CORPORATION OF THE CITY OF COURTENAY
COUNCIL MEETING AGENDA

We respectfully acknowledge that the land on which we gather is the unceded traditional territory of the K'ómoks First Nation

DATE: **July 15, 2019**
PLACE: **City Hall Council Chambers**
TIME: **4:00 p.m.**

K'OMOKS FIRST NATION ACKNOWLEDGEMENT

1.00 ADOPTION OF MINUTES

1 1. Adopt July 2nd, 2019 Regular Council meeting minutes

2.00 INTRODUCTION OF LATE ITEMS

3.00 DELEGATIONS

9 1. Janet Gemmell, President, Morrison Creek Streamkeepers

11 2. Carmen Driechel, Community & Indigenous Relations Manager, FortisBC

4.00 STAFF REPORTS/PRESENTATIONS

(a) Recreation and Cultural Services

31 1. Appointments to the Parks and Recreation Advisory Commission

(b) Development Services

37 2. Urban Forest Strategy Drafted for Adoption and Presentation Mike Coulthard, Diamond Head Consulting

163 3. Development Permit with Variances No. 1824 - 344, 356, 370 -14th Street and 1450, 1480, 1508 - England Avenue

(c) Engineering Services

185 4. Sustainable Funding Options for Stormwater Management and Presentation - Dan Huang, Urban Systems

5. Ministry of Transportation and Infrastructure (MoTI) Update

191
- Ryan Road at Cowichan Avenue Crossing
- Presentation - Michael Pearson and Alycia Traas, MoTI

5.00 EXTERNAL REPORTS AND CORRESPONDENCE FOR INFORMATION

197 1. Correspondence - Heritage Advisory Commission Letter of Appreciation

199 2. Correspondence - Mikhaila Handyside - 2019 Bursary Recipient - Letter of Appreciation

201 3. Correspondence - Reilly Douglas - 2019 Bursary Recipient - Letter of Appreciation

6.00 INTERNAL REPORTS AND CORRESPONDENCE FOR INFORMATION

203 1. Parks and Recreation Advisory Commission Meeting Minutes April 04, 2019

205 2. Heritage Advisory Commission Meeting Minutes May 22, 2019

7.00 REPORTS/UPDATES FROM COUNCIL MEMBERS INCLUDING REPORTS FROM COMMITTEES

- Councillor Cole-Hamilton
- Councillor Frisch
- Councillor Hillian
- Councillor McCollum
- Councillor Morin
- Councillor Theos
- Mayor Wells

8.00 RESOLUTIONS OF COUNCIL

1. In Camera Meeting

That notice is hereby given that a Special In-Camera meeting closed to the public will be held July 15th, 2019 at the conclusion of the Regular Council Meeting pursuant to the following sub-sections of the *Community Charter*:

- 90 (1) (e) the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality.

9.00 UNFINISHED BUSINESS

10.00 NOTICE OF MOTION

1. Councillor Hillian - Morrison Creek Protection - August 19th, 2019

Whereas development pressure in riparian areas has increased in the Comox Valley and in the City of Courtenay as natural buffers along streams shrink, putting at risk healthy stream functioning, fish and wildlife; and

Whereas Morrison Creek is home to a Federally listed endangered species (Morrison Creek Lamprey) and is a healthy and productive salmon stream, producing more fish than all other creeks within the City combined, in large part because its riparian zone of wetland and treed buffers remains largely intact; and

Whereas the health and productivity of Morrison Creek will be threatened through encroachment by new or infill development into the "green infrastructure" supporting this exceptionally productive stream; and

Whereas protection of the productivity and biodiversity of this vital salmon producing stream and mitigation of flood risk is consistent with the goals of the OCP and treating stream corridors as "Eco Assets"; and

Whereas the province's Riparian Areas Regulation Act allows reduced buffers to the generally recommended 30-meter standard where based on scientific research and professional observation;

Therefore, be it resolved that the City of Courtenay work towards establishment of a higher standard of protection for Morrison Creek by establishing a consistent 30-meter setback, as in the Arden Local Area Plan, and that staff report to Council on the means and implications of enacting such policy, including in relation to other riparian areas within the City.

11.00 NEW BUSINESS

12.00 BYLAWS

For Third Reading

207 1. “Zoning Amendment Bylaw No. 2955, 2019”
(A bylaw to allow storefront cannabis retailer as permitted use - #103-1025 Cliffe Avenue)

209 2. “Zoning Amendment Bylaw No. 2959, 2019”
(A bylaw to restrict water bottling as prohibited use in all zones)

211 3. “Zoning Amendment Bylaw No. 2969, 2019”
(A bylaw to allow for a secondary suite - 1573 Hurford Avenue)

For Final Adoption

207 1. “Zoning Amendment Bylaw No. 2955, 2019”
(A bylaw to allow storefront cannabis retailer as permitted use - #103-1025 Cliffe Avenue)

209 2. “Zoning Amendment Bylaw No. 2959, 2019”
(A bylaw to restrict water bottling as prohibited use in all zones)

211 3. “Zoning Amendment Bylaw No. 2969, 2019”
(A bylaw to allow for a secondary suite - 1573 Hurford Avenue)

13.00 ADJOURNMENT

NOTE: There is a Public Hearing scheduled for 5:00 p.m. in relation to:

Bylaw No. 2957 - Zoning Amendment to allow storefront cannabis retailer as permitted use - #103 - 2270 Cliffe Avenue)

R13/2019 - July 02, 2019

Minutes of a Regular Council Meeting held in the City Hall Council Chambers, Courtenay, B.C., on Tuesday, July 02, 2019 at 4:00 p.m.

Attending:

Mayor:	**Bob Wells**
Councillors:	**W. Cole-Hamilton**
	D. Frisch
	D. Hillian
	M. McCollum
	W. Morin
	M. Theos
Staff:	**D. Allen, CAO**
	W. Sorichta, Manager of Legislative & Corporate Administrative Services
	I. Buck, Director of Development Services
	T. Kushner, Director of Public Works Services/Assistant CAO
	J. Nelson, Director of Financial Services
	R. O'Grady, Director of Engineering Services
	M. Fitzgerald, Manager of Development Planning
	R. Matthews, Executive Assistant
	A. Guillo, Manager of Communications

1.00 ADOPTION OF MINUTES

.01 MINUTES

Moved by Cole-Hamilton and seconded by Morin that the June 17th, 2019 Regular Council meeting minutes be adopted as amended.
Carried

Moved by Cole-Hamilton and seconded by Morin that the June 24th, 2019 Committee of the Whole meeting minutes be adopted.
Carried

2.00 ADOPTION OF LATE ITEMS

3.00 DELEGATIONS

Cliff Boldt presented information to Council supporting his recommendation for the City, in consultation with School District No. 71, to establish and develop a Local Area Plan (LAP) for west Courtenay to identify areas of mutual concern, delivery of common services and gaps in public services such as education, recreation and other amenities.

Mr. Boldt further suggested that this new LAP be incorporated into the City of Courtenay's Official Community Plan (OCP) to help guide decisions, future planning and policy development in our community.

4.00 STAFF REPORTS/PRESENTATIONS

Councillor McCollum recused herself at 4:24 p.m. citing a conflict of interest as her employer, North Island College, is the applicant of development variance permit #1809 being considered by Council.

.01
DEVELOPMENT VARIANCE PERMIT NO. 1809 - 2300 RYAN ROAD
3060-20-1809

Moved by Hillian and seconded by Frisch that based on the May 6th, 2019 staff report "Development Variance Permit No. 1809 - 2300 Ryan Road", Council approve OPTION 1 and issue Development Variance Permit No. 1809.
Carried

Councillor McCollum returned to Council Chambers at 4:27 p.m. and took her seat.

.02
ZONING AMENDMENT BYLAW NO. 2958 (#101 - 576 ENGLAND AVENUE)
3360-20-1904

Moved by Frisch and seconded by McCollum that based on the July 2nd, 2019 staff report "Zoning Amendment Bylaw No. 2958 - #101-576 England Avenue" Council approve OPTION 1 and proceed to First and Second Readings of Zoning Amendment Bylaw No. 2958, 2019; and

THAT Council direct staff to schedule and advertise a statutory public hearing with respect to the above-referenced Bylaw on August 6th or 19th, 2019 at 5:00 p.m. in City Hall Council Chambers; and

THAT Council direct staff to prepare a bylaw to remove storefront cannabis retailer as a permitted use at 605/625 Cliffe Avenue.
Carried

.03
2020/2021 RCMP MUNICIPAL POLICING CONTRACT: APPROVAL IN PRINCIPLE
1660-20

Moved by Hillian and seconded by McCollum that based on the July 2nd, 2019 staff report "2020/2021 RCMP Municipal Policing Contract: Approval in Principle", Council approve OPTION 1 which provides approval in principle for an expenditure of $6,375,449 of which Courtenay is responsible for 90% ($5,737,904).
Carried

.04
CONNECTING COURTENAY - DRAFT TRANSPORTATION MASTER PLAN
8620-21 / 5335-20

Moved by McCollum and seconded by Frisch that the draft Transportation Master Plan presentation be received for information.
Carried

Dan Casey, Urban Systems, presented information to Council related to the draft Transportation Master Plan (TMP) and the Cycling Network Plan (CNP), highlighting key outcomes, recommendations, values and guiding principles for both plans.

The next step is to release the TMP and CNP for a 30-day public comment period. Any changes to the adopted CNP will be brought forward at a future Council meeting; and all comments and feedback from the public engagement period will be compiled, with a final draft TMP presented to Council for adoption.

The council meeting recessed at 4:59 p.m. for the Public Hearing regarding Bylaw No.'s 2955 & 2969.
The meeting reconvened at 5:30 p.m.

Moved by Hillian and seconded by Morin that based on the July 2nd, 2019 staff report "Connecting Courtenay - DRAFT Transportation Master Plan," Council approve OPTION 1 and release the draft master plan for final feedback; and

That Council approve the text revision on Page A40 of the Connecting Courtenay - Cycling Network Plan.
Carried

.05
DCBIA EVENT STREET CLOSURE AND SUPPORT REQUEST - MARKET DAY AND SUMMER STREET MARKETS
0250-20/5400-04

Moved by Hillian and seconded by Cole-Hamilton that based on the July 2nd, 2019 Staff Report, "DCBIA Event Street Closure and Support Request" Council approves OPTION 1 and supports the request from the Downtown Courtenay Business Improvement Association for the City's Public Works Services department to arrange traffic control operations for both Downtown Courtenay Market Days and the Summer Street Market events; and

THAT Council utilize $15,000 of the 2019 Gaming Funds to supplement Public Works Service's 2019 Operational Budget.
Carried

5.00 EXTERNAL REPORTS AND CORRESPONDENCE FOR INFORMATION

.01
CORRESPONDENCE E. & B. MARLER VASILLI'S BREAD SHOP (556 - 5TH ST.) PARKING SIGNAGE & AMENDMENT TO TRAFFIC REGULATION BYLAW NO. 1926, 1996
3900-01/5455-04

The correspondence dated June 23rd, 2019 from Erica and Bill Marler of Vassilli's Bread Shop, requesting parking signage and an amendment to Traffic Regulation Bylaw 1926, 1996, was received for information.

Moved by Frisch and seconded by McCollum that Council direct staff to investigate costs and implications to amend Traffic Regulation Bylaw 1926, 1996, to accommodate the provision of two 15 minute parking signs in front of 556 - 5th Street; and,

That Bylaw Services continue to monitor the parking along this block for vehicles parked longer than 2 hours; and,

That staff explores options for amending the parking restrictions outlined in Traffic Regulation Bylaw 1926, 1996, from the current 2 hour limit to a 1 hour limit along the 500 Block of 5th Street; and investigate the implications of amending the parking limit to 1 hour within the broader downtown core.
Carried

6.00 INTERNAL REPORTS AND CORRESPONDENCE FOR INFORMATION

.01
2019 UNION OF BC MUNICIPALITIES (UBCM) CONVENTION MINISTER MEETING REQUESTS
0410-20

The June 26th, 2019 Briefing Note, "Draft Ministerial Meeting Requests 2019 Union of BC Municipalities (UBCM) Convention" was received for information.

Moved by Hillian and seconded by McCollum that Council request staff to prepare an on-line poll for Council to rank their preferred minister meeting requests in priority sequence, as identified in the June 26th, 2019 Briefing Note, "Draft Ministerial Meeting Requests 2019 Union of BC Municipalities (UBCM) Convention".
Carried

.02
2019 UNION OF BC MUNICIPALITIES (UBCM) CONVENTION MINISTER MEETING REQUESTS
0410-20

Moved by McCollum and seconded by Hillian that the June 26th, 2019 Briefing Note, "Draft Ministerial Meeting Request 2019 Union of BC Municipalities (UBCM) Convention: Minister of Finance - Tax Policy Branch re: Property Transfer Tax Revenues Redistribution", be received for information.
Carried

VARY AGENDA

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VARY AGENDA SECTION 12.00 BYLAWS

Moved by Frisch and seconded by Cole-Hamilton that Council vary the July 2nd, 2019 Regular Council agenda and move item *12.00 Bylaws* "Zoning Amendment Bylaw No. 2958, 2019" ahead on the agenda to be addressed before items 7.00, 8.00, 9.00, 10.00 and 11.00.
Carried

12.00 BYLAWS

.01
BYLAW NO. 2958, 2019, ZONING AMENDMENT TO ALLOW STOREFRONT CANNABIS RETAILER AS PERMITTED USE (#101 - 576 ENGLAND AVENUE)

Moved by Hillian and seconded by McCollum that "Zoning Amendment Bylaw No. 2958, 2019" pass first and second readings.
Carried

The council meeting recessed at 7:14 p.m.
The meeting reconvened at 7:35 p.m.

7.00 REPORTS/UPDATES FROM COUNCIL MEMBERS INCLUDING REPORTS FROM COMMITTEES

COUNCILLOR COLE-HAMILTON

Councillor Cole-Hamilton reviewed his attendance at the following events:

- Public Hearing for Zoning Amendment Bylaw No. 2959, 2019 - to restrict water bottling as permitted use
- Ecole Puntledge Park Elementary End of Year Celebration
- Federation of Canadian Municipalities (FCM) Climate Caucus Communications Team conference call
- National Indigenous People's Day celebration hosted by K'omoks First Nation
- Meeting with Downtown Courtenay Business Improvement Association representatives to discuss the 5th Street Bridge rehabilitation project
- LUSH Valley Food Action Society "Share the Harvest" AGM
- July 1st Canada Day celebration - participated in the parade, cake cutting and YANA VIP Dunk Tank Fundraising event events

COUNCILLOR FRISCH

Councillor Frisch reviewed his attendance at the following events:

- CVRD Board meeting
- Comox Strathcona Waste Management Board meeting
- National Indigenous People's Day celebration hosted by K'omoks First Nation
- Comox Valley Local Farm tour hosted by the CVRD
- Comox Valley Economic Development Society and CVRD Board to Board meeting
- Courtenay Development Industry Working Group meeting
- Meet & greet event with Lisa Beare, Minister of Tourism, Arts and Culture and MLA Ronna-Rae Leonard
- July 1st Canada Day celebration - participated in the YANA VIP Dunk Tank Fundraising event

COUNCILLOR HILLIAN

Councillor Hillian reviewed his attendance at the following events:

- Comox Strathcona Waste Management Board meeting
- National Indigenous People's Day celebration hosted by K'omoks First Nation
- Cumberland 34th Miners Memorial event
- Comox Valley Economic Development Society and CVRD Board to Board meeting
- CVRD Board meeting
- Comox Valley Community Justice Centre/Restorative Justice event with visitors from Nottingham, England
- LUSH Valley Food Action Society "Share the Harvest" AGM
- July 1st Canada Day celebration
- Comox Valley Water Pollution Control Centre tour

COUNCILLOR MCCOLLUM

Councillor McCollum reviewed her attendance at the following events:

- Public Hearing for Zoning Amendment Bylaw No. 2959, 2019 - to restrict water bottling as permitted use
- National Indigenous People's Day celebration hosted by K'omoks First Nation
- Comox Valley Economic Development Society and CVRD Board to Board meeting
- Comox Valley Local Farm tour hosted by the CVRD

COUNCILLOR MORIN

Councillor Morin reviewed her attendance at the following events:

- Public Hearing for Zoning Amendment Bylaw No. 2959, 2019 - to restrict water bottling as permitted use
- Student Bursary presentations at Glacier View Secondary Alternate School and Gaglardi Academy
- National Indigenous People's Day celebration hosted by K'omoks First Nation
- Meet & greet event with Lisa Beare, Minister of Tourism, Arts and Culture and MLA Ronna-Rae Leonard
- Comox Valley Local Farm tour hosted by the CVRD
- LUSH Valley Food Action Society "Share the Harvest" AGM
- July 1st Canada Day celebration

COUNCILLOR THEOS

Councillor Theos reviewed his attendance at the following events:

- July 1st Canada Day celebration

Councillor Theos extended his compliments to Scott Mossing, Assistant Manager of Recreation Facility Operations, and the July 1st event volunteers

MAYOR WELLS

Mayor Wells reviewed his attendance at the following events:

- Public Hearing for Zoning Amendment Bylaw No. 2959, 2019 - to restrict water bottling as permitted use
- Comox Strathcona Waste Management Board meeting
- Seafood Producers meeting
- Courtenay Development Industry Working Group meeting
- National Indigenous People's Day celebration hosted by K'omoks First Nation
- Chances Casino ribbon cutting ceremony for new patio opening
- Comox Valley Economic Development Society and CVRD Board to Board meeting
- CVRD Board meeting
- CVEDS Innovate 2030 Update meeting
- Lunch with the Mayor recipient from the Glacier Grannies fundraising event
- September 2019 Mayors Charity Golf Classic planning meeting
- Meet & greet event with Lisa Beare, Minister of Tourism, Arts and Culture and MLA Ronna-Rae Leonard
- Mark R. Isfeld Secondary School 2019 Graduation ceremony

- Comox Valley Community Justice Centre/Restorative Justice event with visitors from Nottingham, England
- July 1st Canada Day celebration - participated in the pancake breakfast, parade, cake cutting and YANA VIP Dunk Tank and K'omoks First Nations Quilt Fundraising events

Mayor Wells expressed a HUGE thank you to all the volunteers, City staff, City Councillor and participants that made the July 1st Canada Day event so successful.

8.00 RESOLUTIONS OF COUNCIL

.01
CANCEL AUGUST 6TH, 2019 REGULAR COUNCIL MEETING

Moved by Hillian and seconded by Theos that Council cancel the regular Council meeting scheduled Tuesday, August 6th, 2019 to accommodate the 2019 summer meeting schedule.
Carried

.02
IN CAMERA MEETING

Moved by Frisch and seconded by McCollum that notice is hereby given that a Special In-Camera meeting closed to the public will be held July 2nd, 2019 at the conclusion of the Regular Council Meeting pursuant to the following sub-section of the *Community Charter*:

- 90(1) (c) labour relations or other employee relations.

Carried

9.00 UNFINISHED BUSINESS

.01
DEVELOPMENT VARIANCE PERMIT NO. 1809 - 2300 RYAN ROAD
3060-20-1809

Addressed under *Section 4.00 Staff Reports and Presentations*, Agenda item 4.1.

.02
DELEGATION - BREATHE CLEAN AIR COMOX VALLEY

Moved by Frisch and seconded by Morin that Council direct staff to provide an interim status report of the Regional Airshed Advisory Working Group's discussions related to a regional approach for improving air quality in the Comox Valley.
Carried

.03
APPOINTMENTS TO COUNCIL SELECT COMMITTEE ON ALTERNATIVE ASSET MANAGEMENT FUNDING SOURCES AND LEVELS OF SERVICE OPTIONS
0550-20

Moved by Hillian and seconded by Morin that Councillors Hillian, McCollum and Cole-Hamilton be appointed to the Alternative Asset Management Funding Sources and Levels of Service Options Council Select Committee, with Councillor Cole-Hamilton designated as the Mayor's alternate; and,

That the Select Committee choose the Chairperson and Deputy Chairperson at the committee's inaugural meeting.
Carried

10.00 NOTICE OF MOTION

11.00 NEW BUSINESS

13.00 ADJOURNMENT

.01 Moved by Hillian and seconded by Frisch that the meeting now adjourn at 8:09 p.m.
Carried

CERTIFIED CORRECT

_____
Corporate Officer

Adopted this 15th day of July, 2019

_____
Mayor

Think Like A Watershed

COMOX VALLEY GUIDE TO URBAN WATERSHEDS

WHAT IS A WATERSHED?

A watershed is an area of land that collects water and funnels it to a downstream waterway, such as a larger river, lake, estuary or ocean. Watersheds are separated from each other by hills, mountains, or other elevation features. The water moving through a watershed includes rain water and snowmelt as well as ground water.

A healthy watershed provides and conserves clean water, and provides habitat for fish, wildlife, and native plants.

Watersheds in urban areas face special challenges, as the land becomes covered with buildings, roads and pavement. Water runs quickly off the land instead of soaking in, and pollution is washed into streams.

We all live in and depend on watersheds.

We all can play a role in keeping them healthy

The health of an urban watershed is threatened as development happens. Bit by bit, streams get paved over, pollutants increase, and trees are cut down. Without special care, habitats for birds, animals and fish decline until they vanish. While this too often happens, it doesn't have to be this way. Life will return to even the most desolate spots given the right conditions.

Home Tips for Healthy Watersheds

1. **Dispose of all petroleum products and chemicals at recycling facilities** – this removes pollutants that run off private property and contaminate nearby creeks.
2. **Dispose of yard and lawn cuttings using curbside pick up, the landfill or compost them** – this reduces the spread of non-native plants, and keeps garden waste out of streams.
3. **Plant native trees and vegetation** – this provides cover and nutrients to fish and other creatures, stabilizes stream banks, reduces erosion and uses less water.
4. **Minimize paving and use gravel or permeable pavers instead** – this allows water to soak into the ground and slowly move to nearby waterways, thus maintaining summer flows and reducing flooding in rainy months.
5. **Keep creeks natural** – meandering creeks with deep pools, fallen trees and branches reduce erosion and provide improved fish habitat.
6. **Maintain septic systems** – this reduces pollution going into the watershed.
7. **Support and encourage your local government to protect and restore watersheds** – they can be a major force for watershed health.

Urban Watershed Challenges

1. **Grassy or bare stream banks** – are subject to erosion and provide no shade or protection for fish, or living space for plants and animals.
2. **Paved surfaces and loss of vegetation** – create flashy water runoff that causes erosion and delivers pollutants to streams.
3. **Disposal of pollutants into storm drains, perimeter drains or septic systems** – results in contamination of streams and death of aquatic life.
4. **Channeled, straight waterways without natural structures** – result in erosion, as well as providing little to no aquatic habitat, flooding and downstream silting.
5. **Invasive plants** – can change habitats, out-compete and overwhelm other species that are part of a healthy watershed (FMI beplantwise.ca).
6. **Use of pesticides, synthetic fertilizers and weed killers on lawns and gardens** – results in chemicals and excessive nutrients being flushed into the watershed.
7. **Concrete or rip-rap stream banks** – eliminate habitat and displace flow creating downstream erosion.

Morrison Creek Watershed
Appreciate, Preserve and Restore

Morrison Creek begins from several springs between Bevan Rd and the Inland Island highway. These springs supply the cool, clean, year-round water that fills the ponds, wetlands and tributaries flowing into Morrison Creek. The young mixed forest of the headwaters area provides habitat for mammals, birds, amphibians and insects.

The Morrison Creek Watershed is a subbasin of the Puntledge Watershed. For its size, 890 hectares, it is one of the most productive watersheds on eastern Vancouver Island. Morrison has runs of pink, chum and coho. Coho from Morrison Creek were used to rebuild coho stocks in the Puntledge River. Cutthroat and rainbow trout, freshwater mussels and crayfish are found in Morrison.

The Morrison Creek Lamprey, Lampetra richardsoni var marifuga, listed as endangered under the Species at Risk Act, occurs only in the Morrison Creek watershed. The Morrison Creek Lamprey is a parasitic form of the more common Western Brook Lamprey and may be the evolutionary intermediate stage between the exclusively freshwater form and the anadramous form of the Lampreys.

Morrison Creek Streamkeepers:

MCS

Local stewards involved in conserving the integrity, vitality and biodiversity of this special watershed.

Learn more at
www.morrisoncreek.org

IF YOU OBSERVE AN IMMINENT THREAT TO THE WATERSHED OR THE CREEK CONTACT:

- **Department of Fisheries and Oceans**
  24 hour hotline: 1 800 465-4336
- **Comox Valley RD:** 1 250 334-6000
- **City of Courtenay:** 1 250 338-1525,
  website: www.courtenay.ca
- **Village of Cumberland:** 1 250 336-2291
- **Report all polluters and poachers (RAPP):**
  1 877 952-7277

Morrison Creek Watershed Map

Legend

- Watershed Boundary
- **Sensitive Habitats***
  - Older Forest
  - Wetland
  - Lost
  - Parks & Protected Areas
- **Watercourses**
  - Confirmed Fish Presence
  - Unknown Fish Presence
- Springs
- Storm Discharge Points
- Culverts
- Schools

*These layers are slightly transparent and show up lighter on the map

Data Sources: Aeroquest Mapcon - Aerial Imagery
City of Courtenay - Stormwater
Project Watershed - Fish Presence Streams
Province of BC - Parks, Watersheds, Sensitive Habitats
Map and brochure created by Project Watershed 2017
www.projectwatershed.ca

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Mapsheets
92F065 2-4
92F066 1,3

Scale = 1:19,000

0 250 500 1,000 Meters

This map is for educational purposes not legal purposes. Project Watershed disclaims all responsibility for the accuracy or completeness of the information.

