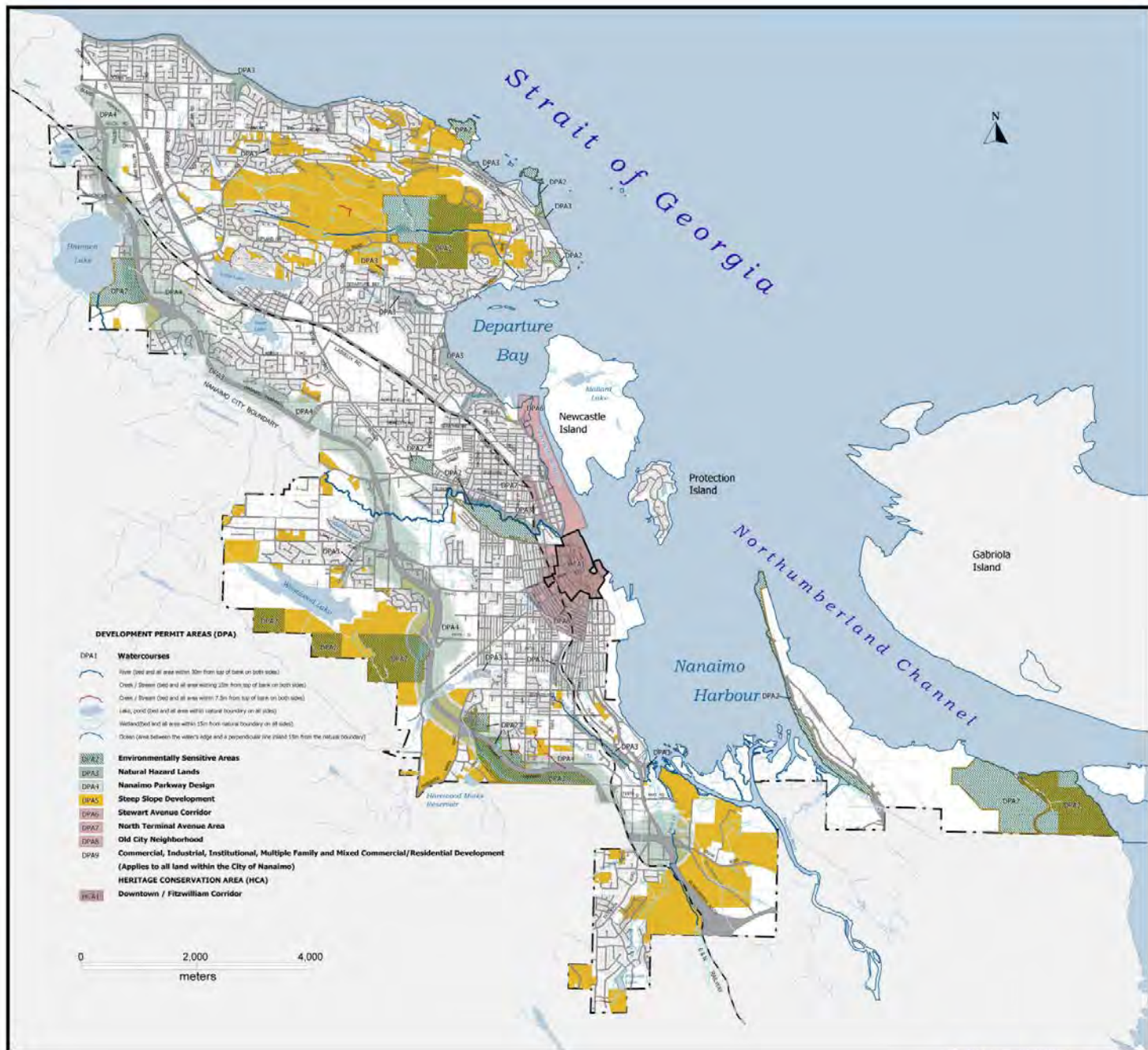
- Zoning Bylaw 4500
- Tree Management and Protection Bylaw No. 7126
- Pesticide Use Bylaw No. 7102
- Regional Emissions Reduction Reserve Fund Bylaw No. 7184
- Soil Removal and Depositing Bylaw 1976 No. 1747