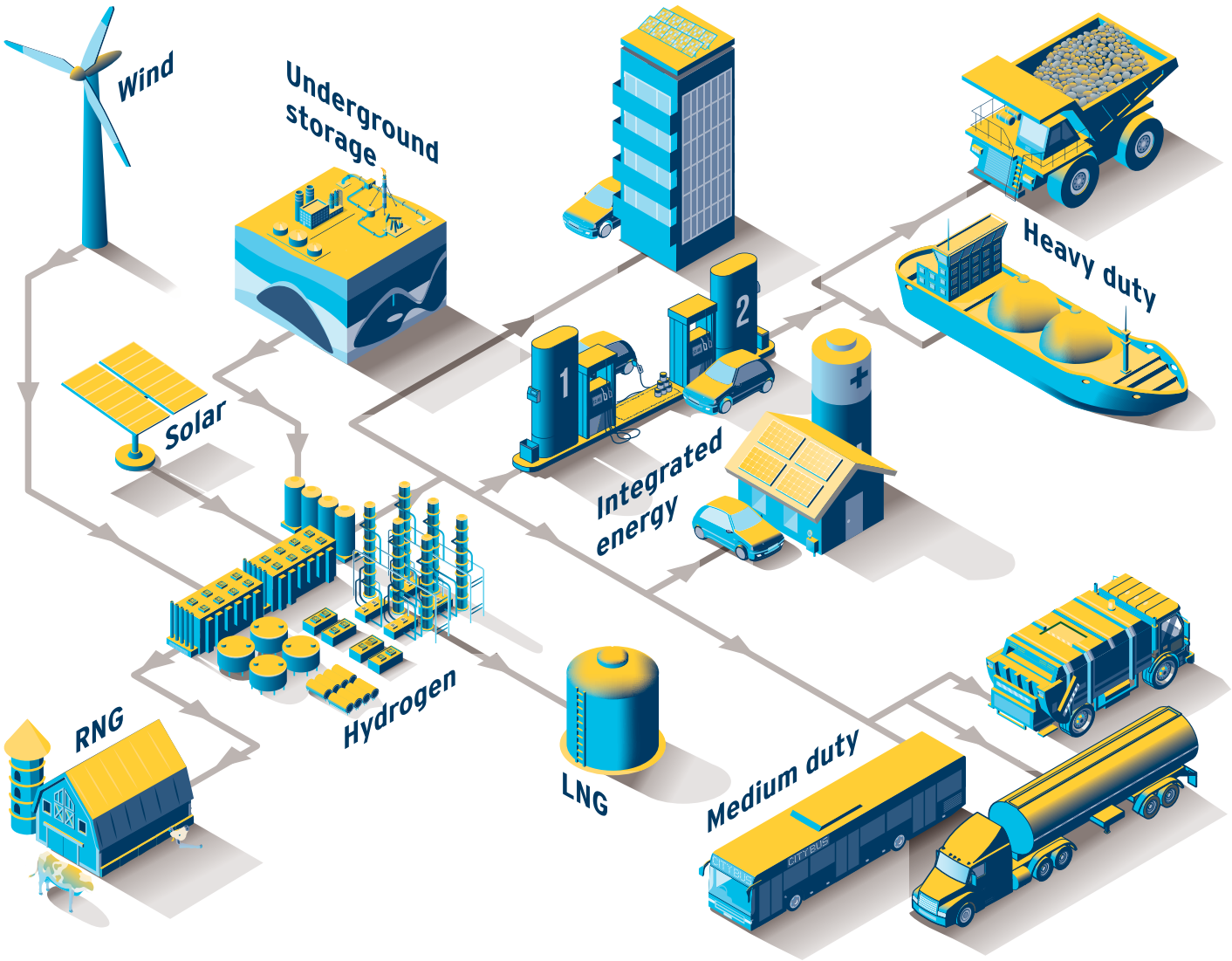
Clean growth pathway to 2050

Contents

Affordability, clean energy and efficiency: FortisBC's clean growth pathway

We believe FortisBC has an important role to play in helping British Columbia move to a low-carbon, renewable energy future. We see ourselves as an energy delivery company that has climate and economic solutions in the buildings and transportation sectors. Millions of British Columbians we serve in communities across the province look to us to deliver energy safely, reliably and affordably every day. As a subsidiary of our Canadian-based parent company, Fortis Inc., one of the largest energy companies in North America, we're committed to helping British Columbia achieve its climate goals and addressing climate change solutions in a global context. We're focused on providing practical solutions that can be implemented today by leveraging our existing infrastructure.

Figure 1: FortisBC's role in driving BC's sustainable prosperity



This paper presents FortisBC's pathway to align with the provincial government's goal to significantly reduce greenhouse gas emissions while supporting economic growth and maintaining affordability and customer choice. Our approach combines several strategies that together outline a clear pathway to significant emissions reductions and signal a paradigm shift in the way we relate to energy.

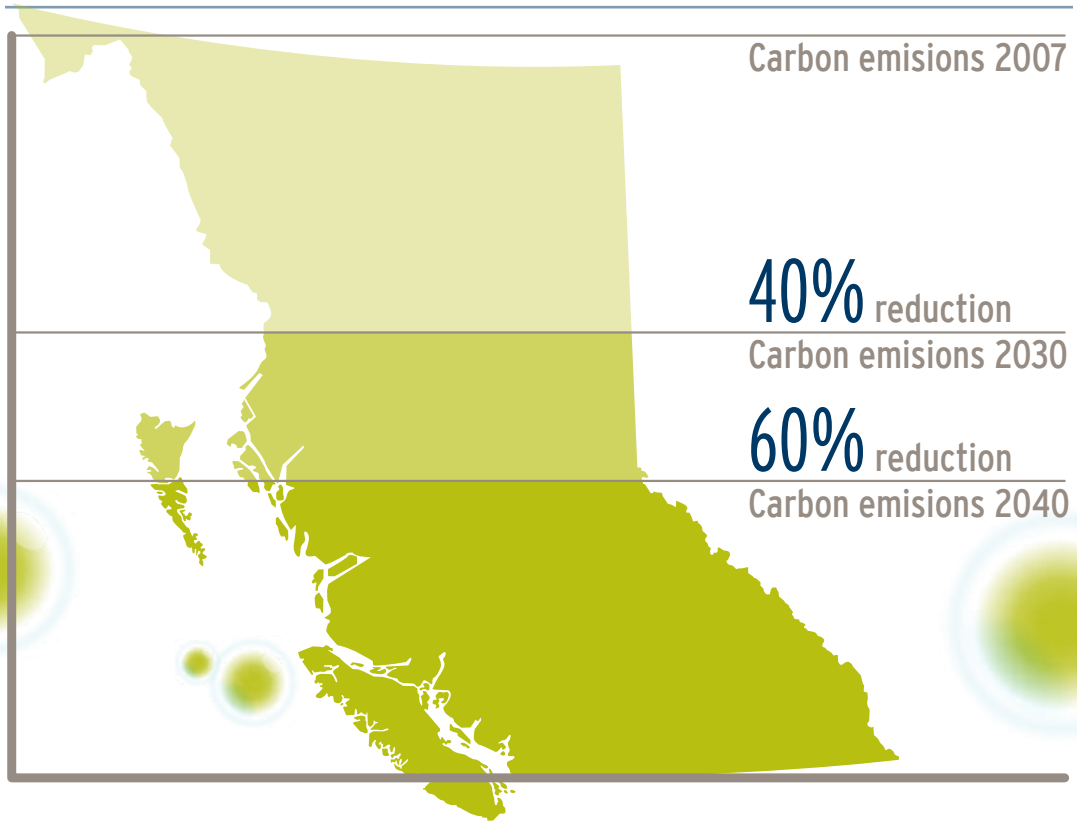
Our pathway calls for four significant shifts in our energy systems to foster market transformation:

- making significant investments in both low and zero carbon vehicles and infrastructure in the transportation sector
- transitioning from higher carbon energy sources to lower carbon sources by ramping up Renewable Natural Gas (RNG) and hydrogen deployment to achieve a ten per cent zero-carbon fuel supply by 2030 and a thirty per cent supply by 2050
- positioning BC as a vital domestic and international Liquefied Natural Gas (LNG) provider to lower global GHG emissions
- tripling our investment in energy efficiency in the built environment and developing innovative energy projects in BC's communities

Introduction

British Columbia (BC) has committed to achieving deep carbon reductions in greenhouse gas (GHG) emissions by 2050. The province recently updated its climate targets to a 40 per cent reduction in carbon emissions from 2007 levels by 2030, and a 60 per cent reduction from 2007 levels by 2040. Achieving these long-term targets will require immediate and coordinated action by policy makers, regulators and industry. The province will need more than aspirations to achieve real, timely results.

Provincial Carbon Emission Goals



We believe we have a significant role to play in helping the BC Government deliver on its climate and energy goals. Our pathway is based upon our commitment to investing in projects that will make life more affordable for British Columbians, improve efficiency, reduce GHG emissions and drive innovation. By strategically managing BC's existing energy infrastructure and investing in new low-carbon energy supply, we see a long-term opportunity to continue creating sustainable, good-paying jobs across BC.

In 2015, BC's emissions were 63 million tonnes (Mt) of CO_2e. Most emissions fall into three categories: transportation, buildings and industry. We recommend any sectoral targets being considered should be proportionate to the sector's share of GHG emissions and the ability to deliver cost-effective emissions reductions using our current infrastructure.

25%

of BC's CO_2 emissions are from commercial transportation

For example, the commercial transportation sector is the largest contributor to BC's emissions at 25 per cent. The provincial government can achieve large emission reductions in transport using today's commercially-available technology. Practical and affordable solutions that can be implemented immediately should be differentiated from aspirational goals that require technology breakthroughs.

A made-in-BC pathway

As a utility serving gas, electric and alternative energy customers, FortisBC recommends developing an integrated, system-wide evaluation of achieving the province's carbon reduction objectives. Because FortisBC delivers the most energy to consumers of any entity in the province, we have a keen interest in British Columbians understanding the system-wide impacts of various pathways that meet the province's GHG emissions targets. BC's electric and gas energy systems work in tandem to provide reliable energy to British Columbians. Both systems complement one another, providing redundancy and a low-cost solution to delivering energy to British Columbians. FortisBC believes that the provincial pathway should be guided by strong analysis and pursue a strategy that utilizes 'every tool in the toolbox': all of our provincial energy resources and existing infrastructure will be needed to achieve long-term GHG emissions reductions.

Many low-carbon pathways have emphasized the importance of the electrification of end-uses. We agree that electricity will play a key role in reducing emissions but we also caution that there are significant challenges to this strategy. Notably, the direct substitution of electricity for gas to meet heating load, coupled with growth in other areas like electric vehicles, would far exceed the available electric infrastructure and add significant costs to the existing system which would be borne by all BC residents.

FortisBC supports the provincial government's commitment to undertake a review of BC Hydro and incorporate the findings into the Clean Growth Strategy. As we consider how best to transition to a sustainable and innovative economy, we believe there is a need to reflect the real cost of all energy in our long-term goals and strategies.

FortisBC believes that gas—as an energy carrier—will continue to be a critical component of a decarbonized energy system in British Columbia. Gas infrastructure in the province is a multi-billion dollar asset that provides reliable, safe, affordable and high-quality energy services to British Columbians. This infrastructure is designed to serve difficult-to-decarbonize end-uses such as building and industrial heating and heavy-duty freight. Additionally, BC's gas infrastructure is equipped to handle decarbonization pathways that use drop-in fuels such as RNG and hydrogen, along with other key mitigation options like carbon capture and storage. The provincial government and stakeholders like FortisBC need to work to define the key role of the gas system to achieve our GHG reduction objectives and develop policies and other support mechanisms to leverage this system in a low-carbon transition.

Transportation

The transportation sector accounts for 39 per cent of BC's total emissions, making it the most important sector where we can achieve significant and immediate carbon reductions with technology that is available to us today. FortisBC is a leader in North America, providing innovative and clean technology that lowers emissions throughout the transportation sector.

BC's transportation sector accounts for

39%

of our CO_2 emissions

The decarbonization of BC's transportation sector will require the use of all tools available to us including:

- cleaner transportation systems, including increased investment in fueling infrastructure, clean trade corridors
- cleaner fuels that displace high carbon fuels with alternative fuels such as natural gas, RNG, biofuels or hydrogen
- cleaner vehicles that use alternative fuels, electric power or hybrid technologies

Cleaner transportation systems

BC Ferries new Salish Orca is fueled by natural gas–an innovative and clean solution that will provide benefits to BC Ferries' customers and the provincial economy.

Marine

The marine sector represents a massive GHG reduction and economic opportunity that should be the top priority in the province's Clean Growth Strategy. BC has had excellent early success in advancing liquefied natural gas (LNG) in the domestic marine sector that serves as a foundation to build upon for other markets.

BC Ferries launched their fourth LNG vessel this summer with a fifth expected next year and Seaspan Ferries now operates two LNG vessels in BC waters. With five LNG vessels in operation, BC Ferries, for example, expects to reduce their fuel costs by millions of dollars and CO_2 emissions by 21,500 tonnes annually, the equivalent of taking approximately 4,400 vehicles off the road per year. To put that in perspective, that's more than double the 2,200 battery electric vehicles that were purchased in all of BC in 2017.

The *Spirit of British Columbia* is the first vessel in the world to refuel LNG through delivery on a fully enclosed vehicle deck. In collaboration with BC Ferries, FortisBC

developed a proprietary tanker truck technology to deliver fuel while on board the vessel. Innovative solutions like this help make it easier for transportation customers to make the switch to LNG.

The conversion of BC Ferries' two largest ships in the fleet, along with the introduction of three new natural gas-fueled Salish Class vessels last year, improves sustainability and affordability for ferry users. FortisBC is proud to have partnered with BC Ferries to develop these innovative and clean solutions that will provide benefits to BC Ferries' customers and the provincial economy.

Clean Trade Corridors

FortisBC applauds the provincial government for initiating the Clean Transportation in BC Trade Corridors initiative. We see this multi-stakeholder collaboration as an essential forum to ensure that BC and Canada are in position to capitalize on international conventions that will reduce the use of dirtier fuels and drive the adoption of LNG in the marine sector. The group's mandate to improve competitiveness and reduce GHGs is well focused and timely—conventions set by the International Maritime Organization (IMO) will take effect by 2020 which is an incredibly short period to transition the practices of international vessels in BC's ports.

Marine vessels that regularly call at BC ports originate from ports of other countries are not included in the provincial emissions inventory, yet these vessels emit a significant amount of emissions when in transit and when berthed in our ports. GHG emissions from this segment of international marine transport are approximately 70 million Mt of CO_2e per year—greater than BC's total annual GHG emissions. These emissions should be considered as part of the province's global GHG reduction strategy by displacing high-carbon marine fuels with low-carbon LNG.

Greenhouse gas emissions from international marine shipping currently represent around 2.6 per cent of total global emissions, but this share could more than triple by 2050 if measures are not taken to help speed a transition to a low-carbon environment in this sector. Following the Paris Climate Agreement, discussions began at the IMO to agree to an Initial Greenhouse Gas Strategy to stipulate significant measures to mitigate emissions. In April 2018, The IMO agreed on its first strategy to reduce GHG emissions in the international shipping sector to meet the Paris Agreement goals. The IMO strategy includes a target to reduce carbon emission by at least 50 per cent compared with 2008 levels by 2050. This strategy presents a challenge for a sector that has traditionally faced significant barriers to innovations and an opportunity for BC to position itself as a low-carbon fuel provider in the form of LNG.

Low-carbon fuels such as LNG will be critical to achieving the IMO emission reduction targets. BC is well-positioned to assist in these efforts and become a world leader in LNG bunkering. The provincial government should consider developing policies to

start addressing these emissions such as including the ability to generate compliance credits with the Renewable and Low Carbon Fuel Requirement Regulation if international marine vessels use lower carbon fuels such as LNG.

FortisBC was the first company in the world to offer onboard truck-to-ship LNG bunkering. This proprietary design was developed by collaborating with Seaspan Ferries, BC Ferries and the their shipbuilders to create a customized solution to fit our customers' needs.

FortisBC has the infrastructure in place to be ready for 2020. FortisBC has completed construction of a $400-million LNG expansion project at our Tilbury facility which includes a new storage tank and additional liquefaction capacity. Plans are being developed to increase the Tilbury LNG facility's liquefaction capacity up to to three million tonnes per annum, expand LNG storage by another 92,000 cubic metres and provide ship loading facilities to serve these markets. Our Tilbury LNG facility is powered by electricity, creating safe, clean, low-greenhouse gas emitting LNG.

Expanding our natural gas liquefacation capacity by

92,000

cubic meters

Locally, other agencies such as the Port of Tacoma are also working to position themselves for success. Puget Sound Energy (PSE) is developing an LNG production facility that will enable LNG supply for marine and transportation markets in the region. This LNG facility will incorporate LNG liquefaction, storage and bunkering to the marine market. The project is scheduled to be completed in late 2019 and would compete with BC. FortisBC believes there is a limited window of time for BC to establish itself as an LNG bunkering hub before 2020. BC has an advantage as we have an ample supply of clean LNG available at globally competitive rates.

FortisBC recommends the following actions:

- Continue supporting the Clean Transportation in BC Trade Corridors initiative. Specifically, the opportunity to introduce a pilot program to convert drayage vehicles from diesel to compressed natural gas (CNG) and the advancement of the LNG bunkering in advance of 2020. The provincial and federal governments need to advance the regulation, financial tools for bunkering infrastructure and policies to establish BC as a global leader in LNG bunkering.
- Amend British Columbia's Renewable Low Carbon Fuel Reduction Regulation to generate credits for LNG bunkering that lower international shipping emissions.
- Work with the federal government to develop policies that account for the role of BC LNG in meeting global GHG reduction targets via Article Six of the Paris Agreement.

Cleaner fuels

FortisBC supports the provincial government's proposal to support the transition to cleaner fuels. We see RNG as being an essential component of this transition.

FortisBC was the first utility in North America to offer RNG to residential customers in 2011. RNG is a critical source of renewable energy that is helping the province achieve its GHG emission reduction target. Farms, landfills and other suppliers like the City of Surrey have teamed up with FortisBC to capture methane (CH4) from organic waste, which would otherwise escape into the atmosphere. This methane, also known as biogas, is purified to make RNG.

FortisBC's RNG program is enabled by a British Columbia Ministerial Regulation, the Greenhouse Gas Reduction Regulation (GGRR). The GGRR has facilitated the development of five operational projects which are forecasted to supply over 203,000 GJ of RNG this year. These facilities capture biogas, clean and upgrade the biogas into RNG, and inject the RNG into our distribution system. Since the RNG offering launched to residential customers in June 2011 and commercial customers in March 2012, over 9,000 customers have subscribed to this offering and have helped reduce GHG emissions an equivalent amount to removing 7,200 cars from the road.

Though FortisBC has achieved important early successes in the residential and commercial sectors, further work is required to grow BC's supply of RNG for use in the transportation sector. Innovations in biogas could boost our supply of RNG to between 25 and 46 per cent of FortisBC's annual natural gas demand by 2036. Power-to-gas, the process of converting electric power into carbon-neutral hydrogen, presents a further opportunity and could account for between five and 15 per cent of annual demand by 2036.

We believe that hydrogen will be a key driver towards reducing BC's carbon emissions, not only as an alternative fuel to enable the decarbonisation of heating, but as a means of storing renewable power (hydroelectric, solar and wind) and, through this, linking together the decarbonisation of the building, industry and transport sectors. We believe in taking a system-wide perspective of hydrogen as a technology that further integrates the electric and gas systems by acting as a high capacity storage medium for carbon-free power generation and a carbon-free fuel for heat and transport.

Turning waste into fuel

Earlier this year, we joined the City of Surrey and the Government of Canada to open North America's first closed loop waste management system. The facility will convert curbside organic waste into renewable biofuel to fuel the City's fleet of natural gas powered waste collection and service vehicles. Under this closed loop system, waste collection trucks will literally be collecting their fuel source at curbside. Excess fuel will go to the new district energy system that heats and cools Surrey's City Centre.

The potential of a low-carbon gas system

In its 2017 Long-Term Gas Resource Plan, FortisBC outlined a preliminary analysis of initiatives that could achieve significant GHG emissions reductions by 2030. Emissions reductions opportunities for FortisBC fall into three categories: i) decarbonizing pipeline gas with RNG, hydrogen and carbon capture and storage; ii) energy efficiency and demand-side management (DSM); and iii) fuel switching from more carbon-intensive energy to pipeline gas and LNG.

Should low-carbon gases like RNG and hydrogen achieve a notable share of the total supply in the gas distribution system, FortisBC estimates that the technical potential to reduce GHG emissions would be up to 2.7 and 5.0 Mt. This would reduce emissions from natural gas consumption by between 25 per cent and 42 per cent from 2007 levels in the industrial, commercial and residential sectors.

In the transport sector, FortisBC could achieve 0.3 Mt of domestic reductions and 10.7 Mt from international shipping by 2030. This highlights the significant potential for the gas system to be a key contributor to the province's climate objectives. Ambitious provincial incentives and other policy support would be required to expand the supply of low-carbon gas to this scale. But, maintaining a role for gas within a low-carbon transition ensures that customers maintain their choice of energy supply and lowers the technology risk and costs of a narrowly defined abatement pathway. Such a pathway would also ensure that provincial energy resources and infrastructure are leveraged for a made-in-BC solution.

Growing BC's low-carbon fuel sector will require a number of actions from the province:

- sidentify RNG as an essential component of the province's clean growth pathway
- address regulatory barriers to expanding utility investment in RNG projects
- streamline regulations to enable RNG production from agricultural waste
- provide support to advance the commercial production of hydrogen as a form of RNG

Domestic carbon reductions from international shipping of

10.7

metric tonnes

What is Renewable Natural Gas?

Renewable Natural Gas (RNG) is a carbon-neutral energy source, because it does not contribute any net carbon dioxide into the atmosphere. RNG is produced in a different manner than conventional natural gas. It is derived from biogas, which is produced from decomposing organic waste from landfills, agricultural waste and wastewater from treatment facilities. The biogas is captured and cleaned to create carbon-neutral RNG.

Peter Schouten, Owner Operator, Fraser Valley Biogas. One of FortisBC's first RNG suppliers.

Cleaner vehicles

Displace higher carbon fuels by expanding BC's natural gas vehicle sector

Commercial transportation accounts for 25 per cent of total greenhouse gas emissions in British Columbia and more than half of these emissions originate from road freight transport. By increasing our efforts to displace higher carbon fuels in the heavy-duty vehicle and marine transport sectors, BC can achieve substantial emissions reductions.

By converting heavy-duty truck fleets and transit vehicles to LNG or CNG, we're helping the province meet its carbon emission reduction goals while helping operators save on fuel costs.

FortisBC natural gas for transportation customers are realizing anywhere from 25 to 60 per cent reduction in fuel costs. This helps improve the competitiveness of our private and public sector partners. Since initiating our efforts to introduce cleaner vehicles in 2010, we have reduced more than 110,000 tonnes of CO_2e and displaced more than 145 million litres of diesel.

Natural gas can reduce GHG emissions by up to 30 per cent compared to diesel and gasoline. Additionally, switching to natural gas fuel can improve air quality: natural gas vehicles emit virtually no particulate matter, and they emit up to 95 per cent less nitrogen oxides (NOx).

FortisBC recommends the following actions:

- continue supporting investment in CNG transit vehicles and fueling infrastructure to displace higher carbon fuels and reduce particulate emissions
- expand the GGRR and develop a BC Ports incentive program to convert the 1,700 trucks in BC's drayage sector to CNG or CNG/Hybrid trucks, covering the full cost of the vehicle and reducing both the particulate and GHG emissions associated with BC's ports
- expand eligibility for BC's CEV Specialty-Use Vehicle Program to include hybrid vehicles that include an alternative fuel, such as CNG or hydrogen
- undertake a review of Ministry of Transportation policy to permit low emission natural gas and hydrogen vehicles to use designated HOV lanes on key trade corridors such as Highway 99 and Highway 1

UPS' commitment to CNG

Earlier this year, we partnered with the world's largest package delivery company to launch a compressed natural gas fueling station and vehicles in Vancouver, BC. Seven CNG highway tractors and 40 delivery trucks were added to the current Canadian UPS fleet of over 2,900 package cars, tractors and shifters. Presently, more than 40 per cent of the UPS fleet in Canada runs on alternative fuels. UPS Canada now joins over 800 transit buses, commercial vehicles and freight vehicles powered by natural gas here in BC.

Transform the light-duty transportation sector through electrification

The light-duty transportation sector accounts for 14 per cent of BC's total GHG emissions. This includes light-duty passenger vehicles and trucks that use gasoline or diesel. Electrification of this segment provides a promising pathway to reduce emissions, as cost and performance of the underlying battery technology has seen dramatic improvements in recent years. The automotive industry is responding with many new electric vehicle models arriving in the showrooms of almost every manufacturer.

Light-duty transportation accounts for

14%

of BC's total GHG emissions

Growth in the electric vehicle segment is happening in BC but further incentives will be required to achieve government's goal of 5 per cent of all new light-duty vehicle sales. EV sales in 2017 increased by 53 per cent compared to 2016 and were accelerated by an expanding lineup of fully electric vehicles. However, while there has been an increase in the sale of EVs since 2013, at approximately 1.7 per cent of total vehicle sales in 2017 for BC, EV sales are still a small portion of the overall market. FortisBC supports the province's proposal to continue providing vehicle incentives.

Additional EV charging infrastructure will be critical to advancing the adoption of EVs in the province. Without adequate charging infrastructure deployed throughout the province to allow zero emission vehicles to travel throughout BC safely and conveniently, it is unlikely that the EV market share will progress quickly. Further collaboration between the province, local governments and FortisBC and BC Hydro can address this gap.

We recommend that the province take the following actions:

- continue providing incentives for EV Vehicles and infrastructure
- support increased utility investment in EV charging infrastructure in BC
- leverage existing FortisBC CNG fueling infrastructure to include fast charging EV stations
- develop measures to encourage charging station installations at businesses and other buildings as part of a smart grid

accelerate Kootenays

FortisBC is a core funder of the *accelerate* Kootenays initiative, a collaborative project that will address the charging infrastructure gap across the Kootenay region in Southeast British Columbia. Earlier this year, we opened five electric vehicle Direct Current Fast Charging (DCFCs) stations in the region, connecting the West Kootenays to surrounding regions for electric vehicle travel.

All West Kootenay stations were installed by Kootenay-based electricians, creating local employment opportunities for residents.

All are part of the broader *accelerate* Kootenays initiative which will ultimately facilitate the installation of 13 fast chargers and 40 Level two chargers in communities across the Kootenays, resulting in over 1,800 kms of connected electric vehicle travel. The fast charging stations are critical infrastructure to allow electric vehicle drivers to travel to and through the region, and to facilitate increased adoption of electric vehicles locally.

Buildings & communities

FortisBC is uniquely positioned to be a key agent of the government's strategy to reduce GHG emissions in buildings and communities in a cost-effective, market-driven manner. We provide energy in the built environment through gas, electricity and as an alternative energy provider.

In 2017, we opened the door to our new LEED-equivalent Kootenay Operations Centre outside of Castlegar, BC.

The marketplace recognizes the affordable, high-quality, reliable and safe energy services delivered by FortisBC. Over three million British Columbians use natural gas every day with over 58 per cent of households using natural gas as their primary heating source. The preference for gas is reflected by our continued customer growth. In fact, 2017 was FortisBC's best-performing year for customer growth, with many new customers converting their home heating system from high carbon fuels such as heating oil. This emphasizes the foundational role of gas infrastructure in BC's energy system. To achieve the provincial government's GHG reduction objectives, consumer preference for gas as a low-carbon and affordable energy source should be recognized and harnessed.

Even though customer additions to FortisBC's gas system were at record-levels in 2017, the amount of gas used on a per customer basis declined by 1.8 per cent in 2017 on a weather normalized basis. This speaks to the success of energy efficiency measures in the province including FortisBC's energy conservation programs, federal and provincial policies and the gradual but concerted shift in the built environment to more energy efficient dwellings.

The unique aspect of the gas system is that it is specifically designed to address heating demand. Seasonal changes in heat demand (referred to as "peak load" or "peak demand") can be up to 400 to 500 per cent greater than FortisBC's average demand. For comparison, peak load in the FortisBC electric system is approximately 40 per cent higher than average load. If BC used electricity as the primary source for heat the seasonal variability of heating load would create a huge need for energy storage. Hydropower could meet the storage requirement were it not for the magnitude of heat load in BC. The approximate peak-hour heating load in 2017 in FortisBC's gas system was over 12 GW of electrical capacity equivalent (at a one-to-one unit energy conversion basis). In other words, electrifying heating could require almost a doubling of the existing hydroelectric capacity in BC even before considering the electrification of some part of the transportation fleet or other energy end uses and the additional transmission and distribution requirements. Recognizing this, decarbonizing the gas flowing through the system while maintaining the use of that system is a prudent and low-cost strategy to ensure that BC achieves its climate targets.

Stronger codes and standards over time

We support stronger codes and standards that result in increased energy efficiency. We support an approach that is aligned with the current BC Building Code and BC Energy Step Code (BC ESC) targets. The BC ESC provides an incremental and consistent approach to achieving more energy-efficient buildings in a cost-effective manner while also reducing GHG emissions.

Codes and standards should stay consistent to achieve energy efficiency gains

The BC ESC was developed after an extensive, multi-year engagement process. As a member of the Energy Step Code Council, FortisBC provided insights into the development of the BC ESC, particularly with respect to ensuring affordability needs for British Columbians are addressed, while supporting continuing innovation in the use of energy in buildings.