### Council Policy

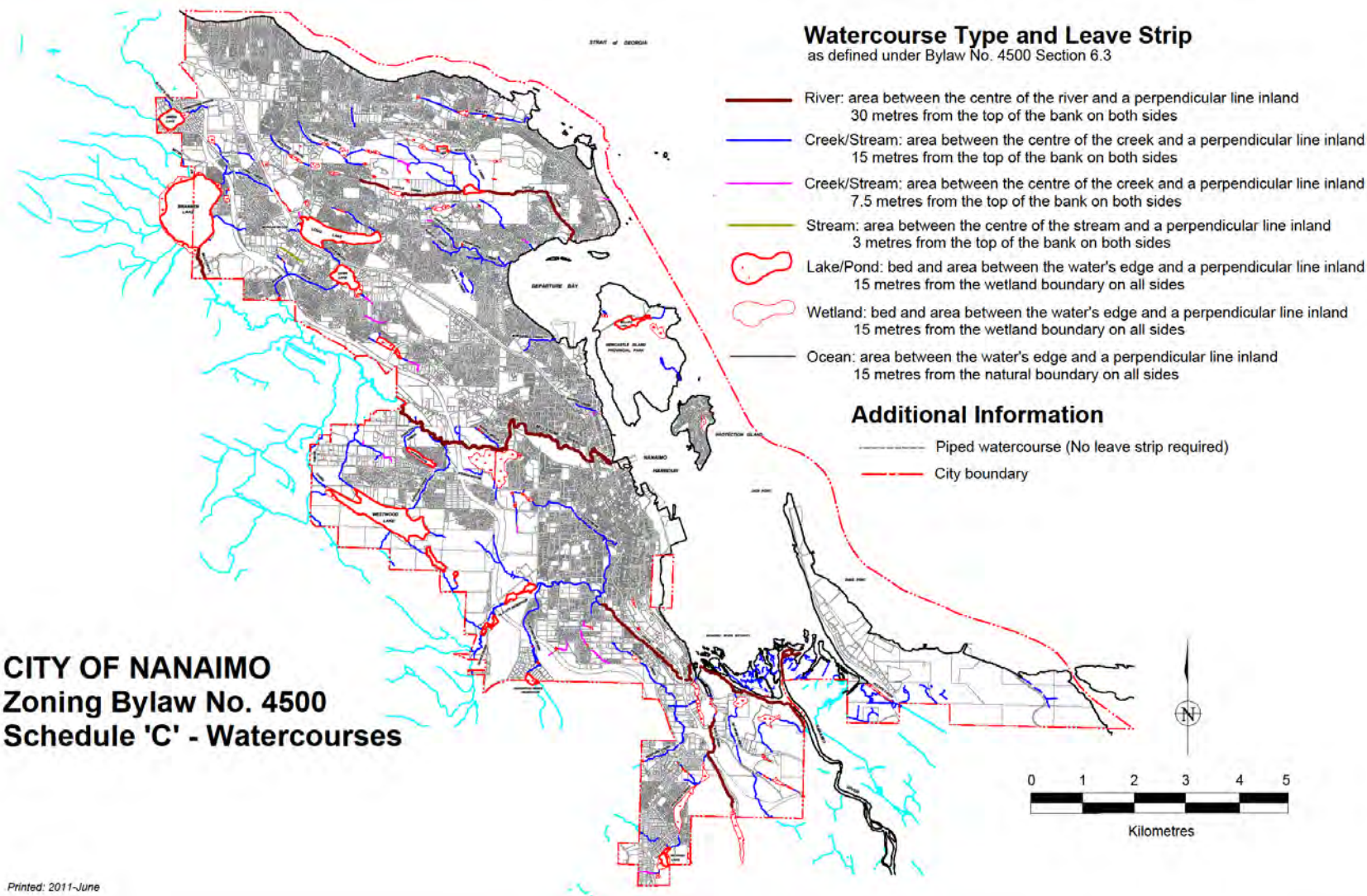
- Energy Conservation and Management Policy
- Purchasing Policy
- Green Building Strategy
- Anti-Idling Policy