In addition to supporting long-term improvements in energy efficiency in the BC Building Code, the BC ESC ensures the consistency of building regulations in the province; a key to ensuring clear regulation for builders and developers looking to build in multiple municipalities. The BC ESC provides a provincial framework that replaces the patchwork of different green building standards that have been required or encouraged by local governments in the past. This allows local governments to play a leadership role in improving energy efficiency, while providing a single standard for industry, and build capacity over time.

The BC ESC focuses first on building envelope design with a goal of taking incremental steps to make buildings net-zero energy ready by 2032. It provides for a fuel neutral approach and focuses on the efficiency of buildings and equipment. By focusing on building and equipment efficiency, both overall energy usage and GHG emissions are reduced while building comfort is increased. While costs increase at higher levels of the code, energy usage decreases help offset the increase in overall costs to consumers. The BC ESC also provides flexibility to meet the changing needs and abilities of local governments, industry and technologies. It does this by providing local governments with the tools to pursue a long-term vision for the future of energy efficiency of buildings and related climate action initiatives. As a new code structure, the BC ESC, similar to other changes in the BC Building Code, requires time to learn, implement and see results. It is common practice to make changes to the code only every five to seven years to allow the industry and consumers to become familiar with the change.

Adding additional regulations into the BC ESC, such as the proposed GHG intensity (GHGi) requirement, before results of the adoption of the existing BC ESC are understood and realized would be premature and could lead to unintended consequences: higher energy costs, impaired housing affordability and a loss of choice for consumers. The provincial approach should support consumer choice, by allowing designers and builders to continue to choose gas, electricity, or other energy sources for their project. A fuel-neutral approach provides builders with the flexibility to make energy-efficient buildings using all the available technologies along with managing their costs. It also empowers builders and developers to pursue innovative, creative, cost-effective solutions, and allows them to incorporate leading-edge technologies as they come available. We believe that committing to the current

BC ESC is a prudent measure accounting for the scale of change that the new code presents to the market and the importance of aligning the code across the province.

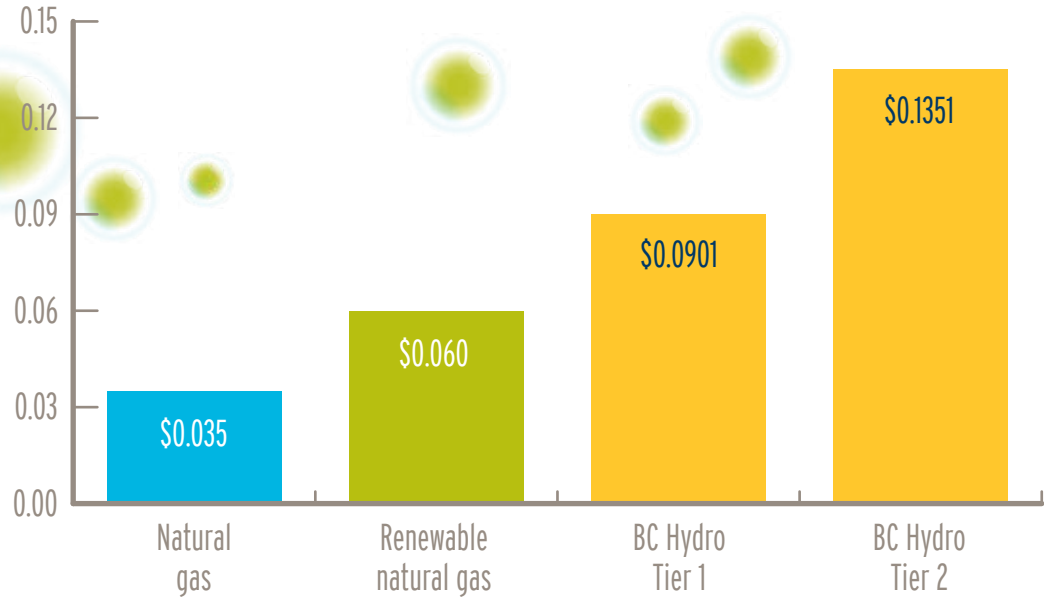
FortisBC has been, and continues to be, a strong advocate for the use of the BC ESC. For example, FortisBC and the City of Vancouver signed a Memorandum of Understanding (MoU) which ensured that the City would introduce pathways that used the BC ESC for builders to comply with the City's Zero Emissions Building Plan. Under these compliance pathways, builders can choose to follow the BC ESC without additional requirements such as a GHGi target. FortisBC also committed to developing a DSM program based on the BC ESC in the MoU. By having new pathways aligned with the BC ESC, FortisBC could provide DSM incentives to lower the costs of achieving the BC ESC to builders in Vancouver while still achieving meaningful improvements in the energy efficiency and GHG reductions of new buildings. Were the province to allow a patchwork of BC ESC along with municipally-specific GHGi requirements, FortisBC would not be able to provide DSM incentives to moderate the affordability pressures of new ambitious codes that restrict access to the gas system.

BC should seek alignment with national codes and standards to ensure consistency with other jurisdictions as it considers a new code for retrofits. The federal code for alterations to existing buildings should serve as a template for BC, as suggested. Because of the scale of the retrofit challenge, clear goals and objectives need to be identified to ensure that all players in this sector have a role. FortisBC is exploring innovative partnerships to demonstrate building energy retrofits and we believe that large GHG reductions consistent with the province's long-term GHG objectives are possible while still maintaining connection to the gas system.

Finally, we recommend that any further changes to the BC Energy Efficiency Standards Regulation should be aligned with federal standards to ensure consistency for equipment manufacturers. We agree with the Canadian Homebuilders Association that it is likely that manufacturers will focus efforts on areas with the greatest market share, national and international, and BC's initiatives may not be as lucrative to encourage the necessary research and development in comparison to federal approaches.

Maintaining affordability for BC energy consumers

Residential gas $/kWh price comparison



Affordability is the key concern among BC residents and FortisBC customers while producing energy locally is the top policy priority for government to consider. As we transition to a low-carbon economy, care must also be taken to ensure that we pursue cost-effective strategies that will not result in higher costs for energy consumers.

Consumer priorities on energy issues

Earlier this month, FortisBC commissioned Innovative Research Group to conduct a survey on consumer priorities on energy issues. The survey found that:

- **For 42 per cent of respondents affordability is the top priority in their personal energy choices**, followed by the environment (24 per cent) and reliability (22 per cent).
- When it comes to government policy, the top priority is **helping the economy by producing energy locally (28 per cent)**, followed by affordability (27 per cent), with environment third (21 per cent).

The survey was conducted between August 3 and 14, 2018 among a sample of 1,328 randomly-selected British Columbians. The survey used a mixed-method online and phone methodology. Interviews in English (n=1,024) were conducted using a representative online panel and in-language interviews in Cantonese, Mandarin, and Punjabi (n=304) were conducted over the phone. Results were weighted to a sample size of n=1,200 based on age, gender, region of the province and mother tongue.

We also believe that regional differences in BC should be taken into account. For example, policies that restrict choice will disproportionately impact energy consumers outside of the Lower Mainland and Southern Vancouver Island that reside in BC's colder regions. Similarly, regions that rely on B.C.'s natural gas industry to drive the provincial economy, should also be taken into account.

FortisBC's RNG, while more expensive than natural gas, is still approximately half the price of electricity in BC and with a lower carbon intensity. This demonstrates the potential for the gas system to achieve significant, affordable GHG reductions with low-carbon drop-in fuels such as RNG and hydrogen. To achieve this potential, supportive policies that provide incentives and opportunities to invest in low-carbon gas supply will be needed over the long-term. These investments will only happen as long as the gas system remains a viable productive asset and consumers have the choice to continue to connect to and use gas.

It is for all these reasons that we believe an approach that targets increased energy efficiency and allows for consumer choice and innovation is consistent with the broader government objectives: making life more affordable and growing the BC economy while taking action on climate change.

Incentives tied to energy efficiency and building improvements

We support increasing energy efficiency incentives. FortisBC is seeking to significantly expand energy efficiency investments in our DSM portfolio. Our proposal currently before the BCUC includes more than doubling energy efficiency spending from 2016 levels by 2019 and with further increases over the next four years. By 2022, we are committed to investing more than $96 million annually, approximately tripling our 2016 spending.

Committed to investing more than **$96 million** annually by 2022

FortisBC estimates that this increased funding would effectively double annual natural gas energy savings and GHG emissions reductions, with the majority of savings occurring in the built environment. Annual energy savings would be in the order of 1 million GJ of gas which will in turn lead to reductions in GHG emissions of approximately 50 thousand tonnes of CO_2e per year.

We are also seeking approval to expand our electricity DSM portfolio. In our 2019 to 2022 DSM Plan, which is currently before the BCUC for review, we are seeking a 21 per cent spending increase over what we put forward in our Long-term DSM Plan. We expect to achieve 17 per cent more energy savings than set out in the long-term plan, or 130 GWh over the plan period.

Through assisting customers in moving to higher-efficiency equipment, supporting the BC ESC and advancing energy conservation in BC overall, our expanded energy efficiency programs will positively impact the province and support the achievement of BC's GHG emissions reduction goals. These measures will also support the BC government's commitment to improving affordability: individual customers will reduce their energy consumption and their energy bills.

FortisBC is supportive of the proposal to develop an incentive program to complement existing utility-led energy efficiency programs focused on retrofits. We believe that if utility and provincial actions are well-designed, they could leverage each other and strengthen participation. We advocate for the provincial government to continue to work closely with utilities in designing this program.

Advanced Metering Infrastructure (AMI) is a valuable tool in helping our customers across BC improve energy efficiency and reduce GHG emissions in residential and commercial buildings. This technology is providing FortisBC's electric customers with more control over how they use energy. To date, we have installed over 134,000 AMI meters in our electric service territory and we seek to extend these benefits to our natural gas system. This technology is the foundation of a more modern natural gas system that improves the customer experience by empowering them to access data to make informed decisions about their energy use. With advanced meters our natural gas customers will have the information they need to inspire mindful choices like using digital control to better manage use of heating appliances or making energy efficiency upgrades to their homes. This technology could also help facilitate more investment in behind the meter solutions by identifying buildings well suited to energy efficiency upgrades and integrating those solutions to the broader system to maximize energy efficiency gains. We recommend that the provincial government provide support for wider deployment of AMI across BC's natural gas network.

Support for low-carbon innovation

FortisBC is well-positioned to identify innovation investments to reduce the carbon footprint of BC's energy system. FortisBC is interested in investing in core research focused on opportunities relevant to BC. This could include ultra high-efficiency gas-fired heat pumps, hydrogen production technologies, measures to reduce the carbon intensity of natural gas such as carbon capture and storage, and near zero GHG engines in vehicles. Without innovation funding from FortisBC or other agencies focused specifically on addressing GHG emissions within BC's unique energy system and fully integrated gas supply, transitioning the gas system to align with the provincial climate targets will be even more challenging.

We recommend that the province consider mechanisms for utility-led innovation investment aimed at reducing GHGs or directing a portion of Innovative Clean Energy (ICE) funding to utility-led projects.

FortisBC also seeks to expand BC's supply of clean energy. Wood and forest residues could significantly expand the amount of RNG supply in BC but, to unlock this potential, focused support for innovation from the public and private sectors will be needed. Of the total supply potential for RNG, wood has the largest share representing approximately 50 per cent of natural gas consumption in Canada. There are a number of other co-benefits of harnessing the potential of wood feedstocks for RNG. These include reducing GHG emissions in BC's forestry-based industries while providing them with new, meaningful financial benefits. This could increase the competitiveness and international market share of Canadian forest industries and boost employment in the sector. However, there are still important technological gaps and high costs associated with wood-based RNG production meaning that, to-date, there has been limited RNG production from wood. The provincial government should identify RNG from wood feedstocks as a key priority for its innovation and climate objectives and work with the forestry sector, FortisBC and the research community to realize this opportunity.

We are supportive of new policies that will support utility investment to broaden our supply of clean energy to include new forms of alternative energy. For example, FortisBC Alternative Energy Services (FAES) is a leader in providing cost-effective, high-performance thermal energy solutions (TES) in BC's building sector. For example, our Marine Gateway and Telus Gardens energy systems in Vancouver, both use renewable and recycled energy to improve efficiency and emissions by 50-80 per cent compared to conventional systems. To date, FAES has invested more than $62 million in high-efficiency energy systems which we own and operate on behalf of our customers.

To date, FAES has invested more than

$62 million

in high-efficiency energy systems

In order to accelerate FAES' contribution to providing highly efficient and low-carbon energy systems, we propose that government support a move to facilitate adoption of a regulated pooled cost model for TES providers. This recommendation would ultimately lead to faster market adoption of TES solutions.

Another example of low-carbon, FortisBC-led innovation is the proposed Ellison Community Solar Pilot project that could be the largest utility-owned solar project in BC. Interest in solar is on the rise and we seek to provide an easy, affordable option for our customers who want to use solar energy to meet a portion of their electricity needs. Our aim is to develop a solar program for customers who are interested in solar, but the upfront cost, placement, operation or maintenance of a rooftop system is not desirable. The province should create opportunity for future utility investment in clean energy projects where there is consumer demand for these offerings.

Energy efficiency labelling information

FortisBC supports the province's goal to improve information for building owners and residents on the energy performance of buildings. As the province develops this program, total energy consumed, carbon footprint and overall cost should all be included in the energy labeling information. FortisBC looks forward to working with the province to further develop this proposal.

A clean growth program for industry

Industry is an important part of the Provincial economy and our customer base. Of FortisBC's 1 million customers, less than a thousand are industrial clients, yet these firms consume approximately one-third of FortisBC's total gas demand. To these customers, gas is a low-cost, efficient, reliable and high-quality fuel source. FortisBC is proud to be the energy supplier of choice to the industries that propel BC's economy.

FortisBC agrees with the provincial government that reducing GHG emissions must happen alongside a strengthening economy. Reducing GHG emissions through investment, technology and sustainable growth must be fostered in a framework to ensuring BC's businesses and industries are not put at a competitive disadvantage. The intention to develop an effective Clean Growth Program for Industry is an important objective of the provincial government. To this end, we believe that an incentive-based approach for industry is an important development.

We also believe that BC needs to be in alignment with the rest of Canada. The federal government's output-based system in the Carbon Pricing Backstop provides more relief to industry while still maintaining the same marginal incentive to reduce GHG emissions. BC should commit to reviewing and evaluating outcomes from the two systems. If the federal approach demonstrates better outcomes for emissions and the economy, then BC should adopt this system to create a level playing field for industries across Canada.

Industrial incentive

We believe that setting the performance benchmark at the level of the cleanest facilities in the world is an ambitious but achievable starting point as many industries in BC are already world-leading environmental performers. Because the Clean Growth Program for Industry aims to improve the international competitiveness of BC's industries, we support the benchmark level as the best performing international firm or facility.

Industries within BC or Canada should not be used to set the benchmark. This would force domestic firms to compete against each other and incur costs with no impact on their international competitiveness. As provincial carbon policy costs begin to align under the Pan-Canadian Framework, the incentive for domestic firms to reduce their carbon emissions is evened. In fact, BC's approach to tax all of a firm's carbon emissions up to $30 per tonne applies significantly more carbon costs than the approach used in the federal output-based allocation system which applies the carbon price only on emissions above the benchmark. This means that even with an aligned price on carbon, BC firms would be disadvantaged compared to other provinces.

A Canadian first

Climate change is a global issue, and FortisBC is committed to being part of the solution. One of the ways we're doing this is by exporting liquefied natural gas (LNG) to countries like China that are looking to significantly reduce their greenhouse gas emissions.

Late last year, FortisBC notched a milestone by delivering the first shipment of LNG from Canada to China. Since then, our shipments have continued, with the most recent one arriving in Shanghai in May.

As China's LNG imports continue to increase, analysts predict it could one day eclipse Japan as the world's biggest importer of natural gas. This presents a unique opportunity for FortisBC, which has the only two LNG storage facilities on Canada's West Coast.

FortisBC's LNG facility in Delta, B.C. has been operating since 1971 and in order to meet the growing demand for LNG it recently underwent a $400-million expansion.

This market shift is about more than just an economic opportunity for Canada. Underlying this trend is the fact that natural gas is a strong energy option for countries like China that are looking to transition from high-carbon fuels to cleaner and more affordable alternatives.

FortisBC offers an abundant supply of LNG that meets high environmental standards. In fact, when FortisBC's Tilbury LNG plant expansion is operational later this year it will be one of the cleanest LNG facilities in the world.

The additional GHG reduction that would be achieved by using domestic firms for the performance benchmark is marginal while simultaneously not improving the competitive position of BC firms in the international market. Because BC's firms compete for market share against international firms, ensuring that carbon costs are moderated compared to the next best international performer should be the key objective. We believe this makes both economic and environmental sense. Incentivizing firms to achieve the lowest carbon intensity than the next best global performer ensures that carbon leakage is minimized while firms in BC are allowed to grow.

The provincial government should use a consistent approach when setting the benchmark across all industries. This means that determining the benchmark for incumbent industries such as mining and pulp and paper should be the same as for nascent industries such as LNG exports. A consistent approach ensures industries of the future can compete for global markets just as todays industries can. FortisBC also supports the principle of consistency regarding the threshold to enter the program at 10,000 tonnes of annual GHG emissions. This will ensure that all large industries can access carbon tax incentives. The government should monitor this threshold and consider opportunities for smaller firms to opt-in to the program.

A threshold of **10,000 tonnes** will ensure all large industries can access carbon tax incentives

The threshold and the benchmark should also account for all emissions whether from combustion, process or fugitive. Firms that demonstrate real investments in technologies and practices that reduce process and fugitive emissions should be able to report those savings toward their emission intensity.

Clean Industry Fund

FortisBC supports the creation of the Clean Industry Fund as a way to invest carbon revenues into direct emissions reductions and innovation in low-carbon technologies. The fund should only be available to firms that are participants in the Clean Growth Program. The fund should be additional to existing government funds for innovation and technology and focused on industrial improvements. The scope for funding should be broad and include direct facility-level improvements, research and development, pilots and demonstrations and projects across the energy supply chain that will lower the carbon intensity of fuels. FortisBC anticipates that it would be a recipient of funds to develop leading technologies in, for example, efficiency, RNG and hydrogen that would improve the carbon intensity of industrial clients.

Investments from the fund should allow projects that achieve both short and long-term GHG reductions and be fuel neutral. A common and agreed framework to evaluate proposals that emphasized cost-effective short term reductions or long-term projects with high reduction potential should be negotiated with Clean Growth Program participants.

FortisBC believes that the government should target industry specific reductions along with system-wide initiatives that could reduce the carbon intensity of all industries. A priority list of actions could be developed in consultation with industry to earmark fund dollars for high-payoff strategies. We believe that one such strategy is to support clean gaseous fuels such as RNG and hydrogen. A specified and focused tranche of support from the fund could have an outsized role to improve the carbon intensity of all industries in BC.

THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council **File No.:** 0550-20 Appointments to PRAC
From: Deputy Chief Administrative Officer **Date:** July 15, 2019
Subject: Appointments to the Parks and Recreation Advisory Commission

PURPOSE:

The purpose of the report is to present the June minutes of the Parks and Recreation Advisory Commission to Council and to request the appointment of two new members to the Parks and Recreation Advisory Commission.

POLICY ANALYSIS:

Section 143 of the *Community Charter*, provides that council may establish and appoint a commission. The work of this commission is governed by Policy #0550.00.02 Boards, Committees and Commissions.

DEPUTY CAO RECOMMENDATIONS:

Based on the July 15, 2019 staff report, "Appointments to the Parks and Recreation Advisory Commission", Council approve OPTION 1 and receive the June Parks and Recreation Advisory Commission minutes; and

That Bill Green and Erik Eriksson be appointed to the commission.

Respectfully submitted,

John Ward, CMC
Deputy Chief Administrative Officer

BACKGROUND:

On December 18, 2017 Council established the Parks and Recreation Advisory Commission and adopted the terms of reference that guide it. In the same meeting the following people were appointed to the commission: Mary Crowley, Allan Douglas, Iris Churchill, Wayne King, Carolyn Janes & Sébastien Braconnier Since this appointment, Wayne King has stepped down from the commission due to other commitments. On October 15 of 2018 Council appointed Tom Demao and Michael Lynch to the Commission. The first Council appointed representative was Erik Eriksson. Mano Theos is the current Council appointed representative.

DISCUSSION:

The commission currently has 7 appointed members. Staff and the Commission agree that additional members will also help to ensure that quorum is achievable on a regular basis.
To this end, the commission unanimously voted to request that Council consider appointing Bill Green and Erik Eriksson to the commission on September 6, 2018 and June 6, 2019 respectively.

The terms of reference that govern over the commission activities fails to reference the process for including additional members. Often commission appointments are publically advertised. Council may choose to consider an amendment to the terms of reference to include this process if additional transparency is desired.

FINANCIAL IMPLICATIONS:

There are no financial implications to this decision.

ADMINISTRATIVE IMPLICATIONS:

The additional members will not increase the administrative burden of commission oversight.

ASSET MANAGEMENT IMPLICATIONS:

N/A

STRATEGIC PRIORITIES REFERENCE:

The following strategic priorities will apply:

We focus on organizational and governance excellence
- ● Support and encourage initiatives to improve efficiencies
- ● Communicate appropriately with our community in all decisions we make
- ● Responsibly provide services at levels which the people we serve are willing to pay

We continually invest in our key relationships
- ● Value and recognize the importance of our volunteers
- ●■ Consider effective ways to engage with and partner for the health and safety of the community
- ●▲ Support improving accessibility to all City services

● **AREA OF CONTROL:** The policy, works and programming matters that fall within Council's jurisdictional authority to act
▲ **AREA OF INFLUENCE:** Matters that fall within shared or agreed jurisdiction between Council and another government or party
■ AREA OF CONCERN: Matters of interest that are outside Council's jurisdictional authority to act

OFFICIAL COMMUNITY PLAN REFERENCE:

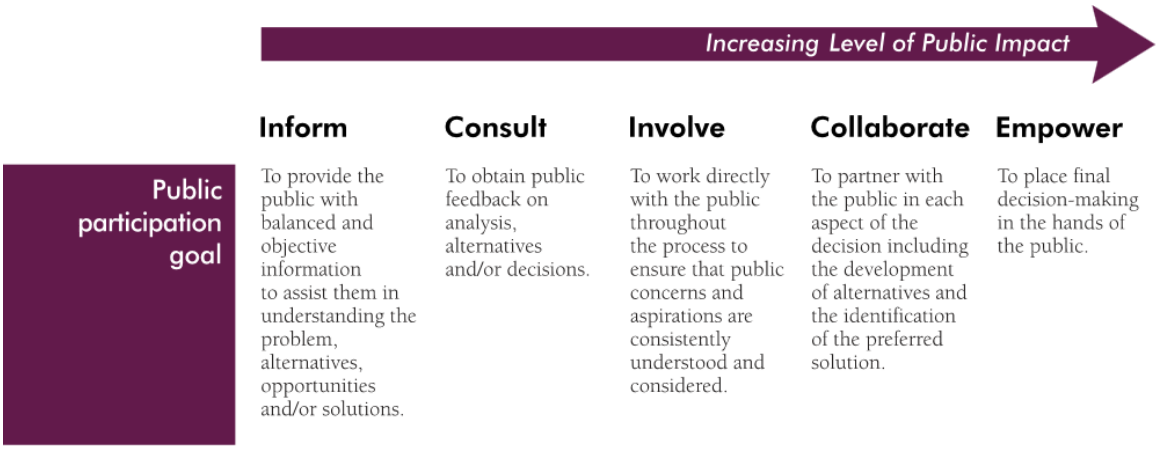
The official community plan references the City's resolve to consult with the public on major decisions.

REGIONAL GROWTH STRATEGY REFERENCE:

Not referenced.

CITIZEN/PUBLIC ENGAGEMENT:

Staff have **consulted** with the Courtenay Parks and Recreation Commission in the identification of these candidates as identified in the *IAP2 Spectrum of Public Participation.* The commission will continue to serve as a mechanism to involve the community in City decision making.



OPTIONS:

Option 1: That Council receive the June Parks and Recreation Advisory Commission minutes; and

That Bill Green and Erik Eriksson be appointed to the commission.

Option 2 That Council receive the June Parks and Recreation Advisory Commission minutes and direct staff to amend the terms of reference to include a publically advertised appointment process, and follow the new process to recommend appointments to Council.

Option 3 That Council receive the June Parks and Recreation Advisory Commission minutes only.

Prepared by:

Dave Snider RLA
Director of Recreation and Cultural Services

Attachment 1:
Parks and Recreation Advisory Commission - June minutes

Attachment 1

Minutes of a Parks & Recreation Advisory Commission Meeting
Held at Tarling Park - Thursday, June 07, 2019 at 6:30 p.m.

Attending:
Allan Douglas
Bill Green
Michael Lynch
Carolyn Janes
Erik Eriksson
Dave Snider (Ex Officio)

Regrets:
Sébastien Braconnier
Iris Churchill
Mary Crowley
Tom Demeo
Manno Theos (Council Representative)

Call to Order

The meeting was called to order at 6:30 p.m.

Adoption of Previous Meeting Minutes

MINUTES	Minutes of the Parks & Recreation Advisory Commission meeting on Thursday, April 4, 2019, were adopted as read. All in favor. CARRIED

Agenda Items

NEW MEMBER VOTE	PRAC voted to recommend Council to appoint Erik Eriksson to the PRAC.
TARLING PARK TOUR	Dave Snider gave a description of Tarling Park, its components, and future plans.
FEES AND CHARGES STUDY	The fees and charges study is going to RFP soon.
CAPITAL PROGRAM	Dave informed PRAC about the 2019 capital program elements. A description of each are listed: • A/C in Lewis Centre – Complete and nearing final inspection • Trail Connections (Riverway South expansion, Buckstone Trail) – Preparing for public consultation • Tarling Park – As above • McPhee Meadows – Preparing for brainstorming session with stakeholders, then will move to public consultation • ICF Lands – Discussions continue with ICF

	• Lewis Park Diamond 1 – Design is complete, next step is procurement • Lewis Centre Parking Lot – Conceptual design is complete, now detailed design is next • NSH Accessibility – Survey underway for design improvements • Martin Park Pickleball – RFP issued and user group input is complete • FFC Balcony – RFP to be issued soon
MEMORIAL PROGRAM	Council decided to not continue with program.
PHYSICAL LITERACY	Initial consultation has begun.
REGIONAL RECREATION PASS	Regional group spoke with Greater Victoria representatives to see how their model could be applied in the Comox Valley
TOTEM POLE AT AIR PARK	Dave Snider showed the proposed location for feedback.

New Business

RANDY WIWCHAR ACKNOWLEDGEMENT	PRAC brought to the table that the creation of a street named after Randy Wiwchar be revisited and pursued by the PRAC. Dave Snider to look into possibilities and bring to next meeting.
COURTHOUSE TABLES	Erik Eriksson suggested looking into putting picnic tables in front of the Courthouse. Dave Snider to look into possibilities and bring to next meeting.

Next Meeting

Thursday, Month 00, 2018 at 6:30 p.m.

Adjournment

The meeting was adjourned at 8:11 p.m.

THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council **File No.:** 4530-01

From: Deputy Chief Administrative Officer **Date:** July 15, 2019

Subject: Urban Forest Strategy drafted for adoption

PURPOSE:

The purpose of this report is to present the Urban Forest Strategy to Council for consideration.