**CITY OF NANAIMO**  
**Zoning Bylaw No. 4500**  
**Schedule 'C' - Watercourses**





# Environmental Management

## Marine Foreshore

- 15 m from natural boundary of the ocean



# Environmental Management

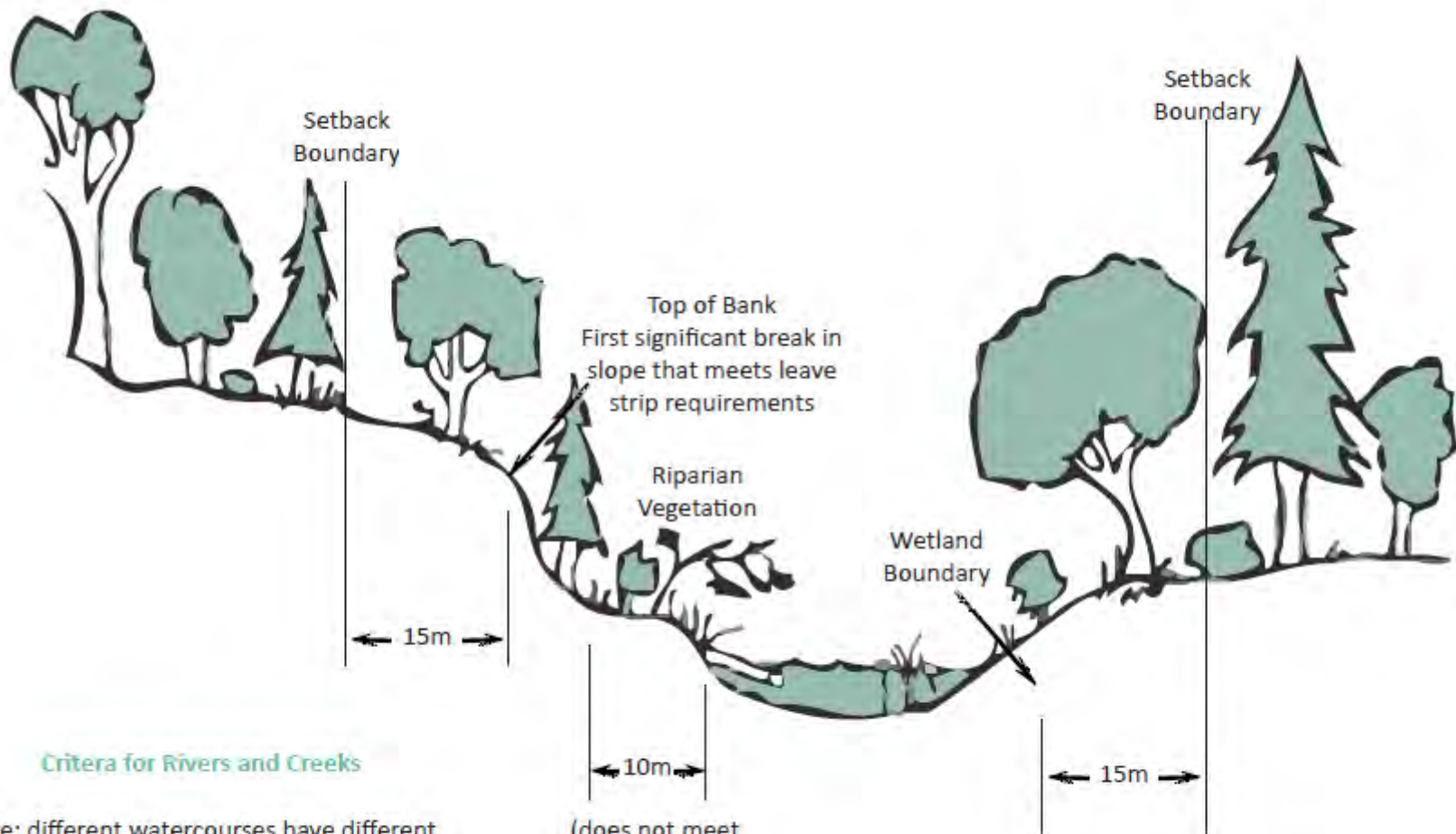
## Watercourses

### Zoning Bylaw 4500 – Watercourses – Schedule C

- 15m or 30m setback from top of bank of a stream
- 15m setback from wetland boundary of a lake or wetland
- Variances through DPA







#### Criteria for Rivers and Creeks

Note: different watercourses have different setback requirements. These examples use 15 metres. Check with City Planning staff for specific setback.

#### Criteria for Lakes, Ponds and Wetlands



# Environmental Management

## Riparian Areas Regulation (RAR)

- Provincial regulation from the Riparian Area Protection Act
- For the protection of fish and fish habitat only
- Streamside Protection and Enhancement Area (SPEA) measured from high water mark
- SPEA is the minimum protection to avoid HADD under Fisheries Act





### Legend

- 15 m Coast DPA
- Approximate 10 m SPEA setback
- Approximate C.O.N. 15 m watercourse setback
- Approximate Walley Creek centreline
- Property boundary
- Approximate developable area

Google Earth

Image © 2019 Nanaimo



50 m



# Environmental Management

## Zoning Bylaw No. 4000

- City of Nanaimo Zoning Bylaw 4000 in place since 1996
- City of Nanaimo watercourse setbacks meet or exceed RAR requirements
- RAR triggered when variance to watercourse setbacks is requested
- RAR does not consider wildlife habitat
- Local Government has the discretion to have more stringent protection requirements than RAR





# Environmental Management

## Environmentally Sensitive DPA

- Non-fish bearing watercourses and wetlands
- Terrestrial herbaceous
- Older forest
- SARA (critical habitat protection) and Red/Yellow listed species



# Environmental Management

## Environmentally Sensitive DPA

### Process

- Development application
- Request environmental assessment be completed by Qualified Environmental Professional (RPBio)
- Assessment review by staff
- ESA protection through DP conditions





# Environmental Management

## Dense Spiked Primrose



- COSEWIC listed species – Endangered
- Red listed in BC
- Found through assessment
- Protected through subdivision process and DP conditions



# Canada Goose Management

- Canada geese introduced to Vancouver Island in the 1960s
- Resident and migratory populations
- Why?
- Fouling of playing fields and beaches
- Human / wildlife conflicts





# Canada Goose Management

- Abundance, Distribution and Movement Study being completed in 2019
- 400 geese collared – 200 in 2016 and 200 in 2017
- Monthly counts of geese
- Population varies seasonally
- 48 % resident geese
- Significant influx of geese from August to December
- Lowest population count at molt late June early July





# Population Maintenance





# Environmental Management

## Feral Rabbit Management

- No native rabbits on Vancouver Island
- European rabbits are introduced invasive species

Why?

- Infrastructure damage
- User injury liability
- Ecosystem damage



# Damage to Infrastructure

EBB Environmental Consulting Inc.