DEPUTY CAO RECOMMENDATIONS:

That based on the July 15th, 2019 staff report "Urban Forest Strategy drafted for adoption", Council support OPTION 1 and adopt the Urban Forest Strategy as presented (Attachment No. 3) and direct staff to pursue the Immediate Actions listed in Section 5 of this report.

Respectfully submitted,

John Ward, CMC
Deputy Chief Administrative Officer

BACKGROUND:

Council directed staff to undertake an Urban Forest Strategy (UFS) at the July 4, 2017 Council meeting following the adoption of an updated Tree Bylaw (No. 2850) earlier that year.

In March 2018 the City retained Diamond Head Consulting Ltd. to assist in the creation of an Urban Forest Strategy (UFS). The goals of the UFS are to:

- outline the extent and general condition/composition of Courtenay's tree resources on private and public lands including attention to and recommendations for the rare variant of Coastal Douglas Fir;
- identify target locations for replanting;
- provide information on the value of the urban forest, including economic and green infrastructure value;
- identify areas of wildfire risk and fire smart guidelines;
- provide guidance on corporate policies to support the urban forest on public lands, including a street tree inventory;
- provide guidance on the City's development related policies, guidelines and other regulations for incorporating trees as part of civil infrastructure; and
- endeavour to engage the public and partner organizations in each contributing to the success of the urban forest.

DISCUSSION:

The attached Urban Forest Strategy (***Attachment 3***) is the first comprehensive evaluation of urban forest values growing over the range of land uses within Courtenay. As such, the strategy provides a baseline understanding of a number of urban forest characteristics and values, documents trends, and makes recommendations on how to manage these values in light of public input, City resources and best management practices.

The strategy delivers on the original goals identified above with the exception of identifying areas of wildfire risk and fire smart guidelines for development. During the UFS planning process, staff learned that the Comox Valley Regional District (CVRD) and K'ómoks First Nation (KFN) had initiated a Community Wildfire Protection Plan process. The findings from that plan will soon be shared with the respective Board and Chief and Council at which time staff can identify opportunities for implementation collaboration. Staff have identified that a UBCM granting stream is currently available to support municipal Fire Smart planning. This is discussed further in the "immediate actions" section of the report.

Highlighted findings, including consultation results, and recommendations from the UFS are presented below.

UFS Key Findings

The strategy presents information on a wide range of topics including: local policy context and community planning trends; urban forest benefits; community input; history; status and trends on a range of parameters that define the urban forest today; regional context, and assessment of the City's performance on a range of urban forest industry standard indicators. A summary of key findings is provided here:

1. The current canopy cover is 33% of Courtenay's total land area of 3,370ha, as of 2018. Canopy cover is a common metric to describe the extent of a community's urban forest as viewed from above.
2. Rural zoned lands just within the City's boundaries support a disproportionate amount of the urban forest. Excluding these lands from the canopy cover analysis yields an urban canopy cover of 25%.
3. 5% of the total canopy cover is on public municipal land.
4. If all properties with the city were to remove trees down to the City's Tree Bylaw tree density target of 50 stems per hectare, the community wide canopy cover would drop to 15%. This statement would assume that even nature parks, heavily treed public lands and protected environmentally sensitive areas on private land would be reduced to 50 stems per hectare, which is not likely to occur.
5. The urban forest has been declining over time, as is expected in a municipality experiencing growth, but has been accelerating in recent years in step with increased development. A similar amount of removal has occurring within the past four years as in the preceding 20 years.
6. All naturally occurring forested ecosystems in Courtenay are considered at risk in BC and/or globally, according to the BC Conservation Data Centre.
7. Public consultation indicates that respondents have been able to detect that the canopy has been declining over time and are supportive of setting a target to increase canopy cover.
8. The downtown, large commercial centres and new residential developments have the lowest canopy cover. Some regeneration will occur in new residential developments, but this is less likely in the downtown and large commercial centres where large paved surfaces make replanting more difficult.

9. Glen Urquhart Creek and the portion of Brooklyn Creek within the City's boundaries, both located on the east side of Courtenay, have the lowest canopy covers and highest percentage of impervious surfaces, two factors that are negatively correlated with stream health.
10. There are an estimated 5,200 planting opportunities on public land and 40,000 planting opportunities on private land.
11. Respondents indicate a strong support for street trees across all land uses particularly in new residential developments. No respondents indicated that they prefer few or no street trees.
12. When asked the same question in two separate surveys, only 8% of respondents (in each survey) indicated they would not be willing to support an increase in tax to support more urban forest initiatives. The most commonly selected tax increase was $25 per household per year in the first survey (N=269) and $100 in the second survey (N=184).

UFS Consultation

Given the volume of feedback from the two phases of consultation, two separate surveys and opportunity for written input, only a summary of key findings are presented in this report, in ***Attachment 1 – Consultation Summary***. The public consultation in both Phases 1 and 2 of the project timeline overall indicated strong support for urban forest management work, including strong support for a higher canopy target than the current canopy. The following organizations provided letter responses of the drafted plan which are included in ***Attachment 2***:

- Island Health
- Comox Valley Conservation Partnership
- Comox Valley Development & Construction Association

UFS Recommendations

The Strategy contains numerous recommended actions to improve urban forest management over public and private land, targeted at many sectors of the community including: the City; the development, consulting and arborist communities; nurseries and landscapers; supportive non-profit organizations; and the public and businesses at large. To summarize the significant Strategy recommendations, a number of plan components are included here (Vision Statement; The 34-40% canopy target; Goal framework and recommended supportive actions; Implementation framework; and Immediate actions):

1. **Vision Statement**

   A Vision Statement is meant to capture the desired state of the value in question. It should be a relatively short and concise statement used as an aspirational guide to help the community make decisions about the urban forest as the strategy is implemented. The Vision Statement has been informed by the Phase 1 consultation findings, using the survey findings, including open ended responses, from the community. The Vision Statement below was presented in the Phase 2 consultation to which 87% of survey respondents indicated support. In the consultation, the specific target was left blank and respondents were asked to identify their preferred canopy target.

Courtenay 2050 Urban Forest Strategy Vision Statement
Courtenay residents envision a future urban forest that is more extensive than today, is connected and accessible, maintains mature trees and ecosystem services, consists of a sustainable mix of ages and locally adapted species, and is used as a design treatment to reduce the prevalence of

pavement in commercial areas, create neighbourhood distinction and canopy streets on key routes.

A canopy cover target of 34-40% distributed throughout Courtenay will inform the refinement of policies and actions to achieve this Vision, as the urban forest changes to accommodate development, climate change and through the natural life span of trees.

2. **The 34-40% canopy target**

a. Industry standard canopy targets

Tree canopy is a common aggregate metric used to describe the extent of a community's urban forest. It is the total coverage of all tree leaves, branches and stems that cover the ground when viewed from above. Courtenay's tree canopy is composed of natural forests and planted trees across all land uses.

A canopy cover target is a valuable part of the plan that sets a high level performance target, and is a component of most Urban Forest Strategies. An industry standard does not exist for municipal canopy targets as the industry recommendation is to set a target based on geographical and climatic considerations (can forests be supported and are they a dominant part of native ecosystems), development densities and land use patterns (is there room to support tree growth), and community values. While 40% was a supported industry standard of urban forest canopy targets put forward by American Forests[1] in 1997, more recently the same organization has observed that technology has improved to better link canopy cover to specific ecosystem services (e.g. heat island cooling, reduction in stormwater, carbon sequestration) and that a wider variety of factors should be considered when setting a target. As such, some communities are using ecosystem service targets (e.g. the achievement of specified performances of the ecosystem services stated above) to inform canopy cover targets. Should Council direct that specific ecosystem service goals be used to inform the Canopy Target, a future Urban Forest Strategy update (recommended for every 10 years) would be an opportunity to collect this information, and work with relevant master plans (e.g. Integrated Rainwater Management Plan) to inform the target as these data were not available for this baseline Strategy.

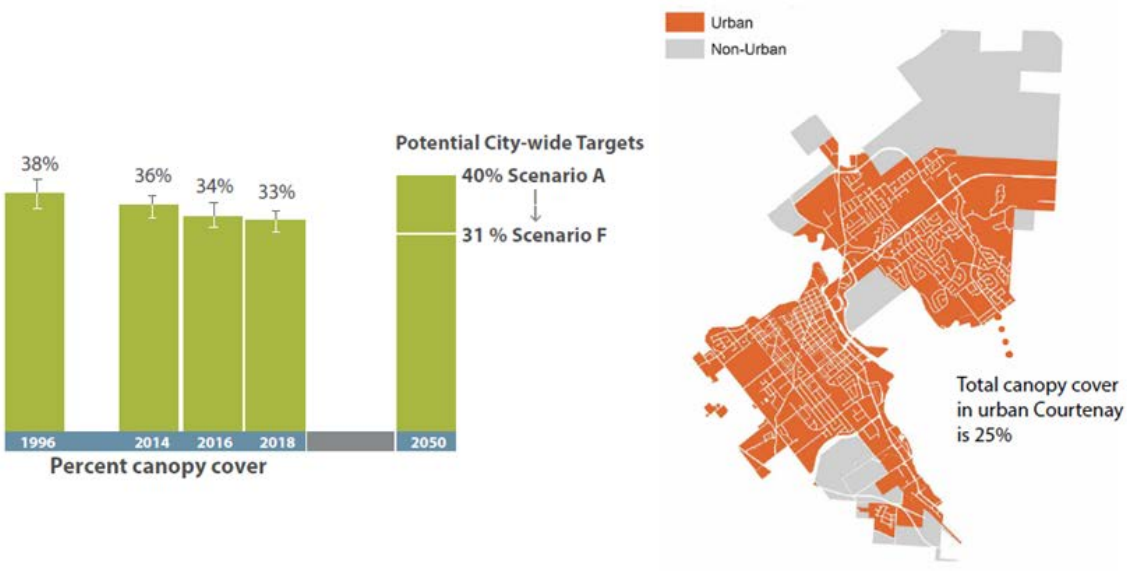
b. Courtenay's canopy trends

Courtenay's canopy in 2018 was approximately 33% across the entire City, and 25% within the urban areas (shown in image below). The difference in the city-wide and urban tree canopy is a result of the non-urban areas having a much higher tree canopy and therefore boosting the City's overall average. City-wide, the canopy cover has been declining over time, with accelerating loss in the past four years. Canopy change was measured using Courtenay's current City boundary, therefore some of this change would have occurred prior to those lands joining the City. The trend of accelerated decline within the last four years, however, did occur within the City's boundaries as the last boundary extension occurred in 2013. The last four years has also been a period of increased development activity.

[1] American Forests is the oldest national non-profit conservation organization in the United States. Their mission is to protect and restore threatened forest ecosystems, promote and expand urban forests and increase understanding of the importance of forests. www.americanforests.org

In discussing canopy trends, it's important to understand how size of a tree factors into the equation. Young trees today will generally contribute a higher canopy cover in the future assuming they thrive. Older trees will also die and trees will be removed, reducing canopy cover. Because of this interplay of growth and decline, it is acceptable urban forest planning practice to use a static target even though the canopy cover in reality will naturally fluctuate from year to year. Important considerations in light of this is the relationship between tree density and canopy cover as the future canopy cover will be influenced by the number of young trees retained and planted today. The relationship between tree density and canopy is discussed in a section below.

The bar graph below shows the canopy cover trend for years that aerial photography (and Lidar Data) are available, and shows the range of possible targets based on six different scenarios described further below. The map graphic shows the area of land within the City considered 'urban' and 'non-urban'.



c. Exploring canopy target options

The public was asked about their preferred canopy target at both phases of the consultation and in both phases demonstrated strong support for increasing the canopy from current conditions. In Phase 1 consultation, 67% of both all respondents (N=304) and Courtenay respondents (N=231) indicated they thought the City's canopy was declining over the years and 85% of all respondents (N=273) and 84% of Courtenay respondents (N=215) thought the City should set a target to increase the tree canopy cover above what we have now. Just 1% of respondents thought the City should set a target to allow canopy to decrease from what we have now.

In Phase 2 consultation, six specific tree canopy scenarios (A-F) were presented and participants were asked to indicate their order of priority. Three different policy lever categories were varied to distinguish the scenarios from each other:

- tree bylaw regulation: varying the Tree Density Target from 50 stems per hectare (current) to 75 or 100;
- private planting: varying the number of private trees to be planted during the 2050 timeframe (scenarios included none, moderate or high increments of 0, 8,500 or 17,000 respectively); and
- municipal property planting: for the scenarios the assumption of strong municipal planting of 5,000 in the 2050 timeframe (at 300/year for 18 years) was a consistent variable.

The target scenarios are described as a range of what might be reasonably achieved between the city-wide target (maximum) and the urban area target (minimum). **Representing the target as a range is recommended because the rate of community growth and forest change cannot be predicted at this time for large undeveloped portions of the urban forest which support a disproportionate amount of the community's tree canopy.** The target minimums for each scenario are included to establish that as the large undeveloped portions of the urban forest are developed, they would be required to meet the minimum city-wide targets similar to the rest of the community.

Canopy Cover Target Scenarios

Each scenario assumes 5,000 new trees are planted on public land and a 15% canopy target over commercial and industrial aggregate zones.

Scenario*	City-Wide Canopy Target (max)	Urban Area Canopy Target	Tree Bylaw Density Target (sph[1])	New Trees Planted on Private Land (voluntarily)	Canopy Target Over Aggregated Residential, Multi-Use and High Density Zones	Canopy Target Over Aggregated Rural-Residential Zones	Actions		
							Regulation	Voluntary Planting	Public planting
A	40%	34%	100	17,000	40%	50%	Highest	High	High
B	37%	29%	75	17,000	30%	40%	High	High	High
C	36%	27%	75	8,500	27%	38%	High	Moderate	High
D	34%	24%	50	17,000	20%	35%	Current	High	High
E	33%	23%	50	8,500	18%	30%	Current	Moderate	High
F	31%	21%	50	0	15%	28%	Current	None	High

1 Stems per hectare

d. Recommended target & implementation strategies

The most common order of preference for all respondents (87%) and Courtenay respondents (85%) was from highest canopy target to lowest. **Based on these findings, staff is recommending that the highest canopy target scenario of 34-40% be adopted within the Strategy. This target range represents an increase from the current canopy cover (2018 data) of between 1% (minimum) and 7% (maximum).**

The City must assume that loss of forest patches will continue to occur because municipal areas have been identified in the Comox Valley Regional Growth Strategy as the most appropriate urban, serviceable locations for our region's growth. Therefore, to achieve the recommended ambitious canopy target, **redistributing canopy to under-canopied areas is a critical initial and on-going action** required in order to prepare for this anticipated loss. The plan identifies that a target of 17,000 trees to be planted on private property and 5,000 on public property at a rate of 850/year and 300/year respectively for 20 years. As noted this target is ambitious and may require

adjustments to the time frame depending on the pace of development, uptake of private planting and the City's ability to increase annual planting target to 300 trees per year. The City's canopy cover will be monitored over time to assess what adjustments may be required.

Adopting this canopy target range would also set an expectation that the **designs for new developments on lands outside the urban areas require the minimum target of 34%** be achieved. This figure corresponds to an average of 110 trees per hectare. This canopy target could be achieved through a variety of means including retaining environmentally sensitive areas (if they exist, and as is already required through the Environmental Development Permit guidelines and senior government requirements), retaining existing trees outside of environmentally sensitive areas (which is already required at a Tree Density Target of 50 stems per hectare in the Tree Bylaw), and planting trees to make up any canopy/tree density shortfalls should any exist. By counting new trees towards the canopy target, it is acknowledged that the canopy target would not be immediately achieved, as it would take decades to grow, similar to newly planted trees within the urban areas. Staff observe that the majority of heavily forested lands that fall outside the urban areas are large parcels, allowing for more design flexibility than urban properties, and subject to rezoning, allowing for Council discretion to negotiate community amenities, such as urban forests.

e. Relationship between Tree Bylaw and canopy target

The Urban Forest Strategy identifies the relationship between the Tree Bylaw Tree Density Target (TDT) and canopy cover through a regression analysis between number of trees identified on an aerial photograph and its corresponding canopy cover within blocks of properties. The identified relationship is Courtenay specific, is within 95% confidence limits and allows for an estimation between number of trees (including young) and future canopy to be projected.

Target scenarios A, B and C include the option of increasing the TDT. However, increasing the TDT in the Tree Bylaw at this time is not recommended. It is however a valuable strategy to identify for future consideration following canopy monitoring and more detailed neighbourhood planning that will occur through the OCP review process (discussed further in the Implementation Strategy section below). The TDT and canopy target relationship provides for useful quantification tools when working with development applicants to achieve stated urban forest goals such as within the forested lands outside of urban Courtenay.

f. Canopy cover target options

Should Council wish to adopt a different target, the Urban Forest Strategy as presented may be adopted with an amending motion to adjust only the target numbers associated with the plan including the city-wide canopy target, the block specific canopy target and the number of trees to plant per year on each municipal and private lands.

3. **Goal framework and recommended supportive actions**

The recommendations within the plan are organized around five themes: planning; managing; protecting; growing; and partnering. Examples of actions corresponding to each goal-theme are described below. The goal framework and supportive actions was presented in the Phase 2 consultation to which 87% of survey respondents indicated support.

a. ***Plan strategically*** to inform and monitor land use patterns and integrate the urban forest into civic asset management. Planning actions include consultation activities with individual neighbourhoods, conducting forest fire management planning, adopting policies regarding public trees, and maintaining spatial data on changes to canopy cover.

b. ***Manage pro-actively*** to enhance urban forest health, safety and resilience. Management actions pertain to public land and include continuing to develop management responses to risk factors such as climate change, storm, pests and drought, investing more in the early years of tree establishment, and developing clear operating procedures based on level of service expectations.

c. ***Protect prudently*** to maintain the quality and connectedness of the urban forest. Protection actions include pursuing options to enhance the protection of significant forest stands and biodiversity corridors, understanding how changes to hydrology and soil through development affect the urban forest, monitoring the Tree Bylaw to ensure it is effectively protecting applicable trees, and making changes when it is not.

d. ***Grow the urban forest intentionally*** to provide urban forest benefits when and where they are needed. Growing actions include more planting on public and private land, distributing the canopy cover to areas that need it, enhancing the quality of new planting conditions, and promoting building energy efficiency through strategic planting locations.

e. ***Partner effectively*** to share stewardship and promote appreciation of the urban forest. Partnering actions include collaborating with a variety of sectors on stewardship opportunities including the arboriculture community, landscape industry, nurseries, third-party utilities, non-profit societies and students conducting research, investing in public education and communications.

In addition to recommendations, the plan also includes indicators for each goal-theme. The indicators provide a snapshot of which goal areas need improvement most. Staff do not recommend adopting specific indicator rankings for this baseline UFS, but note that actions within any one goal-theme will improve its indicator performance. Setting indicator rankings could be achieved in a future UFS revision and be used to assist in monitoring the plan.

4. **Implementation framework**

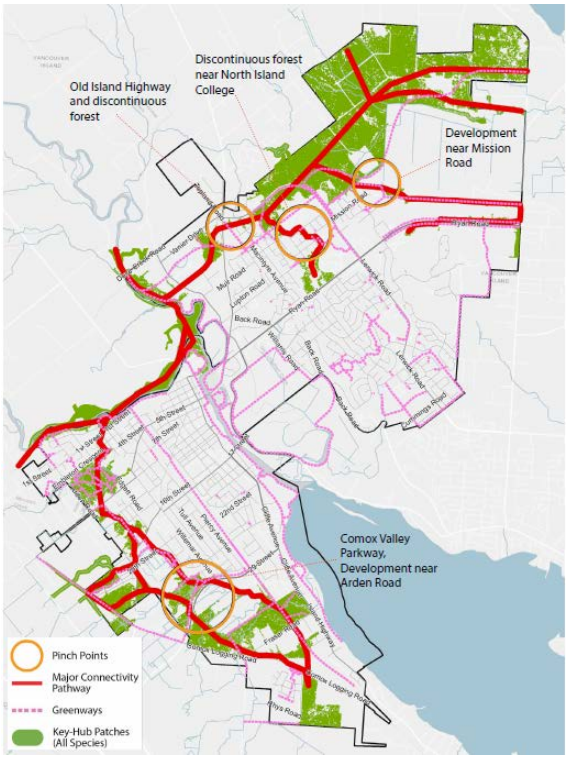
The following implementation framework is identified to state the integration of approaches required to achieve the Vision and Goals identified.

a. Set a canopy cover target and monitor over time

As discussed in the canopy target section above, a target of 34-40% is recommended. Coupled with this strategy is the recommendation to collect LiDAR data to conduct high accuracy canopy cover analysis at 5 year intervals in order to monitor canopy changes and re-evaluate which policy interventions to prioritize. LiDAR data is estimated to cost $25,000 and will have other City applications. Lower accuracy canopy cover analysis is also available using aerial photography. The City already intends to obtain leaf-on aerial photography every six years and leaf-off aerial photography every two years. Leaf-on is required for canopy cover analysis.

b. Protect a network of the critical remaining urban forest

Planning for a series of connected urban forest patches is a recommended best management practice to preserve and represent native forest ecosystems, support forest and watershed health, and provide for habitat and movement by native species. To determine the most valuable urban forest patches to preserve and/or restore, a connectivity analysis was conducted using the habitat requirements of three local indicator species. The resulting analysis indicates that within the City's boundaries, the key opportunity for forest connectivity is along the Millard Piercy and Morrison creeks, Puntledge and Tsolum rivers, along Vanier Rd., Mission hill, and into both Block 71 and the Crown Isle north lands as shown in the adjacent map. How development and conservation goals can exist within and adjacent these areas, such as by designating the lands as an Environmental Development Permit Area, will be explored in more detail in the upcoming OCP review.



Determining environmental protection goals for this corridor also can contribute to the OCP policy of "retaining threatened Coastal Douglas Fir." This policy was included in the OCP amendments on Climate Change to recognize that the Coastal Douglas-fir (CDF) Biogeoclimatic Zone[1] is the smallest, most altered by humans and is the Biogeoclimatic Zone most at risk in BC. It is therefore subject to conservation consideration within the City's boundaries. The Province established a Coastal Douglas-fir Conservation Strategy, and the Coastal Douglas-fir and Associated Ecosystems Conservation Partnership program (CDFCP) in 2012, to continue to raise public awareness and promote improved stewardship within this Zone. Courtenay falls within the CDFCP boundaries and as such has been identified by the Partnership as a potential member.

Through UFS data gathering, it was confirmed that Courtenay falls entirely within the neighbouring and slightly wetter Coastal Western Hemlock, very dry maritime variant (CWHxm) Zone, which is however also a part of the Coastal Douglas-fir and Associated Ecosystems boundary. The CWHxm Zone is included within the Coastal Douglas-fir conservation framework "because of the transitional area between the two biogeoclimatic units, the anticipated changes in boundaries due

[1] In BC, the Biogeoclimatic Ecosystem Classification (BEC) delineates ecological zones (biogeoclimatic units) by vegetation, soils and climate. It also classifies ecological communities, within the ecological zones, based on the potential of the site at climax or mature successional stages. Ecological communities within any one ecological zone may be quite diverse, and are not necessarily dominated by the species named within the BEC classification title. From the provincial forest services webpage:
https://www.for.gov.bc.ca/hre/becweb/system/how/index.html#relationship

to the effects of climate change, and in many areas, similar levels of loss and fragmentation to that of the CDF."[2] **Staff include this information above in order to clarify that the OCP policy should be amended to recognize that it is the *CWHxm* Zone, and not individual Coastal Douglas-fir variant trees (*Pseudotsuga menziesii var.Menziesii*) that is subject to conservation consideration within the City's boundaries.**

To add an additional layer of complexity, the forests found within the CWHxm Zone may be typified by tree species other than Western Hemlock. For example, ecological communities within Courtenay's Coastal Western Hemlock Zone may be dominated by Sitka Spruce, Western Redcedar, Garry Oak or even co-dominating Coastal Douglas-fir. The BC Conservation Data Centre identifies all naturally occurring forested ecosystems in Courtenay's CWHxm zone to be at risk in BC and/or globally.

In light of this background and the findings from the UFS, the greatest opportunities for protecting at risk ecological communities within the CWHxm Zone are to prioritize all Garry Oak ecosystems, all remaining forested stands that are greater than 60 years old and that are either greater than 200ha and/or adjacent to an existing protected area. The forest connectivity opportunities identified in the preceding map correspond with CWHxm Zone protection priorities and opportunities.

c. Encourage neighbourhoods to determine their urban forest goals

Urban forest character, tree preservation and planting opportunities will be unique to each neighbourhood. Through the OCP review process, neighbourhood planning units will be established across the city, allowing for more focused planning at the neighbourhood scale. During this process, urban forest goals will be included as one of the planning factors, to be integrated and considered alongside other neighbourhood goals. This could include identifying further areas for protection, planting, or removal.

d. Support a dynamic urban forest on infill properties outside of identified protection areas

Tree removal on infill properties (under one acre, approximately 4000m^2, in size), outside of identified protection areas will continue to be administered through the Tree Bylaw which allows for maximum tree management flexibility while requiring that a minimum number of trees be ultimately provided either as a retained tree, newly planted tree, or by cash-in-lieu into the City's Replanting Reserve Fund. The plan recognizes that within these areas the urban forest should be managed to be dynamic and diverse, as mature trees are removed and new ones established whether they be in service of rain water management, wind abatement, shade provision or of sunlight, food, neighbourhood character, privacy and screening or the appreciation for beauty, form and colour.

e. Continue to integrate City trees & forests into asset management planning

The City has made significant advancements and investments in city tree and forest management in the past five years. A dedicated arborist position was created in 2014 and a second staff member specific to arboriculture added in 2017. To support more focus to this work, Arboriculture Services,

[2] Coastal Douglas-fir and Associated Ecosystems Conservation Partnership webpage: http://www.cdfcp.ca/index.php/about-the-cdfcp/faq

previously part of Horticultural Services, became a separate team under the Parks Manager. The budget for contracted tree services (assessments, pruning and removal) and replanting has however not increased, despite more trees being assumed under the care of the City as the community grows and trees are replanted. A separate Tree Care budget line item is recommended to target, and more transparently track, funds for municipal tree care management. Continued improvements are also recommended to further tree asset management planning, including developing specifications of how to integrate along other infrastructure needs, developing policy for private requests regarding public trees. and data collection to better understand resourcing implications of municipal urban forest management.

f. Demonstrate leadership & build partnership

The urban forest is unique among City assets because it is living infrastructure in both the public and private realm that the community can directly help grow, steward and protect. Because the City has limited resources, the achievement of the Urban Forest Strategy Vision will depend on how well individuals take initiative and responsibility to play a vital part. The City has an opportunity to demonstrate leadership by maintaining good arboricultural practices on municipal lands, providing information to the public, monitoring the urban forest over time, and nurturing and responding to partnership opportunities.

5. Immediate actions: 2019 – 2020 timeframe

A number of actions have been identified for immediate implementation opportunity and are listed below in approximate order of increasing effort. The full set of recommendations is contained within Section 6 of the plan and a 10-year implementation plan is contained within Section 7.

Staff recommend that the status of the identified actions would be reported upon every two years and new actions identified.

	Action	**Applicable goal** (numbers correspond to Plan recommendations)	**Resources required**	**Department lead**
1	Maintain the City of Courtenay Urban Forest Strategy dedicated webpage as a source of information, including the plan, story map and crowd source photo submission functionality.	Partner (No.21)	Staff time	Development Services
2	Consider joining the Coastal Douglas Fir and Associated Ecosystems Community Partnership by signing the Statement of Cooperation to increase opportunities for communication and collaboration amongst relevant stakeholders.	Partner (No.20)	Staff time	Development Services
3	Share the climate adapted species list with the public, landscaping companies and local nurseries to encourage planting and local availability of climate adapted tree species.	Partner (No.23)	Staff time	Development Services
4	Equip City of Courtenay seasonal neighbourhood Ambassadors with business cards directing to the Tree Bylaw and Urban Forest Strategy	Partner (No.21)	Staff time	Public Works

	websites should residents inquire into tree management.			
5	Provide guidance on Terms of Reference for arborist report submissions in relation to Tree Bylaw requirements.	Protect (No. 13)	Staff time	Development Services
6	Develop a council-approved City Tree Asset Management Policy to guide City tree protection, removal, replacement and level of service expectations and decisions. Include a dedicated City Tree Care budget line item reflective of UFS targets to increase municipal investment in the public urban forest.	Plan (No.1)	Staff time. To be completed prior to budget 2021 in order to collect level of service data.	Public Works (Parks)
7	Continue to regularly collect information to populate the city tree asset management system.	Manage (No.8)	Staff time, ongoing. Essential to achieve Action 6 above.	Public Works (Parks)
8	Establish regular forums for interdepartmental, interjurisdictional and interagency communication to continuously improve tree management protocols and clarify expectations across public and private land.	Manage (No.9) and Partner (No.23)	Staff time	Development Services
9	Explore community orchard suitability during McPhee Meadows master parks planning.	Grow (No.19)	Existing parks master planning budget	Recreation and Cultural Services
10	Consider exploring how to maintain hydrological pathways to retained forest patches.	Protect (No. 12)	Potential through existing Integrated Rainwater Management Plan budget	Engineering Services
11	Budget for 300 trees to be planted on public land in 2021 (this action will be recommended to be repeated for each year until 2040). Note – 100 are budgeted already for 2019.	Grow (No. 17)	Budget dollars to be determined, informed by outcomes of Actions 6 & 7.	Public Works (Parks)
12	Explore partnerships for planting of 850 trees for on private land in each 2020 and 2021 (this action will be recommended to be repeated for each year until 2040).	Grow (No. 17) and Partner (No. 20)	Staff time to explore partnership. Budget would be presented separately.	Development Services
Include the following urban forest management considerations as part of upcoming OCP review:				
13	Ensure urban forest goals are discussed alongside other community planning goals using a standardized framework as presented in the	Plan (No.2)	Existing OCP budget	Development Services

	UFS, particularly at the neighbourhood scale.			
14	Purchase a canopy cover tracking tool to support canopy monitoring at the neighbourhood scale.	Plan (No.4)	Existing planning contract budget ($4,500)	Development Services
15	Examine Environmental Development Permit application, or other options, for managing and protecting the identified Significant Stands and Corridors.	Protect (No.11)	Existing OCP budget	Development Services
16	Examine opportunities to implement the CVRD and KFN Community Wildfire Protection Plan, including applying for UBCM funding for developing Wildfire Development Permit Areas, or other land use controls.	Plan (No. 3)	Additional funding opportunity available until October 2019	Development Services
17	Explore development incentives to promote enhanced tree and forest protection outcomes, such as density bonuses and clear amenity contribution policy.	Protect (No. 11)	Existing OCP and Zoning Bylaw budget	Development Services

FINANCIAL IMPLICATIONS:

Funds ($75,000) for this project were assigned from the 2017 Development Services Department contracting planning Council budget. The City also received approval of a $10,000 Infrastructure Planning grant from the provincial government which will be dispersed upon project completion. Staff will seek receipt of these immediately following adoption of the plan. Throughout the course of the project timeline, an additional $15,000 was assigned to the project to conduct additional analyses, notably the biodiversity connectivity analysis, for a total estimated project cost of $100,000.

Staff also note the Tree Planting and Replacement Reserve, Bylaw 2884 balance is currently $8,200.94. This reserve fund has been established since April 2016 and provides opportunity for applicants of tree cutting permits to pay cash-in-lieu instead of replanting trees, where replacement is a condition of a tree cutting permit. As the fund grows, it will be used “for the planting of trees on public lands or on private lands in accordance with a program created by the City of Courtenay to provide tree planting incentives to private land owners” (Bylaw excerpt).

ADMINISTRATIVE IMPLICATIONS:

Approximately 4 months of staff time in total (from a range of staff) have been dedicated to supporting the UFS project, including public consultation preparation, staffing and analyses, stakeholder liaising, internal review and document revisions. A number of immediate actions are recommended in this report which will require additional staff time, or will be part of ongoing or scheduled staff tasks. The overall monitoring of the UFS will occur through the Community Planning and Sustainability division.

ASSET MANAGEMENT IMPLICATIONS:

There is no immediate asset management implications associated with the creation of an Urban Forest Strategy. However, subsequent action plan items will contain asset management implications, especially as they relate to trees being planted on public land, or changes in level of service to public trees. Details are unknown at this point.

STRATEGIC PRIORITIES REFERENCE:

Effective tree management and protection is consistent with Council's Strategic Priority theme "We proactively plan and invest in our Natural and built environment".

We proactively plan and invest in our natural and built environment

● Focus on asset management for sustainable service delivery

▲■ Support actions to address Climate Change mitigation and adaptation

● Make progress on the objectives of the BC Climate Action Charter

●▲ Advocate, collaborate and act to reduce air quality contaminants

●▲ Support social, economic and environmental sustainability solutions

● **AREA OF CONTROL:** The policy, works and programming matters that fall within Council's jurisdictional authority to act

▲ **AREA OF INFLUENCE:** Matters that fall within shared or agreed jurisdiction between Council and another government or party

■ AREA OF CONCERN: Matters of interest that are outside Council's jurisdictional authority to act

OFFICIAL COMMUNITY PLAN REFERENCE:

The OCP contains numerous references to the objective of preserving trees and ensuring tree replanting as a mechanism of beautification, parks and boulevard development and environmental restoration. The following policies are included:

- *Plan to maintain and protect existing wildlife corridors to preserve habitat within the City, including working with community groups to achieve this aim (Pg. 13)*
- *Utilize landscaping to create environments that generate civic pride, facilitate enjoyable recreational experiences and improve the quality of life within the community (Pg. 13)*
- *Adopt measures to reduce the creation of impermeable ground surfaces (Pg. 13)*
- *Develop design guidelines that would yield walkable neighbourhoods in new developments with the inclusion, among other things, of heavily planted streets (Pg. 14)*
- *Continue boulevard tree planting in existing areas to re-establish and reinforce green space in urban residential areas and require new developments to include street trees (Pg. 44)*
- *Require environmental and tree inventories on large scale developments and any property containing or adjacent to environmentally sensitive areas (Pg. 53)*
- *Identify existing native vegetation retention as a guideline for all properties requiring a Development Permit (Pg. 80)*
- *Utilize landscaping to achieve building energy efficiency goals (Pg. 142)*
- *Ensure the Tree Bylaw is reviewed and updated to continue to protect environmentally important features including wildlife habitat, trees in riparian zones and threatened Coastal Douglas-fir as well as improve the retention of Courtenay's urban forest in general (Pg. 53, and Pg. 145)*
- *Increase the absorption opportunities for carbon throughout the municipality through the conservation and restoration of forested areas and stands of trees and other urban ecological systems throughout the municipality (Pg. 145).*

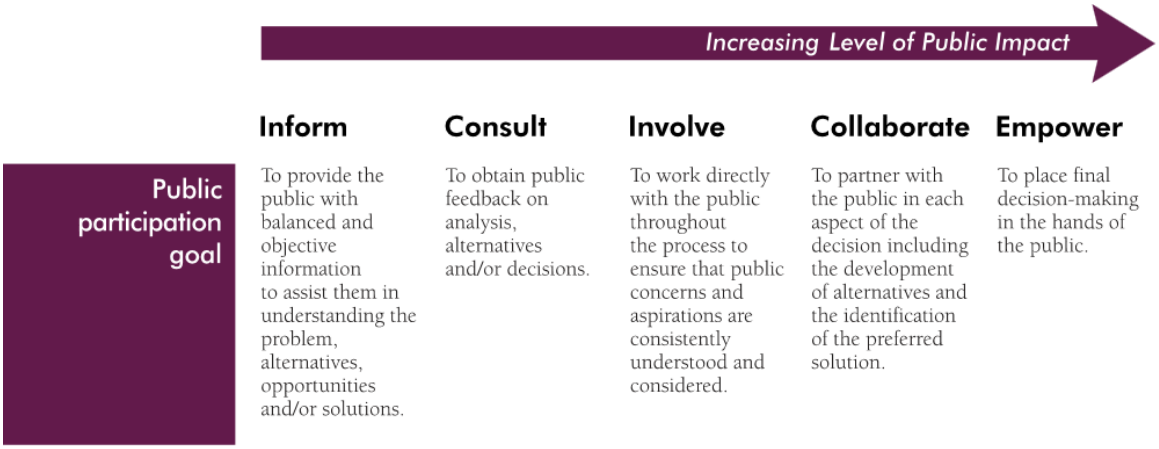
REGIONAL GROWTH STRATEGY REFERENCE:

The Regional Growth Strategy (RGS) also contains numerous references to the objective of preserving trees and ensuring tree replanting. For example:

Objective 2-B: "*Frame environmental protection and policies around the principles of precaution, connectivity and restoration …. where cost effective, consider the restoration or creation of natural systems to provide sustainable environmental services (e.g. stormwater ponds for improving water quality; tree cover for capturing carbon and reducing GHG emission)"* (page 36: RGS).

CITIZEN/PUBLIC ENGAGEMENT:

The consultation strategy for this project was comprised of a number of engagement elements that classify as "**involve**" for the initial phases of the plan development and as "**consult**" for the final plan.



OPTIONS:

OPTION 1: That based on the July 15th, 2019 staff report "Urban Forest Strategy drafted for adoption", Council support OPTION 1 and adopt the Urban Forest Strategy as presented (Attachment No. 3) and direct staff to pursue the Immediate Actions listed in Section 5 of this report.

OPTION 2: That Council adopt the Urban Forest Strategy with amended canopy targets determined by Council.

OPTION 3: That Council postpone adoption of the Urban Forest Strategy with a request for more information, including direction to staff on how to proceed.

Prepared by:

Nancy Gothard

_____

Nancy Gothard, MCIP, RPP
Policy Planner

Reviewed by:

_____

Ian Buck, MCIP, RPP
Director of Development Services

Attachments:

1. *Consultation summary*
2. *Stakeholder letters*
3. *City of Courtenay 2019 Urban Forest Strategy*

Consultation methods

The public and stakeholder consultation approach was organized around two critical phases of the project:

- Phase 1: At the beginning of the research and planning stage, to include the community's interest, ideas and vision for the project as well as identified stakeholder organizations specific interests and concerns. The three identified stakeholders included: K'ómoks First Nation (KFN), the Comox Valley Conservation Partnership (CVCP) and the Comox Valley Development and Construction Association (CVDCA).

  In Phase 1, participants were encouraged to discuss their vision and goals for Courtenay's urban forest broadly, with open house and survey questions prompting discussion and feedback on the following diverse topics: importance of services that the urban forest provides; satisfaction with trees on residential street and local parks; opinion of how mature trees should be managed in existing and new developments; canopy cover targets above, below or maintain status of current; priority locations for tree planting; priority land uses for street trees; actions the City should take; willingness to pay for urban forest strategy initiatives; incentives, including information, to plant and maintain trees on private property; open ended questions on what is valued most and least about the urban forest, vision for 2050, and opportunity for open ended responses in general.

- Phase 2: Once the plan was drafted, to present findings and solicit feedback on recommendations from the public and identified stakeholders.

  In Phase 2, participants were asked specific questions about the draft plan to test support for identified policy options. Open house and survey questions focused on the following topics: support for the vision statement and goal framework; ranking of different canopy cover scenarios; ranking of types of policy interventions and opportunity for open ended response. Questions on willingness to pay for urban forest strategy initiatives and incentives to plant and maintain trees on private property were asked again in Phase 2 to determine if public perception changed following the drafting of the full plan.

A summary of the findings from both phases of consultation is presented below. More detailed results from the consultation are available on the project webpage: www.courtenay.ca/urbanforest

Phase 1 consultation consisted of the following methods:

1. Two public workshops
   a. Monday June 25 2018, 7-9pm at the Lower Native Sons Hall
   b. Tuesday June 26 2018, 1-3pm at the Lower Native Sons Hall
   c. The workshops consisted of display panels available throughout the session, a half hour presentation by Diamond Head Consultants, followed by Q&A and workshop exercises which solicited the following information in small-group exercises:
      i. Visioning: what's special about Courtenay and its urban forest?
      ii. Mapping: opportunities and priorities for improvement
      iii. Priority actions: sharing ideas amongst the groups
   d. A copy of the presentation slides and display panels are available on the project webpage: www.courtenay.ca/urbanforest

2. Two separate dedicated stakeholder meetings with each the CVDCA including including professional arborists and land development consultants, and the CVCP. KFN indicated they would like to learn of the project as it progressed.
3. Internal staff workshop.
4. A survey questionnaire, available in hard copy and on-line formats between the dates of June 26 and September 30, 2018 (96 days).
5. The on-line survey included interactive 'story-map' functionality which was available between June 26 and September 30, 2018 (96 days). Between August 13 and September 30, 2018 (48 days) a competition was also advertised for photo submissions to be included on the cover of the final plan.
6. Staff was available to receive questions and ideas about the project via front counter, phone, emails and through the mail.

Phase 2 consultation consisted of the following methods:

1. A public open house
    a. Thursday May 2, 2019, 5:30-7:30pm at the Florence Filberg Centre Evergreen Lounge.
    b. The public meeting consisted of display panels of key findings, the draft plan, a 30 minute staff presentation and an hour town hall Q&A.
    c. A copy of the presentation slides and display panels are available on the project webpage.
2. Invitation for stakeholder meetings with the three identified stakeholders. CVDCA meets regularly with senior staff and used those meetings to discuss the UFS.
3. Referral to all City departments, regional local governments, School District 71, Island Health and Ministry of Environment.
4. A survey questionnaire, available in hard copy and on-line formats between the dates of April 22 and May 23, 2019 (32 days). Interactive 'story-map' functionality and cover photo competition was also available.
5. Staff was available to receive questions and ideas about the project via front counter, phone, emails and through the mail.

Advertisement across both phases included paid advertising and press releases in local press, City facility close-circuit TV advertising, social media ads and Facebook events, a radio interview, distribution of over 800 project business cards, presentation to local teachers, booth presence at Downtown Courtenay Market Days, and sharing through staff networks including targeting key sectors such as the development, construction, arborist and conservation communities. Advertisement specifics are included in the more detailed consultation summaries provided on the project webpage.

Consultation results

Summaries are also provided in the UFS document, and a full account of the consultation findings is available on the project webpage.

Phase 1 consultation highlights:

- 306 individuals conducted the survey, 77% (232) of which own property and/or live within the City. Sample size for each question varies as some respondents elected to skip certain questions;
- Survey participants represented all neighbourhoods across the City, were primarily homeowners of middle age or seniors, and have lived in the City for a number of years;
- Whether people lived and/or owned property in Courtenay or did not, the summary responses (e.g. graphs) are generally the same;

- 54 people attended two public meetings;
- 865 unique views of the Urban Forest Strategy webpage during the Phase 1 consultation period;
- 112 photos submitted on the Story Map;
- When asked to rank their urban forest values from a list, respondents rate maintaining the environmental quality and beauty of the city highly. Lower ratings were selected for contribution to property values and reflecting Courtenay's cultural heritage;
- When asked to provide in their own words what is valued most about Courtenay's urban forest, the most common responses were beauty, habitat for wildlife and shade (cooling). Air quality, access to nature and locations for quiet reflection were also common values;
- When asked to provide in their own words what is valued least, responses were much more varied and specific. Top dislikes included that there is 'not enough' urban forest, that it is being lost, and specifically that clear cutting is permitted in order to accommodate development. Tree debris maintenance as well as a dislike for unkept or poorly maintained trees were also commonly cited;
- Most respondents think that canopy has been lost over time and are supportive of setting a target to increase canopy cover;
- Most respondents want to see mature trees protected, particularly when it comes to development, but are less supportive of having regulation on their own trees. (This is consistent with the Tree Bylaw findings);
- There is stronger support for increased planting on public lands (parks, natural areas, school lands and streets), than on private lands whether commercial, industrial or residential;
- Respondents indicate strong support for street trees across all land uses particularly in new residential developments (both sides of the street). No respondents indicated that they prefer few or no street trees;
- Respondents indicate there is room to improve Courtenay's streetscapes, with the most preferred outcomes being: a) mixed native tree planting; and b) regularly spaced medium or large trees. This indicates an opportunity for different street characters for different neighbourhoods and street cross sections;
- Most respondents want to make a meaningful contribution to planting trees on their land and don't need free trees to do it. Instead residents would be motivated more by understanding of what trees are needed where (and why);
- Most respondents would pay more tax to support urban forest initiatives citing $25 per household per year as the most commonly selected response. Only 8% of respondents said they would not be willing to pay any amount;
- Most popular initiatives include building more green infrastructure, encouraging people to plant trees on private land and planting more trees on public property. There is very limited support for subsidizing trees for private tree planting, which is a popular initiative in many communities;
- Respondents indicated support for more education regarding tree management with naturescaping, pruning and managing pests being the most popular topics;
- 92 % of respondents strongly disagree with the statement "Trees are not important to me".

Phase 2 consultation highlights:

- 246 individuals conducted the survey, however only 173 indicated whether they own property and/or live within the City, of which 70% (121) indicated they did. In general more respondents skipped Phase 2 survey questions than in Phase 1;
- Similar to in Phase 1, survey participants represented neighbourhoods across the City;

- Whether people lived and/or owned property in Courtenay or did not, the summary responses (e.g. graphs) are the same, with the exception of the question inquiring into what one's street trees most resemble;
- 37 attended the public meeting;
- 910 unique views of the Urban Forest Strategy webpage during the Phase 2 consultation period (more than in the first phase);
- 87% of survey respondents support the Vision Statement and 87% support the goals identified in the plan;
- Survey participants were asked to rank their preferred Canopy Cover Scenarios in order of preference from six scenarios. The results show ranking of targets in order of highest canopy (most preference) to lowest (least preference);
- When rating what types of strategies the City should focus on, using the tree bylaw to regulate tree removal was more highly rated than planting on either public or private land;
- Asked another way using the 5-goal framework of Plan, Manage, Protect, Grow and Partner, respondents ranked protection actions highest followed by growing, with planning and managing similar, finished with partnering;
- Consistent with the first phase survey results, most respondents want to make a meaningful contribution to planting trees on their land and don't need free trees to do it. Instead residents would be motivated more by understanding what trees are needed where (and why), naturescaping and energy efficiency considerations;
- Most respondents would be willing to pay more tax to support urban forest initiatives citing $100 per household per year as the most commonly selected response, a much higher willingness to pay than indicated in the first round of consultation, although a smaller sample size. Similar to Phase 1 responses on this question, only 8% of respondents said they would not be willing to pay any amount.

May 27, 2019

Nancy Gothard
Policy Planner
City of Courtenay
830 Cliffe Avenue
Courtenay, BC V9N 2J7

Dear Ms. Gothard:

Re: Letter for Support of the Interim Draft of the City of Courtenay (2019) Urban Forest Strategy

Thank you for the opportunity to comment on the City of Courtenay's Urban Forest Strategy (UFS). We would like to offer our full support to the UFS, as stated on page 13, the recognition of "mental, physiological and physical health benefits of a personal connection to nature" puts health (and its connections to the natural environment) front and centre in the Plan. Today, chronic diseases are on the rise and "alarming trends in declining mental health are [indeed] the leading public health concern in Canada." In fact, over half of British Columbians have at least one chronic condition and chronic diseases are responsible for the majority of deaths in the province[1].

The Strategy is clear in its efforts to promote sustainability, buffer climatic changes, and showcase its health promoting synergies with environmental protection and stewardship. Consider, for instance, the capacity of a park to cool and filter the air in a dense neighbourhood, or the ability of a greenway to inspire active transport and access to nature. Such interventions foster more livable surroundings that encourage physical activity, promote mental health, and bring diverse communities together[2].The health promoting rationale is woven throughout the UFS, illustrated in public feedback all the way to Actions.

Studies have shown that access to green space can significantly affect how you travel and your physical activity, and exposure to air pollution, traffic safety, and noise[3]. Trees can encourage health promoting behaviours, for instance, research is showing a strong association between street trees and an increase in walking and perceptions of safety. Even a brief interaction with nature, such as a ten-minute walk or a view of green space, can have restorative effects[2].

Some of the many elements we would like to support in the Strategy are as follows, however, this is by no means a fully comprehensive list and more so teases out a few highlights):

- Section 2 (on page 18) – the overarching *Value of the Urban Forest* and its *Benefits* states "urban trees and forests provide services that improve human health and well-being." This value is accurate and admirable. There is strong evidence that the experience of being in and viewing nature has significant physical and mental benefits, including increased social well-being and reduced stress. Research also supports a strong relationship between biodiversity and measures of ecosystem functioning, such as water quality, soil health and pollination.

Gateway Office
210 - 771 Vernon Avenue | Victoria, BC V8X 5A7 Tel: 250-519-3401 | Fax: 250-519-3402

- Section 5 (page 6) – under *Climate Change* there are "anticipated impacts of climate change for Courtenay that include sea level rise and more extreme rainfall events, higher storm surges, flooding and waterlogged soils outside the summer months. Warmer temperatures will increase evaporation and vegetation water demand. Overall, water supply is expected to be reduced while water demand is likely to grow, increasing the possibility of drought." Climate change is clearly observable and many people are already feeling its effects. It is affecting individuals and the communities in which people live, work and play. Expanding the use of vegetation and natural elements across the built environment, e.g. using the cooling effect of vegetation in parks and increasing the number of trees, mitigates air pollution and the urban heat island effect.

- Section 6 (page 10, 76 & 87) – *Food Security* is a term peppered throughout the Strategy and we would like to echo its support for inclusion. Public fruit trees and fruit gleaning projects can support healthy eating habits. Healthy eating habits can in turn significantly reduce the risk of chronic disease, e.g. high blood pressure, osteoporosis and cancer—which increases quality of life and reduces health care costs. While there are different ideas of what makes a healthy diet, all generally prioritize consumption of whole foods, such as fruits, vegetables and grains[2].

The above are only a few of the many objectives and actions in the Strategy where island Health may offer its support to this Plan. We would like to leave you with this recent finding: in the literature review by Fong et al. (2018), there is mounting evidence demonstrating associations between greenness and health. They found consistent and strong evidence that higher levels of greenness are associated with higher birth weights, higher levels of physical activity, and lower mortality rates[4]. They further point to how policies and interventions to increase neighborhood levels of greenness are relatively straightforward and may have many co-benefits, i.e. for climate mitigation and stormwater runoff control[4]. The UFS is an intervention to achieve a myriad of goals, such as improvement to a healthier built environment for all.

If you have any questions or comments, please do not hesitate to contact us.

Sincerely,

Jade Yehia, CPHI(C)
Regional Built Environment Consultant

JY/cmd

cc: Charmaine Enns, MD, MHSc, FRCPC, Medical Health Officer, Island Health

[1] BC Centre for Disease Control (2018). The Economic Burden of Risk Factors in BC, 2015. Excess Weight, Tobacco Smoking, Alcohol Use, Physical Inactivity and Low Fruit and Vegetable Consumption. Retrieved May 24, 2019 at http://www.bccdc.ca/pop-public-health/Documents/economic_burden_five_risk_factors_BC_2015.pdf.

[2] BC Centre for Disease Control (2018). *Healthy Built Environment Linkages Toolkit: making the links between design, planning and health*. Retrieved May 21, 2019 from: http://www.bccdc.ca/pop-public-health/Documents/HBE_linkages_toolkit_2018.pdf

[3] Partnership between University of BC Health & Community Design Lab and Vancouver Coastal Health (2019). *Where Matters: the Health & Economic Impacts of Where We Live*. Retrieved May 21, 2019 from: https://health-design.spph.ubc.ca/where-matters-health-economic-impacts-of-where-we-live-2/

[4] Fong, K.C., Hart, J.E. & James, P. (2018). *A Review of Epidemiologic Studies on Greenness and Health: Updated Literature Through 2017*. Current Environmental Health Reports 5: 77. Retrieved on May 24, 2019 at: https://doi-org.ezproxy.library.uvic.ca/10.1007/s40572-018-0179-y

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Partner Organizations
Comox Valley Land Trust
Project Watershed
Millard-Piercy Watershed Stewards
Morrison Creek Streamkeepers
Beaufort Watershed Stewards
Comox Valley Nature
Comox Valley Water Watch Coalition
Brooklyn Creek Watershed Society
Perseverance Creek Streamkeepers
Cumberland Community Forest Society
Mack Laing Heritage Society

Support Organizations
CV Sustainability Project
CV Council of Canadians
Friends of Comox Lazo Forest Society
Forbidden Plateau Road Residents Association
Black Creek Streamkeepers
Saratoga and Miracle Beach Residents Association
Arden Area Residents Association
Friends of Strathcona Park
Merville Area Resident's & Ratepayers Association
VI Whitewater Paddling Association
Mountainaire Avian Rescue Society
Macdonald Wood Park Society
Tsolum River Restoration Society

Funding Partners
Real Estate Foundation of B.C.
Community Gaming Grant
RBC Blue Water Fund
Comox Valley Regional District
City of Courtenay
Village of Cumberland

www.cvlandtrust.ca/cvcp/

Date: June 26th, 2019

Re: Letter of Support, City of Courtenay's Urban Forest Strategy

To: Ian Buck, Director of Development Services and Nancy Gothard, Policy Planner

The Comox Valley Conservation Partnership (CVCP) Steering Committee would like to provide this letter of support to congratulate the City on the recent Urban Forest Strategy and public consultation process. The information is comprehensive, timely and presented in an informative and engaging format.

The CVCP has been advocating for an Urban Forest Strategy since 2016 when the City was considering significant changes to the Tree Bylaw. We congratulate Mayor and Council, staff, consultants, stakeholders and the many members of the public who participated to create this valuable piece of work.

There are a number of aspects of the UFS that CVCP specifically would like to commend:

- **Inclusion of an ambitious City-wide Tree Canopy Target**. CVCP understands that the public consultation indicated strong support for increasing the overall Canopy Cover of the city from the current 33% City-wide (25% in urban areas) to 40% City-wide (and minimum of 34% in urban areas). 40% Canopy Cover is a target that CVCP requested during the Tree Bylaw work, citing the numerous benefits of a significant and well distributed canopy.

- **Commitment to partnerships**. CVCP is a partnership based organization with a core belief in the power of collaborative approaches. We would like to offer support in implementing the UFS through developing and disseminating educational materials in partnership with the City, partnering in community initiatives such as tree planting programs/neighbourhood tree hunts.

- **Commitment to monitoring the canopy cover over time.** As a living system, CVCP recognizes that the urban forest is dynamic and will change over time. Significant unknowns include climate change and the rate of development. As such monitoring the canopy in order to make informed decisions is critical to practicing evidence-based decision making. CVCP notes the monitoring cycles are projected for every 6 years and requests that more frequent intervals be considered to more proactively respond to urban forest changes.

- **Incorporating UFS information into the OCP review**. For example the biodiversity connectivity analysis is an asset and should be used as a green network land use foundation in the City's climate friendly OCP. Protecting patches and corridors of native ecosystems is consistent with climate friendly community planning and affords many other benefits to biodiversity, rainwater management and high resident quality of life.