Figure 7. Burrow at fence line (Boban Park)



Figure 8. Burrowing beneath stairway (VIU).

Feral Rabbit Management Plan

## Partnership

- 2016 City of Nanaimo, VIU and SD68 formed working group
- 2017 City and VIU commissioned: Feral European Rabbit Management Plan





## When Nature Controls Over Population

- Rabbit hemorrhagic disease – Feb 2018
  - Highly contagious virus RHDV-calicivirus
  - Only affects European rabbits
  - Mortality with 48 -72 hrs
- 80%-90% mortality



# Feral Rabbit Management



## Population Maintenance

- Raptor perch poles
- Potential changes to the Animal Control Bylaw
  - Increased fines for feeding
  - Increased fines for release
  - Pet rabbits must be spay or neutered before sale
  - Pet rabbit licensing
- Public education





# Environment Management

## Beaver Management



# Environment Management

## Beaver Management

### Positives

- Stabilize watersheds as keystone species
  - Create habitat
  - Increase biodiversity
  - Healthy wetlands





# Environment Management

## Beaver Management

Why?

- Flooding of private and public land
- Infrastructure damage (storm system and sports fields)
- Tree removal and tree flooding causing potential hazards



# Environment Management

## Beaver Management



## Robins Park





# Environment Management

## Beaver Management

### Balanced Approach

- Leave them be
- Wire trees
- Beaver baffles and pipes
- Regular removal of dams
- Last resort: Removal (trapping)
  - No relocation



## **Compliance and Enforcement**

- Receive complaint
- Investigate complaint
- Review findings with management
- Take appropriate action





# What is an Urban Forest?

- “The networks or systems comprising all woodlands, groups of trees, and individual trees located in urban and peri-urban areas” (Food and Agriculture Organization)
- **Urban Forestry** or **Municipal Arboriculture** deals with the management of planted and naturally occurring greenspace on public and private land. This includes planning, planting, establishing, protecting and managing all trees and associated vegetation.

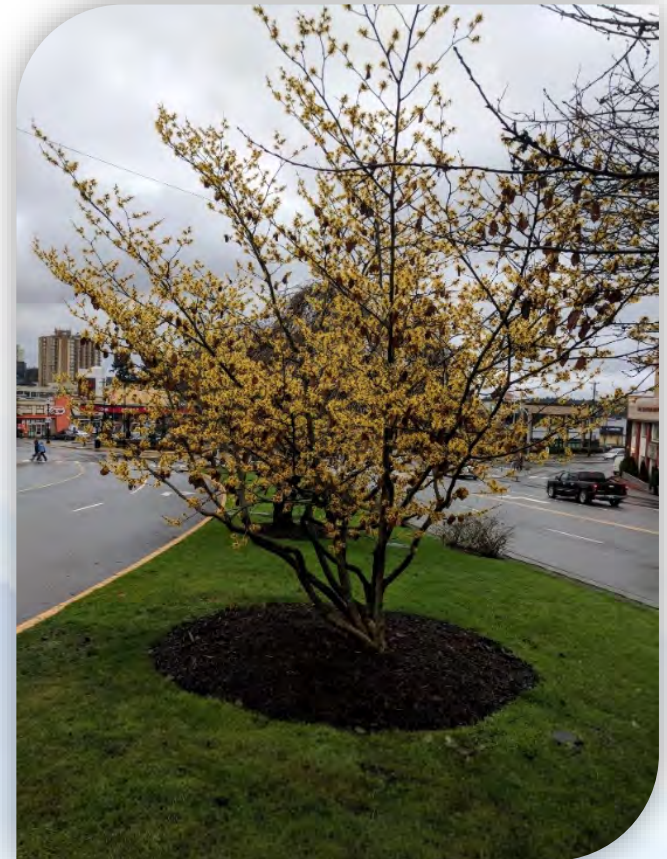


# Environment Management

## Urban Forestry

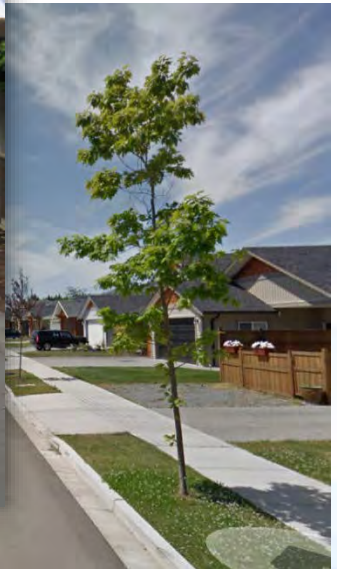
### Benefits of a well-functioning Urban Forest

- Environmental
  - Sequester Carbon
  - Mitigate Flooding
  - Improve water quality
- Social
  - Create sense of place
  - Mental and Physical Health
  - Food Security
- Economic
  - Natural Asset
  - Extends life of Infrastructure
  - Reduce heating and cooling costs





# Environment Management





# Environment Management

## Urban Forestry



### **The bad news....**

Across North America development in urban areas is causing general environmental decline.

US Forest Service estimates that in the USA alone, 36 million urban trees are lost every year.





# Environment Management

## Urban Forestry



### **The good news!**

It is possible to grow or enhance the urban forest.

Some municipalities are starting to turn the tide and increase tree canopy coverage, resulting in an increase of all the associated benefits.





# Environment Management

## Urban Forestry

**Current Projects and Programs**

RonKirk  
Photography



# Urban Forestry



## TREE

This voucher may be exchanged for

to

Authorized by Patrick McIntosh, Urban Forestry

Expires: 2018-MAR-25

Number:

Max 2 per property. Must be used by March 25, 2018.



## \$20 TREE VOUCHERS

(UP TO \$75 VALUE)

Nanaimo wants your help in increasing forest canopy. Nanaimo residents can receive a \$20 tree voucher here and use it for a fruit or coniferous tree at the Green Thumb Garden Centre.



### PROGRAM DETAILS

- There will be 400 vouchers available for Nanaimo residents or property owners to use for the purchase of a tree for \$20 each (cash only)
- No more than 2 vouchers issued per property per year
- All sales are final
- Redemption value not to exceed \$75
- Vouchers expire on December 16, 2018

Save the World!

## PLANT MORE TREES!

CITY OF NANAIMO

Green Thumb GARDEN CENTRE

1300 Vouchers  
Funded by motor vehicle fines, permits and



# Urban Forestry

## Beaufort Food Forest

- Planted in December 2017.
- Collaboration between the City, Neighborhood, MYCDC, and BC Hydro Greening Grant.
- 59 fruit and nut trees and many edible shrubs.
- Watering done by City Park staff and volunteers.
- Will serve to provide, food security, forest cover, educational opportunities, sense of community, wildlife habitat, recreation.

### BEAUFORT PARK FOOD FOREST

These gardens were designed to demonstrate edible landscaping in the City.

A **Food Forest** is intended to mimic a natural forest ecosystem with plants chosen and located around the trees in a way that helps support and sustain them. Many of the plants you will see are chosen to act as pollinator attractors, nutrient accumulators and soil stabilizers.

- Be gentle when picking fruit
- Be respectful of all users in this space
- During summer months, help us keep our "gator" bags filled with water

We welcome everyone to enjoy this space and to enjoy the food it provides.

Interested in helping out at the Beaufort Forest? Contact us!

#### Beaufort Food Forest Tree List

**APPLES:** Originating in Kazakhstan, apples arrived in Europe by way of the Middle East, and arrived in Canada with the French explorer Samuel de Champlain. They were planted throughout the country by the pioneers who ate them raw, cooked and baked with them, dried them for winter food and processed them into cider.



**CHERRIES:** From Europe, Western Asia and parts of Northern Africa, cherries are classified as stone fruits (fruits containing a singular central seed), alongside apricots, plums, peaches and almonds.



**PEARS:** The pear is native to coastal and mildly temperate regions of Western Europe, North Africa and Asia. The tree typically reaches heights of 10-17 metres (33-56 ft). Because of its versatility and long storage life, pears were a valuable commodity in the ancient world.



**PLUMS:** Plums may have been one of the first fruits domesticated by humans. Three of the most common varieties are only found around human settlement.



**OTHER TREES:** Look at the map at the back of this book to see other trees that are growing in this food forest, including quince, mulberry, almond, hazelnut and walnut.



[www.nanaimo.ca](http://www.nanaimo.ca) • 250-756-5200 • [parksandrecreation@nanaimo.ca](mailto:parksandrecreation@nanaimo.ca)