- **Integrating UFS information with the ongoing Integrated Rainwater Management Plan (IRMP).** The relationship between water quality and

quantity and land use and coverage is well established, and CVCP is pleased to see a holistic and return to ecological principles being espoused in the IRMP. We look forward to continuing to work with the City on the IRMP initiative, and are pleased to see that the important role of trees and forests will be explored in that work.

- **More detailed neighbourhood planning.** The CVCP also supports that more detailed consideration of Urban Forest values should be examined at the neighbourhood scale with local residents, as is recommended in the UFS. The CVCP acknowledges that some lands will be better suited to tree retention and protection, while on other land replanting is a more suitable urban forest option, but that a healthy balance of retention and replacement must be considered in all neighbourhoods to sustain a resilient urban forest.

The CVCP Steering Committee appreciated being a part of the collaborative process and look forward to taking the next steps in partnership to assist in implementing this innovative Strategy.

Sincerely,

Erin Nowak
Program Coordinator
Comox Valley Conservation Partnership

CVDCA
COMOX VALLEY DEVELOPMENT
& CONSTRUCTION ASSOCIATION

2019-06-28

RECEIVED
JUN 28 2019
CITY OF COURTENAY

City of Courtenay
Development Services
planning@courtenay.ca

RE: Urban Forest Strategy, City of Courtenay, 2019, Interim Draft April 2019 -Diamond Head Consulting and City of Courtenay

Thank you for the opportunity to review the Interim Draft Urban Forest Strategy as posted on the city website and dated 2019-04-26. There is also a reference to a Final Draft on the website, so we would appreciate confirmation that we are indeed reviewing an Interim Draft and not a Final Draft document, and that a Final Draft will be forthcoming for review by the public following this round of inputs.

The Comox Valley Development and Construction Association represent local builders and land and property development corporations, the building industry and consultants. As we are sure that Council and staff appreciate this is a seasonal business and this is the busiest time of year for most of our members. Our comments today will therefore be reflective of our need to stay focused on employing our workers effectively and creating the products and services we rely on to maintain our businesses and employment. While our comments are therefore necessarily brief, this does not reflect our opinion of the importance of this initiative, either to our business viability or to our community. We look forward to contributing to this dialogue for years to come.

We applaud the City for this initiative and the Interim Draft report contains a wealth of helpful data, comparative research and guidelines. We share with the citizens of Courtenay the importance of trees in our community and the goal of maintaining or increasing tree canopy from current levels. The study has explicitly and thoroughly laid out the importance and benefits of trees. It is a dense but excellent resource in this respect.

We agree with the observation that majority of tree canopy is and will remain on private land, and that stewardship partnership will be the way forward on any urban forest strategy. We agree that both public and private lands will require a strategy for the community goals to be achieved. If we understand the data on Land Cover Distribution correctly (p. 32) the urban residential land categories in aggregate have more tree canopy cover, measured in hectares, as the entire public land category. We believe this has been achieved simply because people want trees – not because they have been ordered to keep them.

Murray Presley · chairman · 951 Fitzgerald Ave, Courtenay, BC, V9N 2R6 · (250) 338-1394

The associations goal is to provide a single unified voice for developers and builders and professionals on matters that relate to development in the Comox Valley.

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Philosophically, we believe that education and carrots will get more than sticks in a goal of long-term tree conservation for the Courtenay community. We believe that was also reflected in survey results, for example, that people are more interested in knowing what trees should be planted than in having the city provide them with trees for free, and that city tax expenditures on tree matters be in the order of $300,000 ($25 per household) annually.

We are in agreement that compact development (compact single family, ground-oriented housing, mixed-use or high density) is conducive to a healthy community.

We would like to work with city staff and its consultants to test out the Scenarios A-F on p. 58 for residential tree canopy targets, in particular to examine how the interplay of City servicing, environmental protection and tree-related policies can achieve desired targets over the longer term. Our sense is that there should be more focus on the end goals of tree canopy post-development, particularly in regard to improving the long-term diversity of species in the urban setting, rather than on what we have experienced under the current Tree Bylaw as a challenging approach to retention of existing trees. We believe a workshop approach is practical and would help bridge gaps in understanding for both the public and private sector and result in more informed stewardship on the critical private sector side of implementing the urban forest strategy. It could for example move forward on the identified Action 12 a 'explore how to maintain hydrological pathways to retained forest patches…', and the implications of 12 b 'require that calculations for stormwater management plans for new development utilize runoff coefficients that incorporate the historical land cover value for up to 25 years.' With the City's stormwater management bylaw under review, our recommendation would be to delete this action here, in favour or considering appropriate standards in the appropriate bylaw. If it is left in the Urban Forest Strategy, the criteria should be clearer. Further, we would appreciate some comparables and rationale for incremental benefits of such a standard. If we understand it correctly, it appears that this standard is significantly more onerous than elsewhere.

As part of that workshop approach, we would appreciate seeing some comparables to other jurisdictions on the continent and some insight into differential impacts of the range of tree canopy targets being considered in the Interim Draft. Is there evidence of significant health related benefits of a community with a 40% tree canopy target, compared to one with 37% or 33%, for example.

We would also like to explore what design or policy options are contemplated within the urban core related to the 'key hub patches', 'major connectivity pathway' and 'pinch points' illustrated on an un-named figure on p. 46. The only actions we could find was 11 b (p. 84) which states 'Consider options, such as land acquisition or regulation, to enhance protection of Significant Stands and Corridors', and 'Consider density bonusing options to protect Significant Stands and Corridors in the next Zoning Bylaw

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review.' These could potentially be significant tax expenditure items, whether in acquisition or maintenance, and we are unclear at this point of the regulatory mandate contemplated by the authors.

A workshop approach to the Scenarios, at least for residential development, we believe will lead to a more informed conclusion on how achievable the various targets are in today's compact development world, and if there are unintended trade-offs that are relevant to other policy initiatives such as affordable housing that council will want to consider.

We agree that there are important opportunities to achieve city-wide goals as commercial and industrial areas develop and redevelop, and through adjacent city initiatives of streetscape improvements.

Under Action 11a, adding a >60cm DBH threshold to the definition of 'Protected Tree' will reduce flexibility and options to develop land with larger trees. If a size threshold is to be considered, then consider what standard should apply to which species. This again would be a helpful topic for a workshop.

We would appreciate some clarity on what is envisaged under recommendation for action 11c for soil preservation guidelines and storage before providing meaningful comments.

Action 13a states 'on greenfield properties where forest cluster of corridor configurations may be possible but are not proposed, require a design rationale for why such configurations are not possible'. Please clarify if this means forest clusters proposed for within public park designations, or something beyond that.

Action 13d contemplates three visits, one comfort letter, and two memos by an arborist for tree protection zones. Is all this added cost for consulting value added to the city or the buyers?

Under Action 13i, there should be an appeal opportunity to Council if there is a disagreement between an applicant and the opinion of the Director, and some guidelines to applicants on what constitutes 'to the satisfaction of the Director'.

Under Partner Indicators there is a rating of low for 'involvement of large private and institutional landholders', but no partner actions. This appears to be a gap, to which our proposed workshop may be one response.

We would appreciate a more focused final draft emphasizing guidelines and costed policy recommendations, with a companion resource document for the research-oriented reader.

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There appears to be an inference that there will be a heavy reliance for canopy maintenance and enhancement through retention of existing stands of trees on private lands. Is that the intent? To what extent? Mandatory retention as required in the current Tree bylaw is difficult and costly, and would be a key item to discuss at the workshop proposed above. If pursued, these costs are eventually passed on directly to the consumer, impacting housing affordability in the region, which we understand is also an important objective of council.

Council should consider a sliding scale of replacement, either cash or trees, which encourages retention, but does not make it mandatory. This will provide flexibility, and will help manage cost/affordability, while still achieving tree canopy targets.

The cost implications of meeting the targets suggested in the UFS are not clear. This needs to be remedied. It is not reasonable to create a policy framework that ignores the costs of implementation to existing residents and industry. We would appreciate a cost impact analysis of implementing the Goals, Strategies and Actions, both on the City finances and private sector, and a comparison of this to the survey results of what the public anticipate spending through their tax dollars. For example, some of the potential initiatives appear to have substantial cost implications.

As we looked at the front cover of the document we were reminded that on an airshed and regional basis we are among the fortunate regions in the world in terms of tree opportunities. We applaud this effort to extend that regional strength in practical terms into the urban environment for our community well being and the health of our citizens. We are here to share in that challenge.

Yours truly,

Murray Presley

Murray Presley · chairman · 951 Fitzgerald Ave, Courtenay, BC, V9N 2R6 · (250) 338-1394

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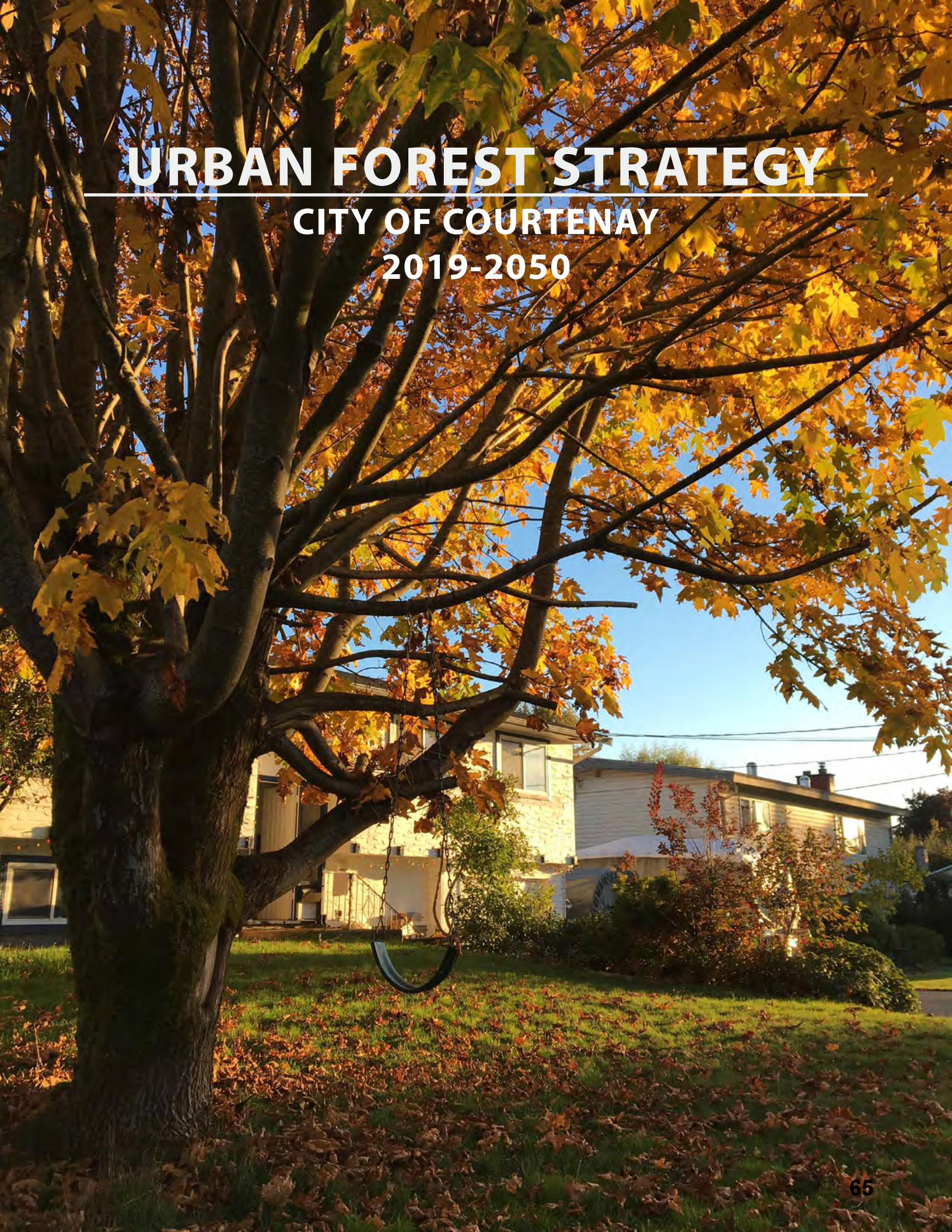


URBAN FOREST STRATEGY

CITY OF COURTENAY

2019-2050

The City of Courtenay would like to thank all participants who have lent their vision and ideas, voiced their concerns and provided quotes, images and information in the drafting of this Strategy. Thank you for participating in shaping the future of this shared community asset.

Photo by Kelsey Ann
Cover photo by Tree Murdock

DIAMOND HEAD

CITY OF COURTENAY

CONTENTS

EXECUTIVE SUMMARY

Courtenay's urban trees and forest patches are valued by the community for the multitude of functions they serve whether they are growing on our streets, in our parks or parking lots, in our yards, protected areas or that patch of private forested land we've come to cherish. While not everyone may agree on the urban forest's most important function, most agree that healthy trees, and a functional network of forest patches, are important to the identity, ecology and comfort of those who call this place home. Residents view thoughtful protection and strategic investment in the urban forest now as climate protection and quality of life investment for the future. The following Vision Statement guides the Courtenay Urban Forest Strategy:

> ***Courtenay residents envision a future urban forest that is more extensive than today, is connected and accessible, maintains mature trees and ecosystem services, is comprised of a sustainable mix of ages and locally adapted species, and is used as a design treatment to reduce the prevalence of pavement in commercial areas, create neighbourhood distinction and canopy streets on key routes.***
>
> ***A canopy cover target of 34-40% distributed throughout Courtenay will inform the refinement of policies and actions to achieve this Vision, as the urban forest changes to accommodate development, climate change and through the natural life span of trees.***

The beauty and offerings of the Comox Valley are no longer a secret and with expected continued community growth will come a need for land development. Loss of forest patches will continue to occur because municipal areas have been identified as the most appropriate urban, serviceable locations for our region's growth. The Urban Forest Strategy is intended to address the tension between protection and development of remaining forest lands, and provide direction on how to mediate that tension. The Vision statement therefore includes a canopy cover target that will be utilized at a high level to monitor and inform the most appropriate interventions over time to achieve the Vision.

The Vision Statement together with the following five goals set the framework for supportive actions that will require ongoing civic leadership, resident and business engagement and partnership power:

- Plan strategically to inform and monitor land use patterns and integrate the urban forest into civic asset management.
- Manage pro-actively to enhance urban forest health, safety and resilience
- Protect prudently to maintain the quality and connectedness of the urban forest
- Grow intentionally to provide urban forest benefits when and where they are needed
- Partner effectively to share stewardship and promote appreciation of the urban forest

As a community-wide land use concept, Courtenay's Urban Forest Strategy identifies a network of critical remaining forest patches linked by watercourses, Environmentally Sensitive Areas and green infrastructure opportunities to become designated as protection and regeneration areas for the ecosystem services they provide.

This network will become the green and blue living veins that support wildlife and convey urban nature, the ecological foundation around which other land use decisions will be made. Within these areas, old growth forest regeneration is an exciting possibility within our children's lifetime. Planning and protection actions will be essential within these areas, although new growth will also be needed to restore connectivity. Existing trees will require management to ensure longevity and suitable co-location with other community values.

Outside of these core priority locations, the urban forest will be more flexibly managed to execute site-specific applications on private or public land, whether they be in service of rain water management, wind abatement, shade provision, food, neighbourhood character, privacy and screening or the appreciation for beauty, form and colour. Growing and managing forest values, and providing the tools for residents and businesses to plan for their properties will be essential actions within these areas.

Because the urban forest is ultimately a shared community asset that spans property lines and changes over time, possibly the most important set of actions in the plan is to support the goal of shared stewardship. The urban forest is unique among City assets because it is living infrastructure that the community can directly help grow, steward and protect. Because the City has limited resources, the achievement of the Urban Forest Strategy Vision will depend on how well we each take initiative and responsibility to play a vital part.

In support of the Vision and all strategy goals, the City will enact leadership by utilizing regulatory tools available to inform land use, providing helpful information to people wishing to contribute or make changes to the urban forest, and demonstrate practices to design with nature through public maintenance and capital projects.

Supported by the Urban Forest Strategy, the City's Tree Bylaw will remain the key regulatory tool to protect identified priorities and ensure lands regenerate when removal takes place. Tree Density Targets required to be achieved when conducting tree removal may be revisited through Tree Bylaw amendments in the future to respond to the canopy cover monitoring information. Corporately, the City will nurture a culture that values trees as part of a wider movement in Municipal Natural Asset Management, providing a platform to be leaders and innovators in the growing field of community planning and design that is learning the immense value afforded to us when we learn to let nature into our communities. Whether in pursuit of utilitarian, public and personal health, quality of life, sense of place or spiritual benefits, this Urban Forest Strategy affirms that Courtenay's future will include these values.

Courtenay's long-term vision will be most achievable if management decisions can be framed within the context of stewarding the urban forest over a time-frame spanning multiple generations – past, present and future.

1 PLANNING COURTENAY'S URBAN FOREST

Trees and forests are a big part of what makes Courtenay a vibrant and desirable place to live. The forest graces our city with scenic natural beauty, clean water and air, native wildlife and provides places for people to recreate, cool off and connect with nature. Our urban forest is the living, life-sustaining part of our human habitat and we plan to continue to be a community with extensive parklands, natural areas and agricultural lands.

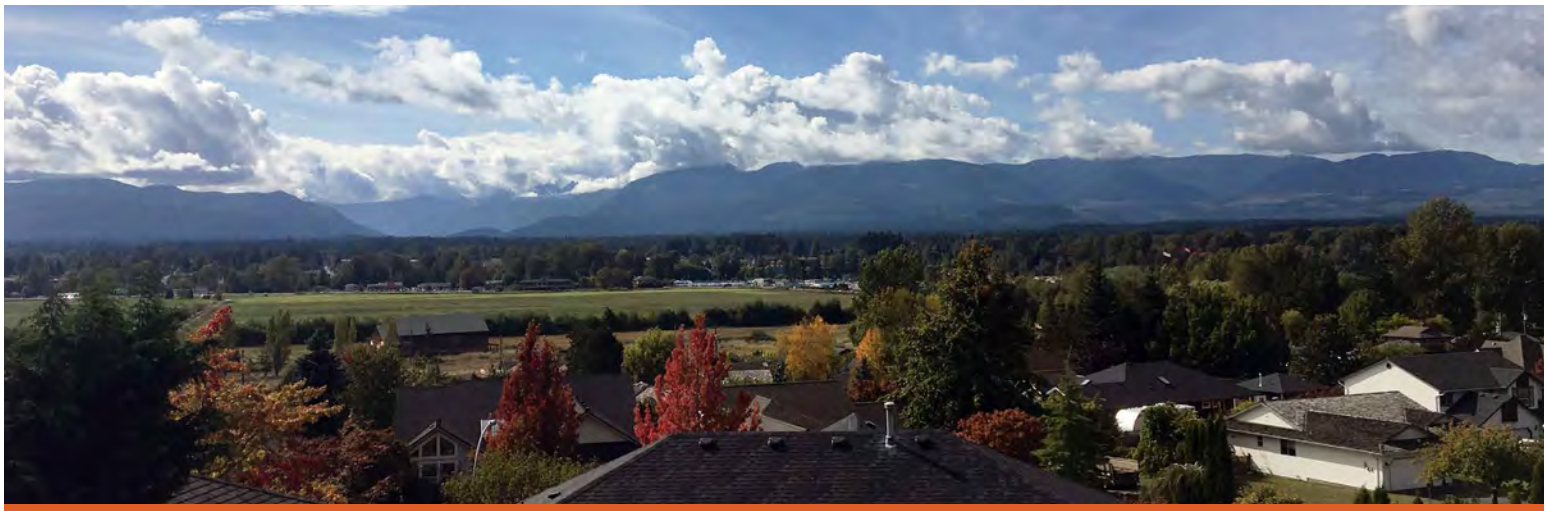
The 'urban forest' includes all of the trees, vegetation, soils and associated natural processes across our city - found in parks, schools, forest lands, urban areas, strata properties, and even in your backyard. Trees are the keystone organism of the urban forest; without them the urban forest would cease to exist.

Trees provide much more than beautification for urban streets and yards. They are critical to Courtenay's municipal infrastructure for supporting a healthy community and increasing resilience to climate change. The City initiated the Urban Forest Strategy (the Strategy) to ensure that Courtenay will have trees when and where they are needed to maintain the integrity of our watersheds, provide habitat, reduce energy consumption, beautify the city and provide the multitude of benefits associated with urban forests.

The Strategy defines the community's long-term vision for the urban forest, describes its current status and trends, and sets out the planning priorities, goals and strategies for achieving the urban forest vision.

Being a collective resource, the Strategy contains goals and actions for the many actors who have important roles to play in ensuring we have trees and forest values now, and in our urbanizing future.

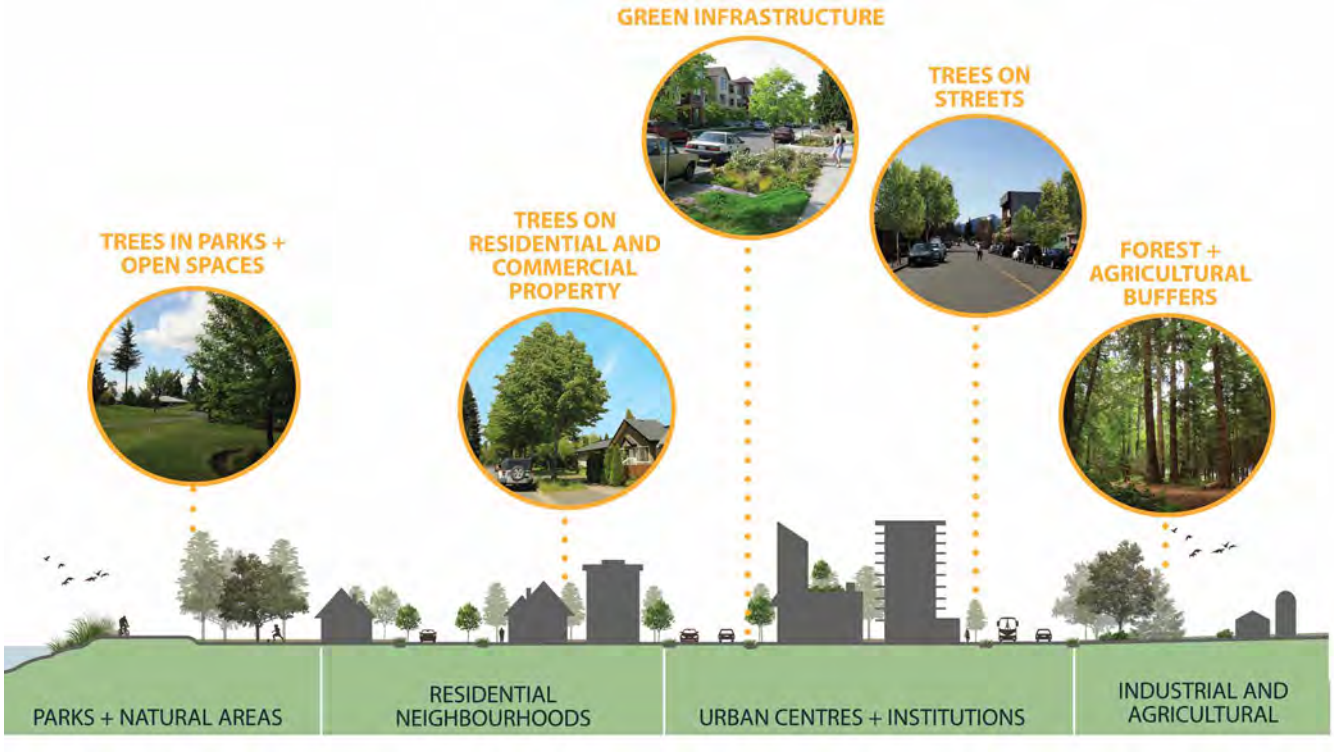
COMMUNITY VISION STATEMENT



Courtenay residents envision a future urban forest that is more extensive than today, is connected and accessible, maintains mature trees and ecosystem services, is comprised of a sustainable mix of ages and locally adapted species, and is used as a design treatment to reduce the prevalence of pavement in commercial areas, create neighbourhood distinction and canopy streets on key routes.

A canopy cover target of 34-40% distributed throughout Courtenay will inform the refinement of policies and actions to achieve this Vision, as the urban forest changes to accommodate development, climate change and through the natural life span of trees.

An urban forest is all of the trees, vegetation, soil and associated natural processes across our city's landscape. It is found on both public and private lands including:



URBAN FOREST STRATEGY OVERVIEW

Courtenay's Urban Forest Strategy (the Strategy) is underpinned by the City's Official Community Plan vision for Courtenay to lead in environmental protection, and to expand parks, natural areas and the greenways system in the pursuit of a community exhibiting high quality of life.

The Strategy was developed following a comprehensive review of Courtenay's urban forest resource and with community input. The planning horizon for the Strategy is 30 years, out to 2050, which reflects the time it takes for the urban forest to grow and reach the state described in the vision. It is critical to recognize that trees live long lives and therefore Courtenay's Urban Forest Strategy Vision and actions must extend beyond traditional community service planning horizon. In this spirit, the Strategy should be revisited at regular intervals as the community changes.

Never studied before, the Strategy provides a high level benchmark analysis of the current state of Courtenay's urban forest in terms of extent, composition, threats, opportunities and past and projected trends. A 'report card' of how well Courtenay is doing regarding a variety of urban forest management and policy metrics is presented.

The Strategy responds to this assessment by proposing a high level canopy cover target and a framework of mutually supported goals and actions that will be implemented within the plan horizon. Critical to the plan's success will be a commitment to monitoring and adjusting policy levers to respond to the changes in the urban forest over time. The community's relationship with the urban forest does not end with the creation of this Strategy, but rather is just beginning.

Beyond a planning document, the Strategy also includes the voices of the over 300 residents who participated in the consultation. Respondents to the survey and open house sessions provided an extensive array of values and aspirations for the urban forest. Quotes and photos are included throughout the plan to help tell the story that has emerged from this citizen engagement.

OUR GOALS

Plan strategically to inform and monitor land use changes on the urban forest and integrate into public asset management

Manage proactively to enhance urban forest health, safety and resilience by managing alongside other infrastructure goals

Protect prudently to maintain the quality and connectedness of the urban forest

Grow intentionally to provide urban forest benefits when and where they are needed

Partner effectively to share stewardship and promote appreciation of the urban forest

OUR ACTION FRAMEWORK

Plan (strategically)

1. On public lands, formalize urban forest asset management and protection in City corporate policies and systems
2. Set neighbourhood tree canopy and character goals in consultation with the community to refine expectations and specificity regarding protection, character and function of the urban forest
3. Identify and proactively manage forest fire risk
4. Regularly update urban forest data and key planning and policy documents to respond to changes in land use and technology
5. Actively pursue funds and respond to partnership requests to support the UFS
6. Amend the Tree Bylaw, as needed, to respond to community wide urban forest information

Manage (pro-actively)

7. Develop a City Tree Operations Manual to formalize urban forest asset management and protection in City corporate policies and systems
8. Continue to regularly collect information to populate the city tree asset management system
9. Use information from the asset management system to inform resourcing requirements, including human resources, for the desired level of service
10. Establish forums for interdepartmental, interjurisdictional and interagency communication to continuously improve tree management protocols and clarify tree management expectations across public and private lands

Protect (prudently)

11. Prioritize protection of significant trees and forest stands on both public and private land
12. Refine understanding of the linkages between changes to hydrology and forest patches through land development
13. Review the Tree Bylaw to consider possible amendments that enhance interpretation and tree protection outcomes
14. Improve the quality of park assets inherited through development
15. Consider the creation of a tree heritage registry or significant tree list within the Tree Bylaw in order to protect individual trees of community significance

OUR ACTION FRAMEWORK (Continued)

Grow (intentionally)

16. Improve the quality of new tree planting in the public and private realm
17. Increase the quantity of new tree planting in the public and private realm
18. Plan and prioritize tree planting where it will most benefit community and ecological health, and support other City strategies
19. Support local food security through the urban forest

Partner (effectively)

20. Work together with K'ómoks First Nation and community groups to steward the City's urban forest
21. Develop a Communications Strategy to effectively share the story of the urban forest and engage the community in managing public and private trees
22. Partner with institutions such as UBC Urban Forestry to identify research and co-op student opportunities to study the urban forest and effectiveness of management outcomes
23. Partner with government, municipal and 3rd party utilities and green industry to implement the urban forest strategy
24. Respond to creative ideas from potential partners that advance Urban Forest Strategy implementation

LOCAL POLICY CONTEXT

Both City and Regional policies influence how and where Courtenay's urban forest will grow and change in the future.

At a high level, the Comox Valley Regional Growth Strategy (RGS) and the Official Community Plan (OCP) guide future land use for Courtenay and establish the broad priorities that drive policy setting, programming and infrastructure management within the City. The Comox Valley Sustainability Strategy is a region wide resource guide that provides visionary ideas to guide the region's future.

Council's Strategic Plan sets the more immediate priorities that the City will focus on during a Council's term.

City strategies and plans like the Downtown Courtenay Playbook, Neighbourhood Local Area Plans, Master Servicing plans and the Urban Forest Strategy – which are all guided by the vision and policies in higher level plans – provide the more detailed decision and action framework for managing specific places or infrastructure.

City strategies are implemented on the ground using various regulatory tools that shape land use and servicing, as well as by the City's programs, capital projects and operations.

Courtenay has recently been updating its portfolio of strategic plans, with the Connecting Courtenay Transportation Master Plan, Parks & Recreation Master Plan and Integrated Rainwater Management Plan recently completed or in process. Along with the Urban Forest Strategy, these master plans will provide comprehensive guidance for how the City will manage its grey (e.g., roads and pipes), green (e.g., trees and parks) and blue (e.g., rainwater and stormwater) infrastructure in the coming decades.

TREES IN COURTENAY'S POLICIES

The City currently has a number of policies that influence and regulate land use activities affecting the urban forest in the form of a Tree Bylaw, Development Permit Area (DPA) guidelines and the Official Community Plan (OCP). Operations and maintenance of the public urban forest also occurs, however the policies directing these activities are not yet comprehensively developed. This represents an opportunity identified in more detail in Section 6 .

Courtenay's 2005 OCP contains a number of policies that support the urban forest:

- Plan to maintain and protect existing wildlife corridors to preserve habitat within the City, including working with community groups to achieve this aim (Pg. 13)
- Utilize landscaping to create environments that generate civic pride, facilitate enjoyable recreational experiences and improve the quality of life within the community (Pg. 13)
- Adopt measures to reduce the creation of impermeable ground surfaces (Pg. 13)
- Develop design guidelines that would yield walkable neighbourhoods in new developments with the inclusion, among other things, of heavily planted streets (Pg. 14)
- Continue boulevard tree planting in existing areas to re-establish and reinforce green space in urban residential areas and require new developments to include street trees (Pg. 44)
- Require environmental and tree inventories on large scale developments and any property containing or adjacent to environmentally sensitive areas (Pg. 53)
- Identify existing native vegetation retention as a guideline for all properties requiring a Development Permit (Pg. 80)
- Utilize landscaping to achieve building energy efficiency goals (Pg. 142)
- Ensure the Tree Bylaw is reviewed and updated to continue to protect environmentally important features including wildlife habitat, trees in riparian zones and threatened Coastal Douglas-fir as well as improve the retention of Courtenay's urban forest in general (Pg. 53, and Pg. 145)

Future OCP revision opportunities will take into consideration the recommendations from all City master plan studies, including this Strategy.

A number of neighbourhood scale Local Area Plans for the Old Orchard, Mission Road, South Lerwick, South Courtenay, Sandwick/Headquarters Road and Arden Corridor have been developed, each of which includes policy to support retention of mature trees as a valued part of each neighbourhood identity. The Downtown Courtenay Playbook identifies the goal of growing the canopy within the downtown.

The City's Tree Bylaw is the key implementation tool to achieve goals related to tree removal, retention and replanting on private land. The City has had a Tree Bylaw since 1989 when the population was closer to 11,000 residents. The population is currently approximately 26,000. An examination of other BC communities with Tree Bylaws indicates that small communities under 10,000 rarely enact Tree Bylaws. In the late 80s, Courtenay would have been demonstrating urban forest management leadership to have established a Tree Bylaw at that time, a leadership legacy that may be continued today.

The latest revision of the Tree Bylaw was conducted in 2017 at which time a number of significant changes were implemented such as adding new species to the protection list, applying the bylaw city-wide and setting standardized retention or replacement requirements to be based on a Tree Density Target of 50 stems per hectare of land, regardless of the number of trees originally on the property. The Tree Bylaw is discussed in more detail further in the Strategy.

At the same time as these revisions, Council also approved the creation of a Tree Planting and Replacement Reserve Fund to provide the opportunity for applicants in some circumstances to pay for tree replacement with cash in lieu instead of planting new trees on their property. As the fund grows, the City will examine the opportunities for where to plant replacement trees in conjunction with this Strategy.

COMMUNITY PLANNING TRENDS

That trees and nature contribute to a community's quality of life has been well known for generations. A field of emerging research provides quantification and a deeper understanding of these benefits that strengthen the "design with nature" trend influencing urban and community planning today. In addition to the more commonly understood benefits related to urban forests and their role in maintaining environmental quality in urban areas, we're learning that green and treed spaces promote social interactions, encourage neighbours to build more social bonds and promote a more engaged civil society. Perhaps most profoundly, we're learning the mental, physiological and physical health benefits of a personal connection to nature.

In **community, urban and land use planning** – a field tasked with considering the diverse needs of human habitats – the alliance with public health is a rapidly growing, yet familiar trend. In Canada, community planning and public health have a long history together, beginning in the early 1900s, addressing acute health problems such as infectious disease spread through poor sanitation services and incompatible land uses. Today, chronic diseases including diabetes, obesity and alarming trends in declining mental health are the leading public health concerns in Canada. Community planning is once again seen as a necessary partner to improve public health given these negative health outcomes are linked to sprawling land use patterns. Fortunately, encouraging public and personal health evidence is compiling on the benefits afforded when urban forests, and nature, are incorporated into communities.

As a result, public health officials across Canada are getting behind Smart Growth principles of compact, connected, complete community design, with plenty of access to the outdoors. When designed well, these compact development patterns can not only support public health goals, but also reduce greenhouse gas emissions, cost less in public tax dollars to maintain, and put less strain on peripheral ecosystems thus supporting more regional approaches to forest and ecosystem conservation.

Healing gardens are becoming a standard part of new hospitals, including at the North Island Comox Valley Hospital, shown here.

Bold Planning Trends

In recognition of the Canadian Institute of Planners 100th Anniversary being celebrated this year, we highlight some bold planning trends that suggest promise over the next century - from the city as a "machine for living" to emerging thinking of the city as a living system.

Designing with Nature

The concept of designing with nature was instrumental in informing modern spatial analysis tools such as analytic overlays and GIS (Geographical Information System) mapping in service of a land use planning approach that is based on an understanding of natural processes. At its core, Design with Nature embraces designing in harmony with natural forces as a more intelligent approach to land use planning than fighting against them.

Biophilia

The concept of biophilia, meaning "love of life or living systems", is that humans inherently crave and seek relationship to the natural world. Proving the hypothesis that humans have a psychological orientation of being attracted to all that is alive and vital, because we ourselves are alive and vital systems, Biophilia is emerging as a popular and effective design trend notable in a range of architectural applications whether patient healing, worker productivity, student learning, or relaxation in one's own home. This trend is beginning to make inroads into community planning and design concepts as well to suggest that entire neighbourhoods and cities can be designed to respond to these innate biophilic desires.

Biomimicry

Related to biophilia are the concepts of biomimicry which means applying lessons from nature to human applications. While this mimicry may be utilized in service of specific applications (E.g. Velcro inspired from plants with burrs, wind turbine blades borrowed from whale fins, or looking to termite dens to improve ventilation in high rise buildings), at a community planning scale biomimicry can be seen as a lens through which to view nature not only as something to design *with*, but as something to design *like*.
Given their proven sustainability, resilience and regenerative abilities, natural systems are viewed in this light as having wider lessons to apply to how human communities are organized.

Eco-Revelatory Design

Urban philosophers in this field build on these concepts to propose an exciting string of hypotheses to further support design with nature. If we accept that our built environments silently and persistently communicate a community's values, then they posit that communities that embrace design with nature to meet biophilia needs and biomimicry opportunities have a unique design opportunity to transform urban landscapes into living learning laboratories.

This concept of revealing and celebrating ecosystem processes as a basis of learning about our environment through design is referred to as eco-revelatory. This is seen as critical by these philosophers for our societies are to successfully transition to a sustainable state. Urban forests therefore emerge as one of the most effective and available green infrastructure opportunities to support biomimetic design, respond to human biophilic desires and possibly view local and global environmental challenges from a renewed perspective.

Current Planning Initiatives and Tools

Several provincial, regional and national planning initiatives support the implementation of Courtenay's Urban Forest Strategy.

The **Partnership for Water Sustainability in BC** has been working with a wide range of stakeholders to adopt "design with nature" approaches into municipal planning and operations, particularly around the Georgia Strait. The initiative emerged over two decades ago in response to the growing recognition that what happens on the land affects the ocean, specifically salmon populations. Focused on maintaining "water balance", the initiative aligns with Strategy goals to ensure that forest stands and individual trees contribute to and benefit from the local hydrological cycle.

The **Municipal Natural Assets Initiative** (MNAI) has more recently emerged in response to a trifold challenge facing most Canadian communities today: declining ecosystem health, aging community infrastructure and unplanned climate change impacts to these natural and built systems. The Initiative works with communities to value the services that natural resources and ecosystems provide in municipal asset management and financial planning. It then utilizes green infrastructure to build living resilience into community infrastructure. This national initiative to value nature as part of municipal services began right here in the Georgia Strait in the Town of Gibsons. A number of natural asset valuation initiatives are now occurring across Canada including in Courtenay through the Kus-kus-sum restoration project (explained in more detail further in the Strategy).

At the national level, **Tree Canada**, a national non-profit charity dedicated to promoting and assisting with tree planting and care, has been a leader in advocating for urban forestry across the country since 2006. Their latest Canadian Urban Forest Strategy reports accelerating Canada wide interest in this topic. With provincial chapters now established to further implementation goals, the 2019-2024 National Strategy identifies ways to build capacity, deepen scientific understanding and monitoring tools and raise public awareness of these national assets within our neighbourhoods.

In 2008, expanding on community land use planning tools, the BC Government instituted the **"Local Government (Green Communities) Statutes Amendment Act"** granting additional local government powers to require energy, water conservation and greenhouse gas reduction targets in new developments. All communities in BC can now require that landscaping, including trees, be used towards the achievement of these goals if they choose to enact these powers.

Universities are responding to this growing demand for specialized urban forestry skills, with a number of technical diploma programs being enhanced across Canada and the launch of Canada's first Bachelor of Urban Forestry program at the University of British Columbia in 2014. The first graduates of this specialized program entered the work force in 2018.

"Leading Canadian communities are undertaking municipal natural asset management to protect and preserve natural assets and provide core services at lower cost. Maintaining healthy urban forests is an important part of this trend. In addition to providing recreational, social and cultural benefits, urban forests can absorb stormwater and reduce flooding risk; and, help to keep cities cooler as summers get hotter. Courtenay's efforts to protect nature and let it do its job will result in a healthier, more resilient community and keep costs down." – Roy Brooke, Executive Director, Municipal Natural Assets Initiative

"Planting trees might be the single most useful thing a community can do to improve people's health and wellness, and to enhance overall quality of life. Research today shows overwhelmingly that exposure to green spaces, to trees and nature, has a positive impact on numerous aspects of our lives - making for healthier happier children, better adjusted teenagers and greater longevity and wellness in seniors. Everybody benefits when we plant trees. It is an act of hope in the future."

– Chanchal Cabrera, Fellow of the National Institute of Medical Herbalists (UK) and local farmer.

WHO MANAGES COURTENAY'S URBAN FOREST?

Managing Courtenay's urban forest is a shared responsibility. The urban forest grows on both City and private land, however, water and biodiversity flow through the urban forest unconscious of ownership boundaries. This means that Courtenay's vision for the urban forest must be achieved through collaboration between stewards of public and private land.

Within Courtenay, 80% of land and 84% of urban forest canopy is under private ownership. Private individuals and organizations primarily manage the urban forest on private land, sometimes with assistance from green professionals such as local arborists, landscapers and landscape architects. The City influences the private urban forest by regulating tree removal and replacement during the development process, and through educating and partnering with the public and stewardship groups to foster urban forest stewardship.

On public land, the City is primarily responsible for managing the urban forest, but it also relies on partnerships with the stewardship sector and other levels of government to extend its stewardship capacity. For example, the City of Courtenay recently signed a Memorandum of Understanding with the K'ómoks First Nation (KFN) and Comox Valley Project Watershed Society to collaboratively purchase, restore and manage Kus-kus-sum; a former sawmill, site of cultural and historical significance to K'ómoks people. The vision for this site is to restore important salmon rearing habitat with Sitka Spruce-leading tidal forested wetland, which will contribute to flood mitigation measures as well.

Courtenay's urban forest vision is long-term. Trees live for hundreds of years and ecosystem succession takes place over similar time frames. Over the life-span of a single tree, custody of land may change many times. **Past custodians have determined the urban forest legacy Courtenay has today, and today's custodians will determine what is left for future generations.** Courtenay's long-term vision will be more achievable if management decisions can be framed within the context of stewarding the urban forest over a time-frame spanning multiple generations - past, present and future.

2 VALUING THE URBAN FOREST

URBAN FOREST BENEFITS

Municipalities manage urban forests because, just like roads, sewers and other city assets, **urban trees and forests provide services that improve human health and well being.** Beneficial services provided by the urban forest are called 'ecosystem services' and are often defined in four distinct but inter-connected categories:

- **Cultural:** benefits that relate to how people value the urban forest for its contribution to quality of life, such as beautification, mental health and healing, sense of place, character, heritage, spirituality, recreation and tourism.
- **Provisioning:** products extracted directly from the forest like timber, food, traditional medicine, fresh water and firewood.
- **Regulating:** benefits from the regulation of ecosystem processes like pollination, air and water quality, soil enrichment, erosion prevention, rain and storm water flow, shade and cooling.
- **Supporting:** benefits from supporting habitat, biodiversity and enabling natural processes that maintain the conditions to support life - services that are essential to the production of all other ecosystem services.

While not all of these services can be measured with a dollar value, **several municipalities in BC are exploring an 'eco-assets' approach to include nature as an asset in their financial accounting systems.** This can involve assigning financial values to services like flood management or the maintenance of water quality by estimating the cost of replacing those services or the avoided cost of damage. The eco-assets approach is enabling nature to be factored into decision-making about municipal infrastructure and asset management systems.

The forested environment around urban areas, including the woodlot we manage, is part of our personal concept of home and space. Sometimes for recreation, for spiritual connection, or at other times for resources like water, or timber. This wooded area is an extension of our urban city, like the yard around the house, or the park down the road, it contributes to individual health and enjoyment within society. The forest ecosystem resources in the urban forest need to be protected and managed in order to continue the benefits we all enjoy.

- Mike Larock, RPF, Professional Forester and Urban Woodland Manager

The benefits of urban forests

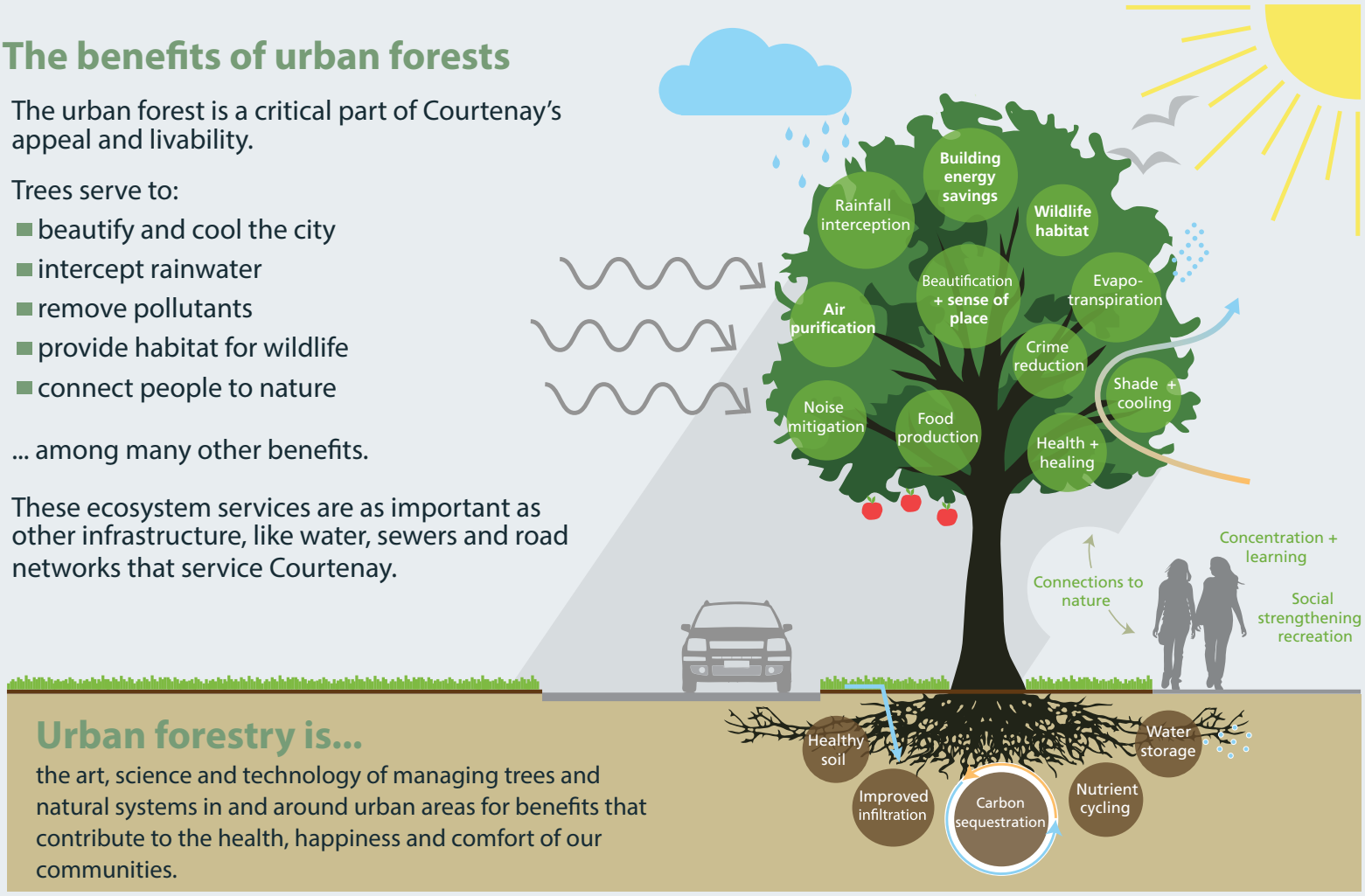
The urban forest is a critical part of Courtenay's appeal and livability.

Trees serve to:

- beautify and cool the city
- intercept rainwater
- remove pollutants
- provide habitat for wildlife
- connect people to nature

... among many other benefits.

These ecosystem services are as important as other infrastructure, like water, sewers and road networks that service Courtenay.



Urban forestry is...

the art, science and technology of managing trees and natural systems in and around urban areas for benefits that contribute to the health, happiness and comfort of our communities.

Urban forest canopy can be used to estimate the value of some ecosystem services provided by the urban forest. The United States Department of Agriculture (USDA) has developed ' i-Tree Canopy', a program that measures tree cover and then estimates a dollar value of carbon sequestration and air pollution removal by trees based on the cost of control or mitigation. Courtenay's 2018 canopy results are shown below.

Ecosystem services reported by iTree Canopy

Carbon Sequestration
$614,274/yr

Storage
$15,487,769

Air Pollution Removal
$45,835/yr

Research generally supports that greener communities enjoy better health, wealth, are more active and more socially bonded. For example, a study in Toronto found that having 10 more trees on your block is equivalent to being seven years younger, or a $10,000 salary raise [1].

Studies have also found that views of or interaction with elements of the urban forest contribute to reduced health care costs, shorter hospital stays and a reduction in the use of pain medication [2]. The availability of parks and open space increases in the frequency of routine physical activity, also leading to improved health outcomes [3]. Kids with attention deficit disorder show less symptoms after playing in green outdoor settings [4]. Patients with dementia or clinical depression also benefit from views of or access to the urban forest [5,6]. **Numerous urban forest health benefit research sources can be found on the 'Green Cities: Good Health' website.**

i-Tree Canopy Annual Tree Benefit Estimates based on these values in g/m²/yr and CAD/t/yr: CO 0.101 @ 121.48 CAD | NO2 0.551 @ 38.36 CAD | O3 5.489 @ 200.57 CAD | PM2.5 0.267 @ 8,532.49 CAD | SO2 0.347 @ 10.64 CAD | PM10 1.838 @ 434.69 CAD | CO2seq 1,117.578 @ 50.52 CAD | CO2stor is a total biomass amount of 28,177.630 @ 50.52 CAD*

As a teacher I try to take my students into the woods as much as possible. The forest is a great classroom as it instills a natural wonder inside all of us. When students are immersed in this setting there is a natural curiosity to ask questions and seek answers; the foundations of education. In the world of education we call this "engaged" and with today's electronic distractions, it can be hard to get youth engaged because they are always looking down at their phones. Forests within Courtenay are an educational resource that many teachers are using to teach students about stewardship, environmental issues, and ecology.

- Jeff Hoy, Teacher, Lake Trail Middle School

WHAT WE HEARD FROM THE COMMUNITY

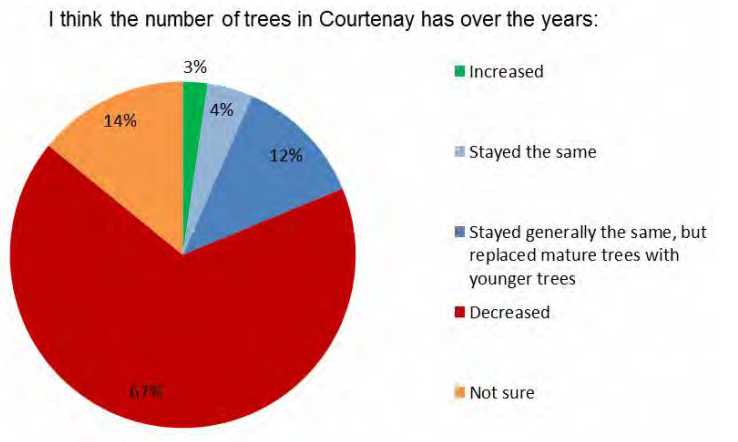
The public and stakeholder consultation approach was organized around two critical phases of the project:

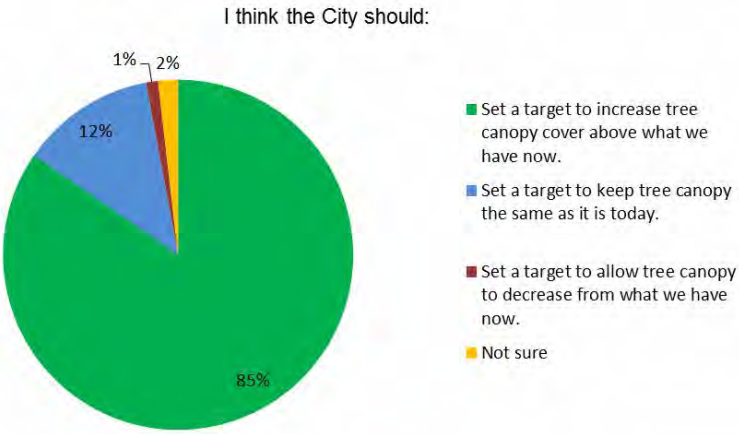
- Phase 1: at the beginning, in summer of 2018 the City conducted stakeholder and public meetings as well as a summer long online survey and photo competition to engage the community and gauge values and level of support for the UFS direction and actions.
- Phase 2: once the Plan was drafted, in spring of 2019 the City held a public meeting and an online survey to present findings and solicit feedback on recommendations.

Of note is the consultation context. Two years prior the City solicited public and stakeholder feedback on the City's Tree Bylaw No. 2850, which demonstrated strong support for an Urban Forest Strategy. The Parks and Recreation Plan consultation also occurred during the summer of 2018 and found strong public support for recreation activities compatible with Urban Forest Strategy goals. These include:

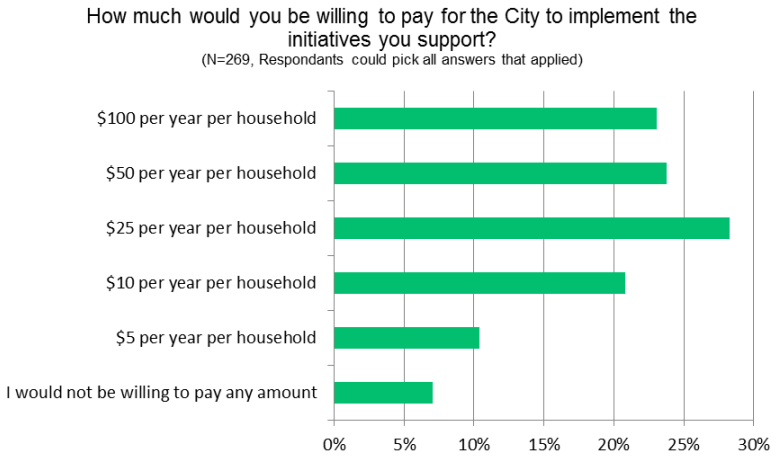
- Walking/hiking/jogging for exercise or recreation was listed as the outdoor activity with the highest participation with 89% of respondent households taking part in this activity. 65% of respondents also rated this activity as the most important outdoor activity.
- Many of the most visited parks/trails are those with strong urban forest values. Preferences are in this order: Courtenay Riverway Trail and Airpark, Lewis Park, Simms Millennium Park, Puntledge Park and nature parks in general.
- The most important activities selected by respondents within the parkland supplied included casual activities such as eating lunch or playing catch, followed by nature appreciation including bird watching or wildlife viewing.

The figures on the following pages provide more detailed results to key findings from the UFS consultation.





Most survey respondents thought that there were fewer trees in Courtenay than in the past and wanted the City to increase its canopy cover.