# Urban Forestry


## Shaw

- A  
C  
\$  
30
- 2  
p
- R  
ba





# Urban Forestry

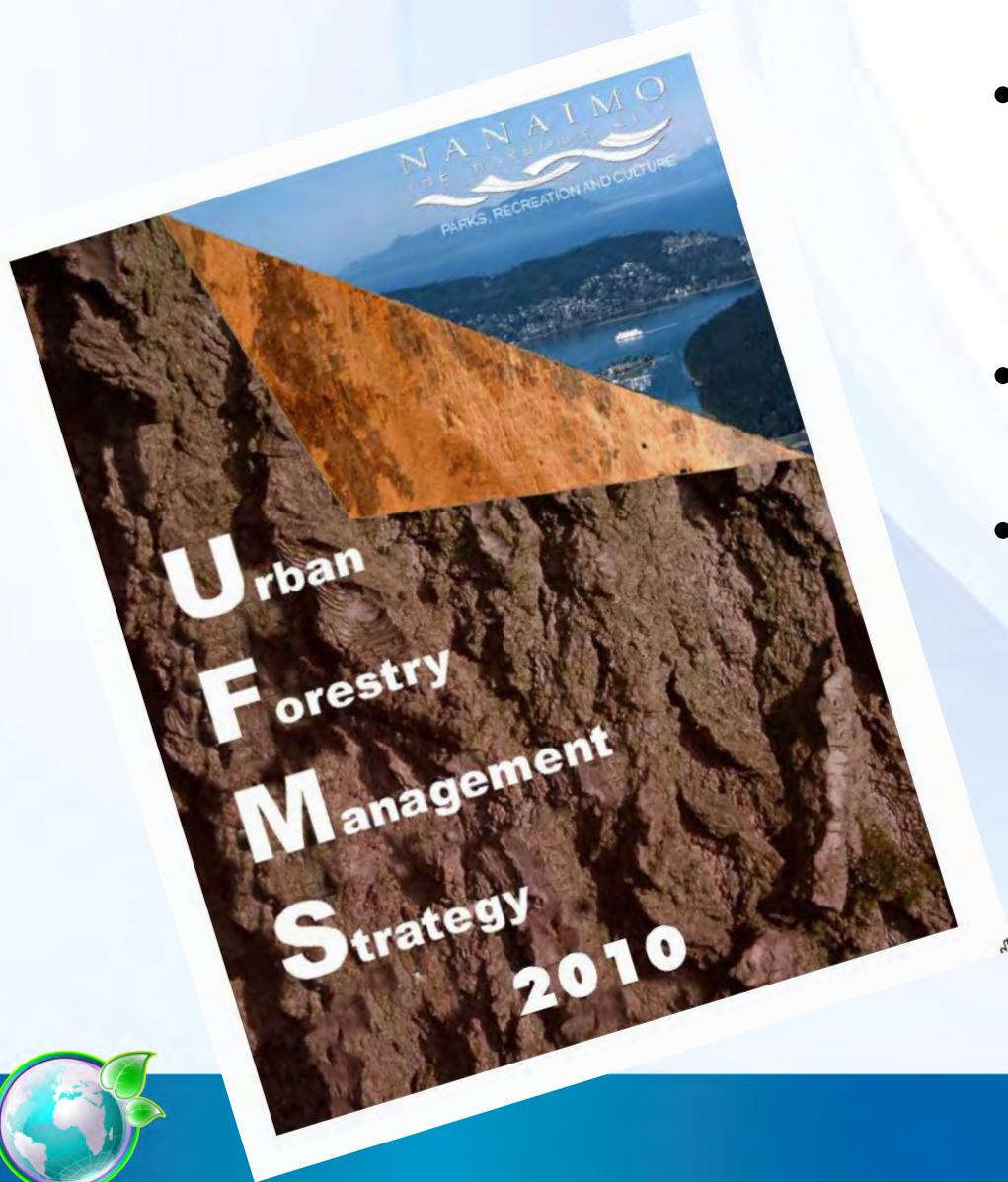


**Where are we at and  
Where do we want to go?**



# Environment Management

## Urban Forestry



- Developed to fulfill the need for better forest, vegetation and ecosystem management throughout the City.
- Identified the need for a new tree bylaw
- Established a goal of increasing tree canopy coverage by 4% over ten years



# Urban Forestry

## Bylaw No. 7126 Management & Protection of Trees within the City of Nanaimo



- Adopted in 2013
- A home owner is allowed to **remove up to 4** non “protected” trees in a calendar year without a permit.
- If a permit is required, replacement trees must be replanted.
- If a parcel of land being developed is **over 0.5ha in size, 20% of the trees onsite** must be retained.

*It takes many years for a tree planted today to provide the same environmental benefits as retaining a mature tree.*





# Urban Forestry



Looking Forward



# Environment Management

## Urban Forestry

### Baseline data collection

A clear understanding of what we have is needed to plan, set goals and monitor our progress.

The most important data we need to collect is:

An accurate Canopy Cover Assessment.

A comprehensive public tree inventory.



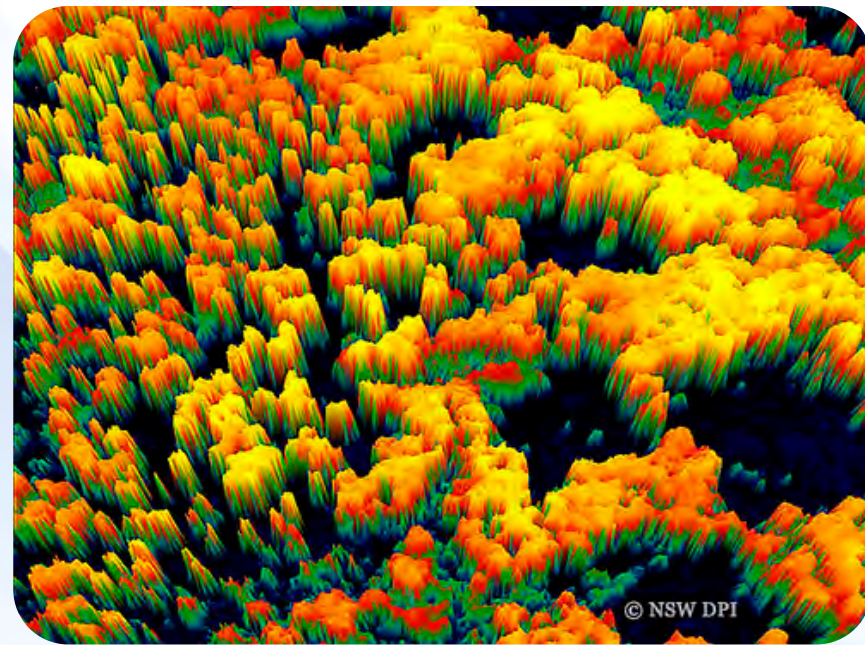


# Environment Management

## Urban Forestry

### Canopy Cover Assessment

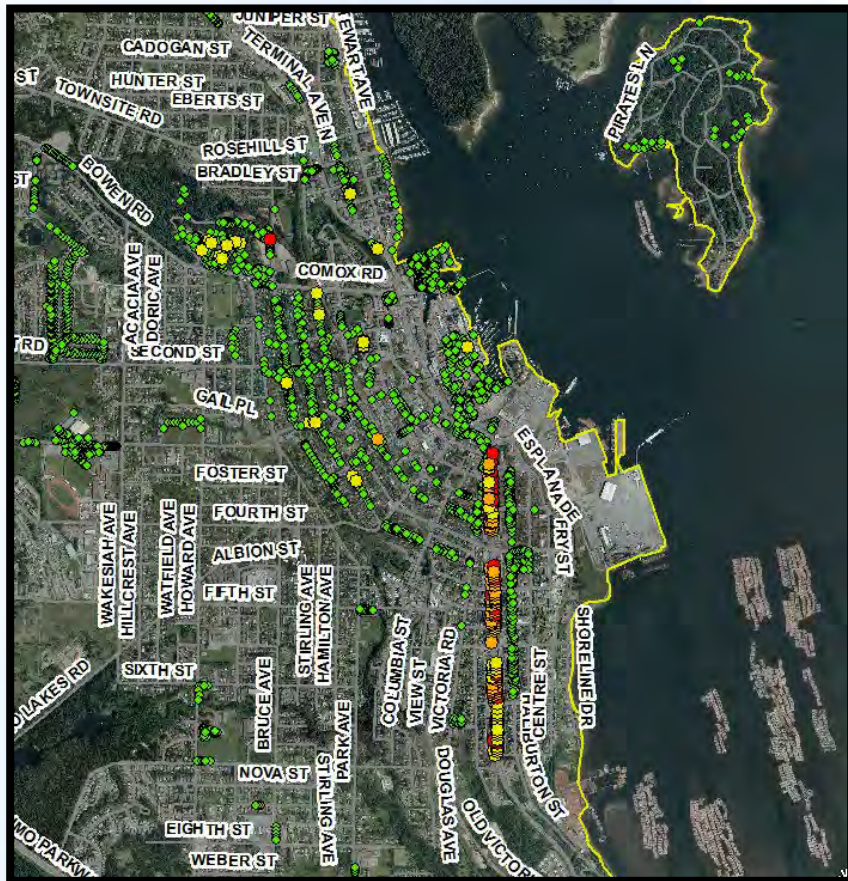
- A 2006 Malaspina University/College (now Vancouver Island University) aerial photo canopy study
- The 2010 Urban Forest Management Strategy identifies a goal of increasing the canopy coverage by 4% over ten years.
- We need to invest in an updated canopy survey to set a new benchmark to measure progress.
- It is important that the results are repeatable to give us accurate information on our progress.



# Environment Management

## Urban Forestry

### Street Tree Inventory



- Geo Spatially linked data set.
- Important attributes to collect:  
Tree Species, Size, Condition, Age (planting date), Maintenance history.
- Most practically limited to formally managed trees...For now.
- Goal is to have **inventory linked to inspection cycles** and a work management/scheduling system.





# Environment Management

## Urban Forestry

### Amending the Tree Protection and Management Bylaw

- Improve bylaw requirements for trees being retained during construction.
- Additional requirements will increase staff workloads to process permits, conduct inspections, consultations, and provide bylaw compliance



# Environment Management

## Urban Forestry

### Improving Tree Management Practice

- Get planting!
- Canopy Study will identify areas in need reforestation. Increasing our tree planting capacity will require creative tree planting programs and the capacity to plant, monitor and maintain trees in public and private areas.
- Switch from a policy of reactive tree maintenance to proactive. Implementing a scheduled work management system.
- Regularly re-evaluate our progress from our baseline data and update our goals to address our needs.
- Achieving this will require an increase in staffing levels





# Environment Management

## Urban Forestry

Nanaimo should lead not follow, we can be the community others on the Island look to as their guiding example in policy and practice.



# Environment Management

## Stormwater Management

### Overview of Policies and Guidelines

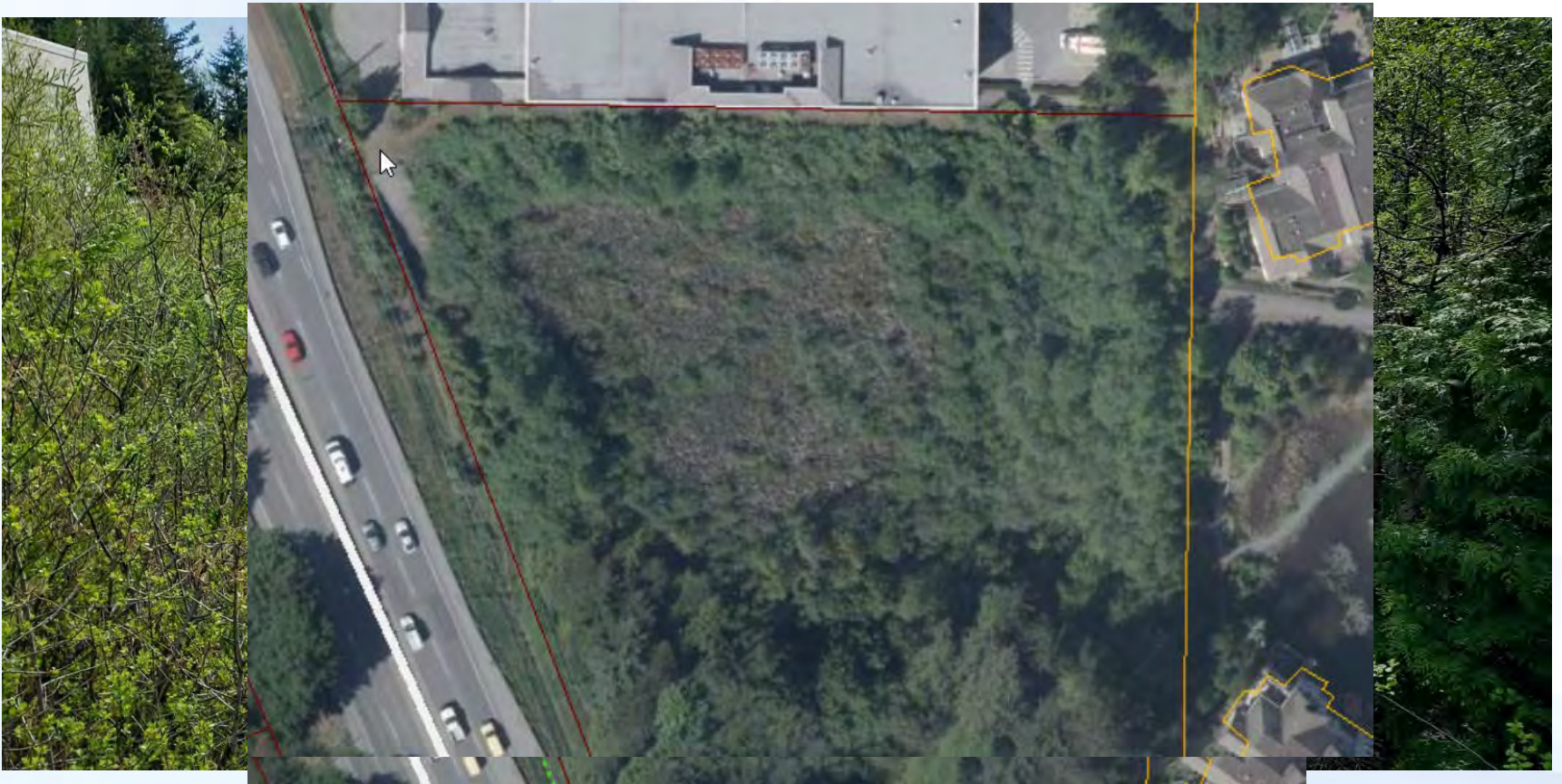
- OCP
- Stormwater Management in Nanaimo Guidelines
- Steep Slope Development Guidelines
- Stormwater Planning Guidebook
- ISMP's (Wexford & Walley)
- MoESS Section 7





# Environment Management

## Project Highlights Longwood Station





# Environment Management

## Stormwater Management

### **Project Highlights**

### **Hawthorne Subdivision**





# Environment Management

## Stormwater Management

### **Project Highlights**

### **Inland Kenworth**





# Environment Management

## Stormwater Management

### Project Highlights

### Greenrock Industrial Subdivision





# Environment Management

## Stormwater Management

### **Adoption of MoESS Section 7**

**November, 2016**

- Capture, retain, infiltrate or reuse 6-Month, 24-hour rainfall (31mm +/-)
- Detain for areas that discharge into watercourses to minimize erosion
- Treatment to remove 90% of suspended particles
- Account for climate change



# Environment Management Stormwater Management

## Project Highlights Subdivision – 480 Tenth Street





# Environment Management

## Stormwater Management

### **Project Highlights**

#### **Subdivision – 519 Ninth Street**





# Environment Management

## Stormwater Management

### **Project Highlights**

### **Subdivision – Greenrock Phase 3**





# Environment Management Stormwater Management **Project Highlights**

## **Commercial Development - La-Z-Boy**



# Environment Management

## Stormwater Management

### Ongoing Collaboration & Implementation

- Continuing to refine development requirements
- Collaboration with Parks & Recreation and E&PW to identify opportunities
- Review and recommend bylaw amendments to Council





# ***BREAK***



RonKirk  
Photography