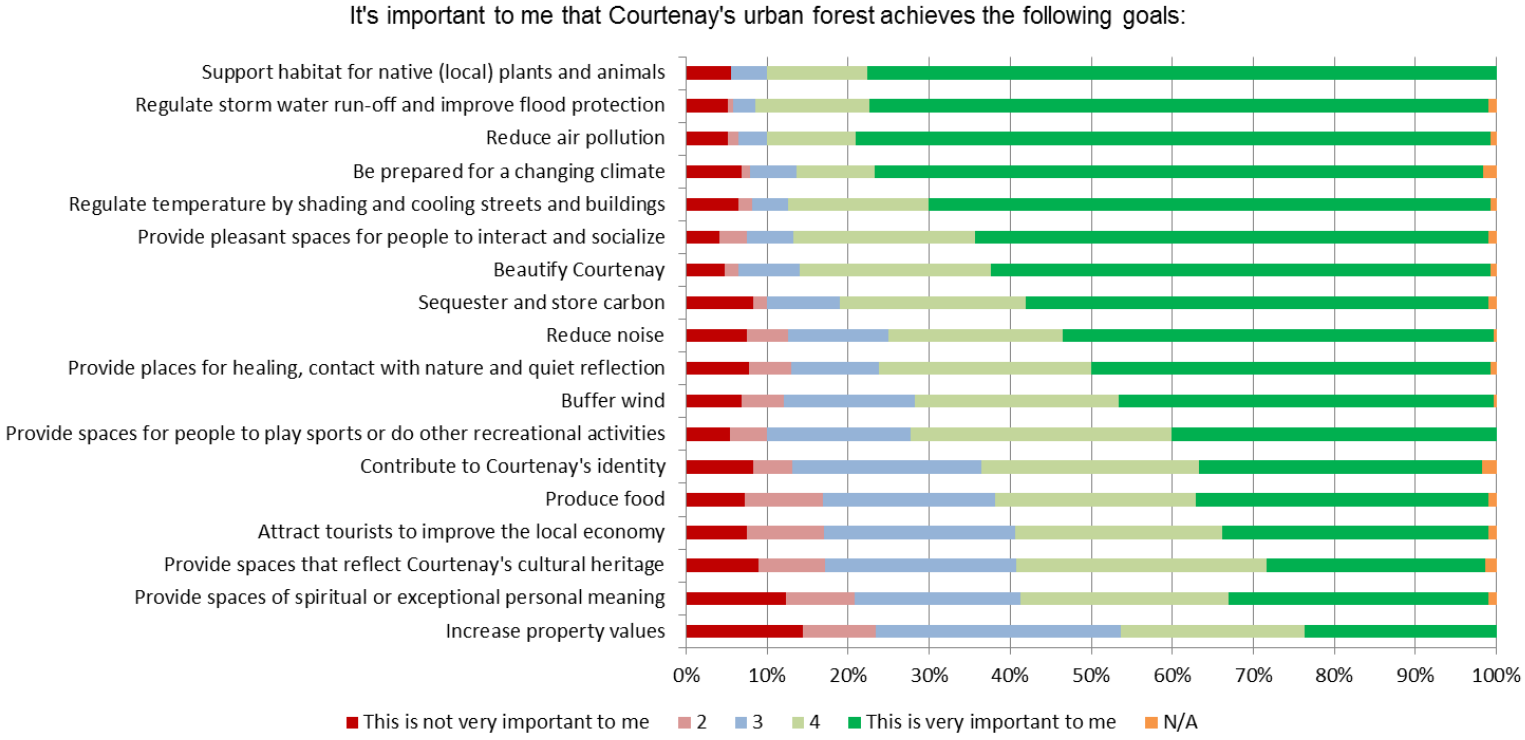


Phase 1 Consultation Highlights

- When asked to rank their values from a list, respondents rate maintaining the environmental quality and beauty of the city highly. Lower ratings were selected for contribution to property values and reflecting Courtenay's cultural heritage.
- When asked to provide in their own words what is valued most about Courtenay's urban forest, the most common responses were beauty, habitat for wildlife and shade (cooling). Air quality, access to nature and locations for quiet reflection were also common values.
- When asked to provide in their own words what is valued least, responses were much more varied and specific. Top dislikes included that there is 'not enough' urban forest, that it is being lost, and specifically that clear cutting is permitted in order to accommodate development. Tree debris maintenance as well as a dislike for unkept or poorly maintained trees were also commonly cited.
- Most respondents think that canopy has been lost over time and are supportive of setting a target to increase canopy cover.

"Thank you for sending this survey. I've always felt concern over the lack of and removal of trees and it made me so happy as a new home owner in the valley to know that we had the tree program. I really hope it stays and increases in its capacity to encourage citizens to plant and keep trees." - Survey respondent

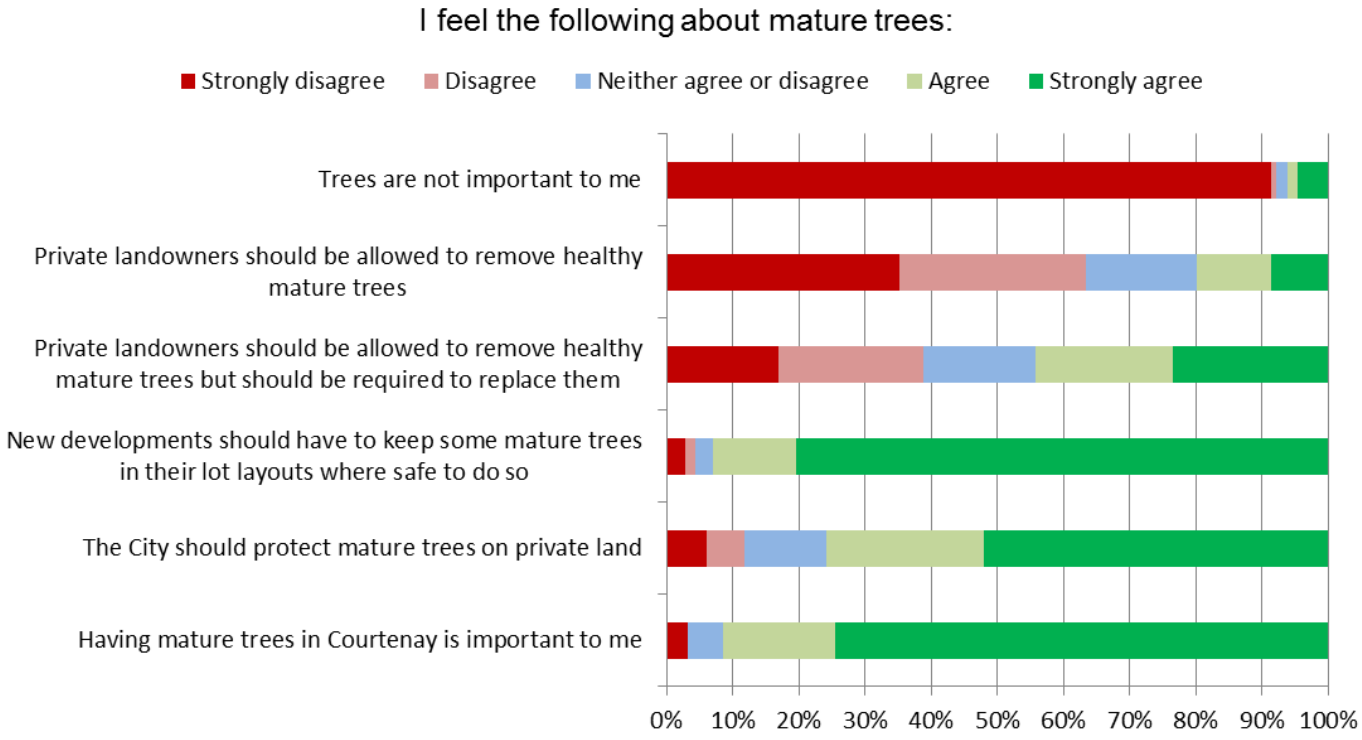
- Most respondents want to see mature trees protected, particularly when it comes to development, but are less supportive of having regulation on their own trees. (This is consistent with the Tree Bylaw findings).
- There is stronger support for increased planting on public lands (parks, natural areas, school lands and streets), than on private lands whether commercial, industrial or residential.
- Respondents indicate strong support for street trees across all land uses particularly in new residential developments (both sides of the street). No respondents indicated that they prefer few or no street trees.
- Respondents indicate there is room to improve Courtenay's streetscapes, with the most preferred outcomes being: a) mixed native tree planting; and b) regularly spaced medium

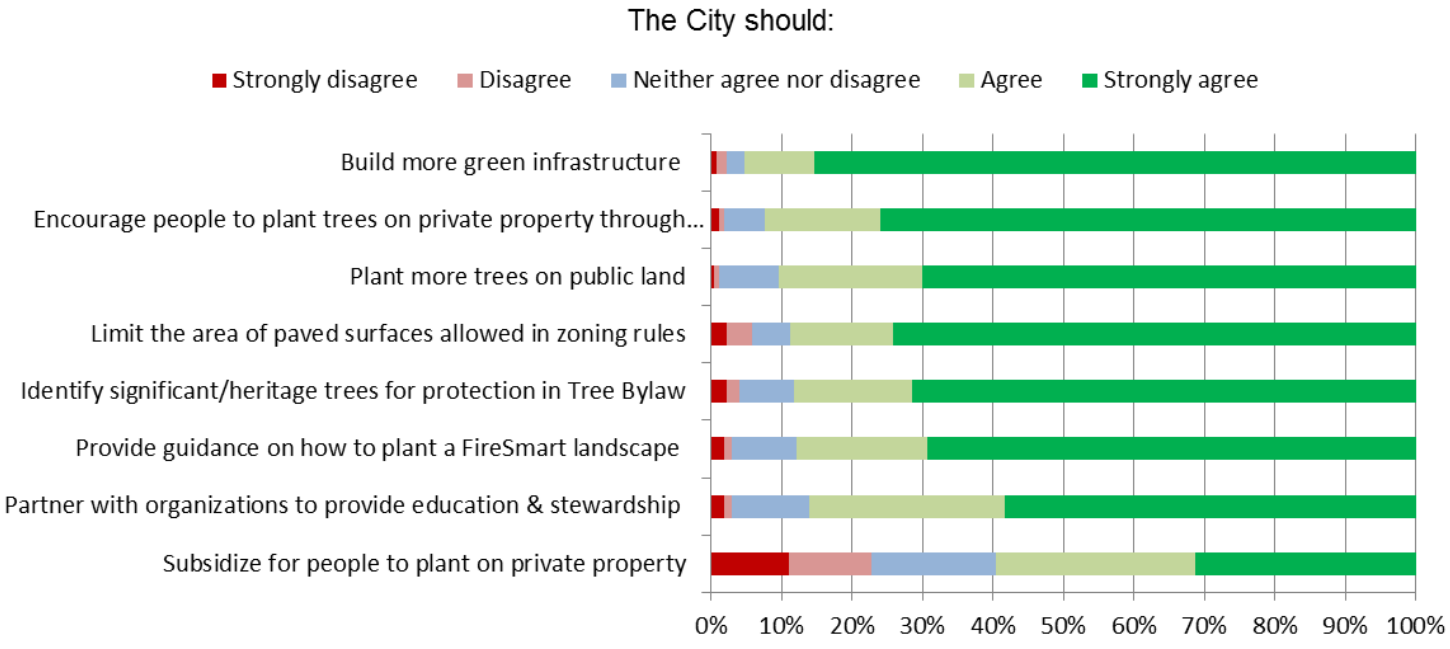


The provision of habitat for wildlife, stormwater management and air pollution reduction were some of the most important urban forest benefits to the survey respondents.

or large trees. This indicates an opportunity for different street characters for different neighbourhoods and street cross sections.

- Most respondents want to make a meaningful contribution to planting trees on their land and don't need free trees to do it. Instead residents would be motivated more by understanding of what trees are needed where (and why).
- Most respondents would pay more tax to support urban forest initiatives citing $25 per household per year as the most commonly selected response. Only 8% of respondents said they would not be willing to pay any amount.
- Most popular initiatives include building more green infrastructure, encouraging people to plant trees on private land and planting more





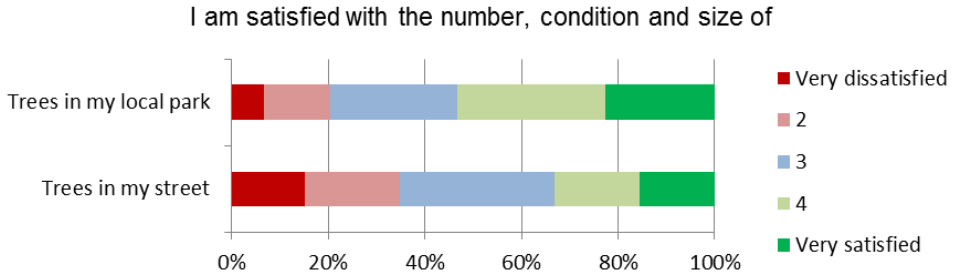
"I think the City should stick to providing basic services. As far as trees go, plant native trees on City land. The City should have no say in what private land owners do with their trees unless and until those trees impinge on the enjoyment of neighbouring land owners, including the City." - Survey respondent

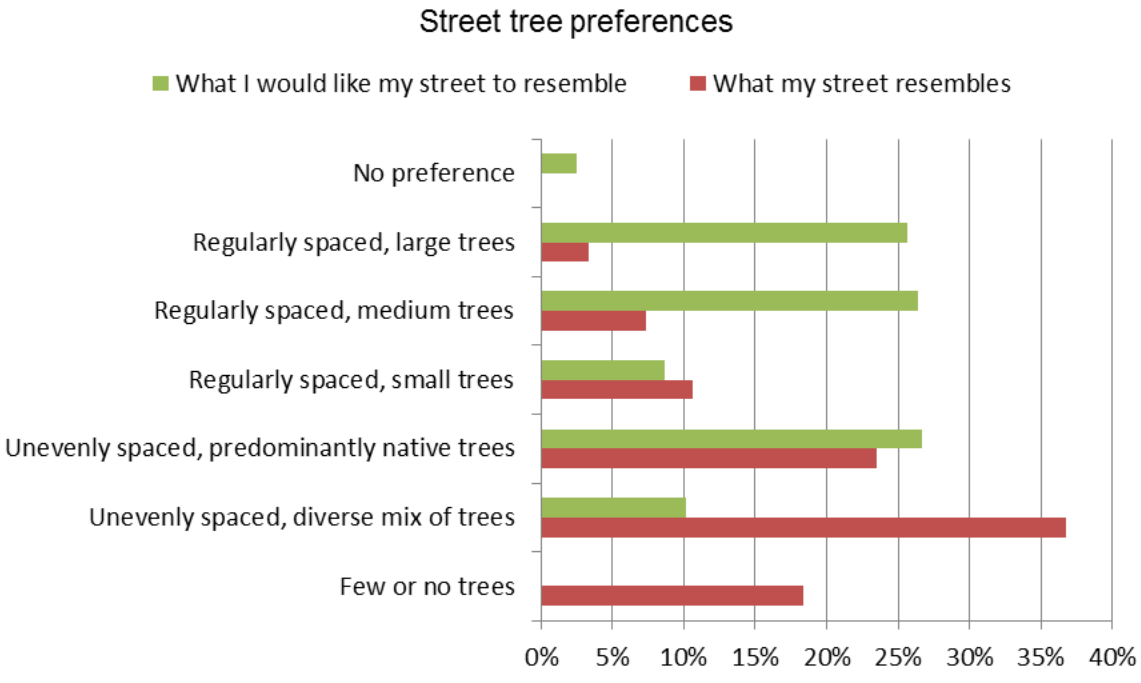
trees on public property. There is very limited support for subsidizing trees for private tree planting, which is a popular initiative in many communities.
- Respondents indicated support for more education regarding tree management with naturescaping, pruning and managing pests being the most popular topics.
- 92 % of respondents strongly disagree with the statement "Trees are not important to me".

Phase 1 Participation Statistics

- 306 individuals conducted the survey, 77% of which own property and/or live within the City.
- 54 attended two public meetings.
- 865 unique views of the Urban Forest Strategy webpage during Phase 1 consultation window.
- 112 photos submitted on the Story Map.
- Participants represented neighbourhoods across the City, were primarily homeowners of middle age or seniors, and have lived in the City for a number of years.

Two community workshops were held in June 2018 to discuss the priorities for Courtenay's urban forest.



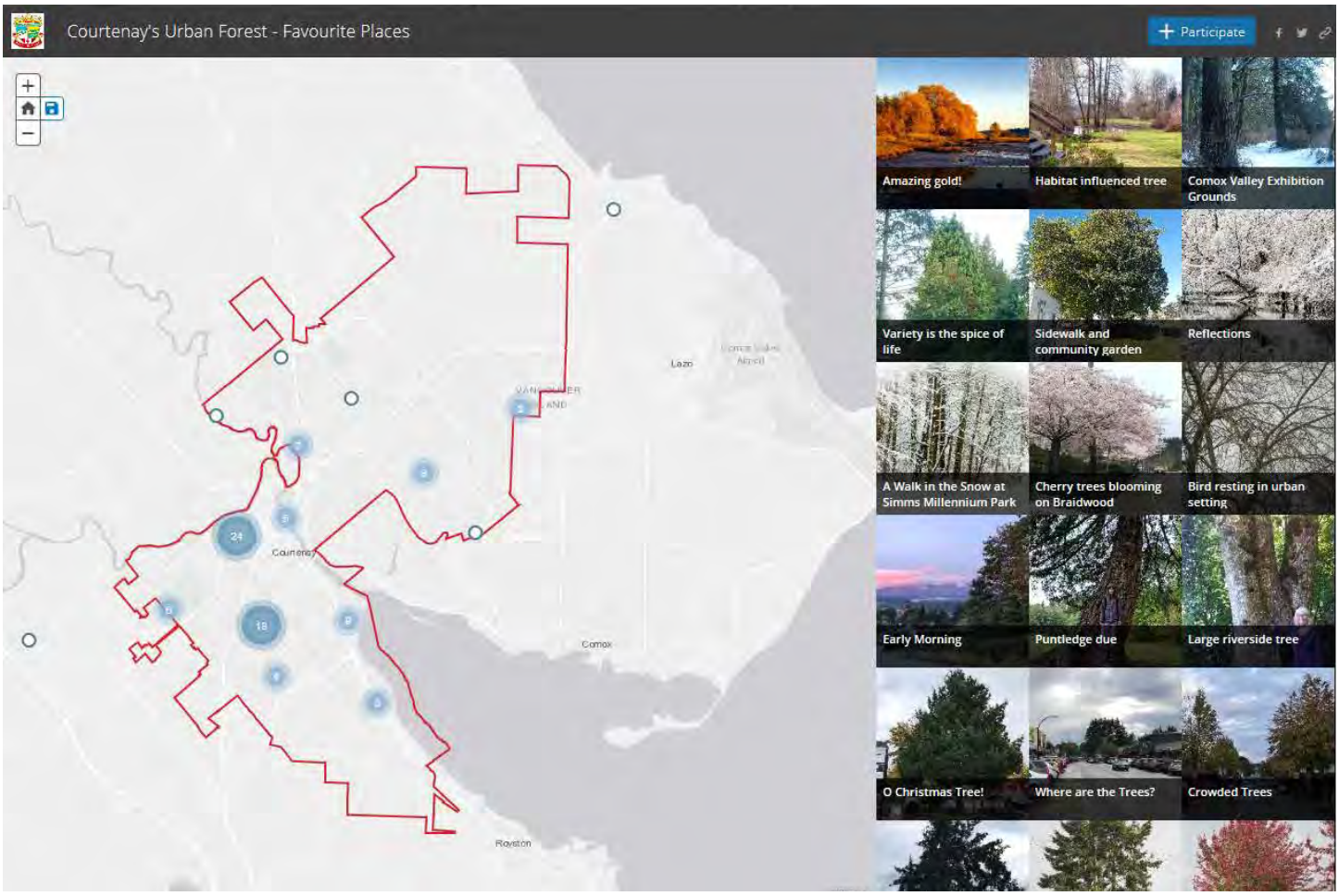


Survey respondents were generally more satisfied with trees in their local parks than trees on their street. They indicated a preference for medium and large street trees as well as native species.

Story Board Map

The consultation included the opportunity for participants to submit photos and comments about specific urban forest locations, in a publicly viewable platform. The Story Board also included background information about Courtenay's urban forest and the ability for participants to zoom in and view aerial images of Courtenay properties. The tools allowed for more visual and creative forms of public input and may be used as an ongoing educational tool past the Strategy planning stage. Images above and below show excerpts of the tools.

Online tools allowed participants to access information about Courtenay's urban forest (above) and to submit their photos and comments about specific urban forest locations.



Phase 2 Consultation Highlights

The Phase 2 Consultation was a more focused exercise, narrowing on targeted recommendations of the plan, and offering opportunity for open feedback.

- 87% of survey respondents support the Vision Statement and 87% support the goals identified.
- Participants were presented with six Canopy Cover Target scenarios. Survey results show highest support for the highest targets.
- When ranking the types of strategies the City should focus on, using the tree bylaw to regulate tree removal was more highly rated than planting on either public or private land.
- Asked another way using the 5-goal framework of Plan, Manage, Protect, Grow and Partner, respondents ranked protection actions highest followed by growing, with planning and managing similar, concluding with partnering.
- Consistent with Phase 1 survey results, most respondents want to make a meaningful contribution to planting trees on their land and don't need free trees to do it. Instead, residents would be motivated more by understanding what trees are needed where (and why), naturescaping and energy efficiency considerations.
- Consistent with Phase 1 survey results, most respondents would be willing to pay more tax to support UFS initiatives citing $100 per household per year as the most commonly selected response, a much higher willingness to pay than indicated in the first round of consultation, although a smaller sample size. Similar to Phase 1 responses, on this question, only 8% of respondents said they would not be willing to pay any amount.

Phase 2 Participation Statistics

- 246 individuals conducted the survey, 70% of which own property and/or live within the City.
- 37 attended the public meeting.
- Similar to Phase 1 consultation, survey participants represented neighbourhoods across the City.
- 910 unique views of the Urban Forest Strategy webpage during Phase 2 consultation window.

The questions summarized on the first two graphs allowed respondents to rank their selections. The results are displayed as average ranking for each answer, showing which one was most preferred overall.

Crowd Sourced Photos

The photo on the cover of this document was crowd sourced. Below is a selection of other favorite photos submitted by the public.


Photo by Bill Heidrick


Photo by Wendy Macdonald


Photo by Craig Carson


Photo by Monica Hofer


Photo by Wendy Morin


Photo by Robert Eli
Roshine Photography

3 HISTORY OF THE URBAN FOREST

Courtenay is located on the unceded traditional territory of the K'ómoks First Nation, whose people have stewarded the "Land of Plenty" since time immemorial. The region around Courtenay was blanketed by predominantly old-growth conifer forests with Douglas-fir as the leading species. Also on the landscape were Garry oak woodlands, wetlands and riparian forests that drained into the Puntledge Estuary.

The K'ómoks managed the forests and ocean to maintain an abundant supply of food and other resources for their people[1]. They have had a significant impact in shaping and maintaining local forest ecosystems and particularly the Garry oak woodlands, which were maintained using controlled burning. This practice provided edible plants and hunting resources for the K'ómoks people in a landscape that was otherwise dominated by dense forest [7].

Colonial settlement, beginning in the 1860s, dramatically changed the landscape with widespread logging, land clearing, coal mining and urban development. Courtenay settlers initially concentrated along the Courtenay and Tsolum Rivers where they cleared land to farm. Logging was an important economic activity from the early days of settlement in the Comox Valley. Eventually, land clearing took place to make way for residential and commercial development, particularly in and around downtown Courtenay, in the late 1800s.

1 www.komoks.ca

Photo from Courtenay Heritage Commission

As Courtenay urbanized in the late 19th century some native forest areas were retained and preserved in parks alongside introduced ornamental tree species. These were planted in parks and along streets, growing along with the city, with some of these trees still a part of our city's landscape.

For example, part of the Old Orchard area was an apple orchard that was subdivided in the 1890s. Some of the old fruit trees from the orchard still exist and the area has numerous old dogwoods and other mature trees planted with early development.

This pattern continued into the 20th century. The sycamore trees on 2nd Street were planted in the 1920s with a residential subdivision. In the 1960s a landowner planted 12 redwood seedlings brought back from California in what is now a subdivision bounded by 21st and 17th Street. Eight of them survive in the subdivision today.

As Courtenay continued to grow as an economic centre for the region through the 20th century, most of its forests were cleared. However, older forests can still be found in Courtenay. Some of the Garry oak trees in and around Vanier Park are estimated to be more than 150 years old. Forests in places like Lerwick Park and Puntledge Park which were logged in the early days of colonial settlement are now older than 100 years. There are likely other old forests in Courtenay and, if protected, we could have old-growth forests in our city again for future generations to enjoy.

Garry oak woodlands were maintained by the K'ómoks people with controlled burning to supply their community with edible plants and hunting resources. Garry oak trees can still be found in some of Courtenay's neighbourhoods, such as this one on its street namesake: Oakridge Drive. Located near the Courtenay Cemetery, this area contains the highest concentration of remaining Garry Oaks in the City.

Sycamores on 2nd Street planted in the 1920s.

"I remember the horse chestnuts on the road coming into Courtenay from the South (Cliffe Ave) in 1972 and even in 1978 when I permanently moved here. They were grand!" - Survey respondent

4 STATUS AND TRENDS

TREE CANOPY

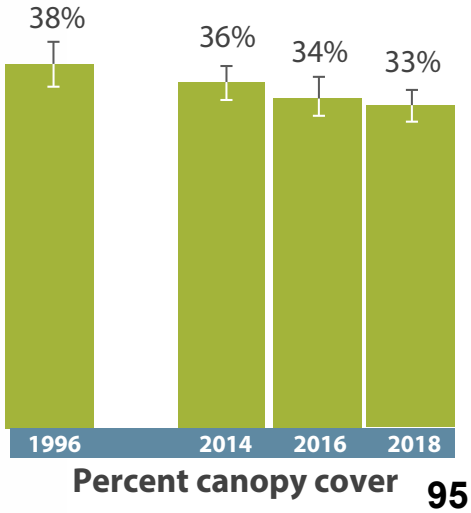
Tree canopy is a common metric used to describe the extent of a city's urban forest. Courtenay's tree canopy is composed of natural forests and planted trees in streets, parks and on private property.

There is no accepted standard for the amount canopy cover that a city should have. Rather, minimum canopy cover is driven by the physical constraints of geography, climate, land use and development density. Determining optimal canopy cover depends on community priorities for and investment in trees and the ecosystem services they provide. For example, if habitat and stormwater management are priorities, then canopy cover targets can be set with those objectives in mind.

The extent of Courtenay's tree canopy was measured from the air using 2016 LiDAR data. LiDAR scans areas of land with a laser sensor shooting pulses to the ground surface to create a 3D model of the ground below.

The USDA's i-Tree Canopy program was also used to detect canopy changes among 1996, 2014 and 2018 orthophotos. Of Courtenay's 3,370 hectares of total land area, canopy cover is 33%, which is a significant decline from 38% in 1996. This represents a net loss of approximately 160 ha of canopy over 22 years, or the equivalent of 204 Vanier turf fields.

Canopy change was measured using Courtenay's current City boundary - some of this change would have occurred prior to those lands joining the City.



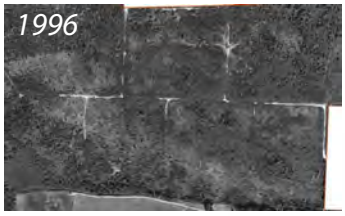
Where Has Canopy Change Occurred?

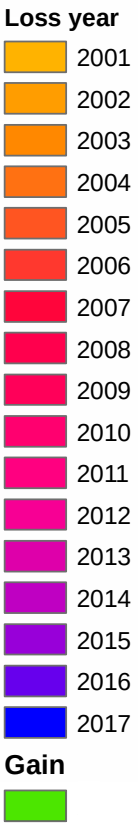
Changes in global forest cover have been tracked since 2000 by scientists and the University of Maryland [8]. While the scale of the satellite data does not detect individual tree losses, it is useful for detecting large scale forest cover change.

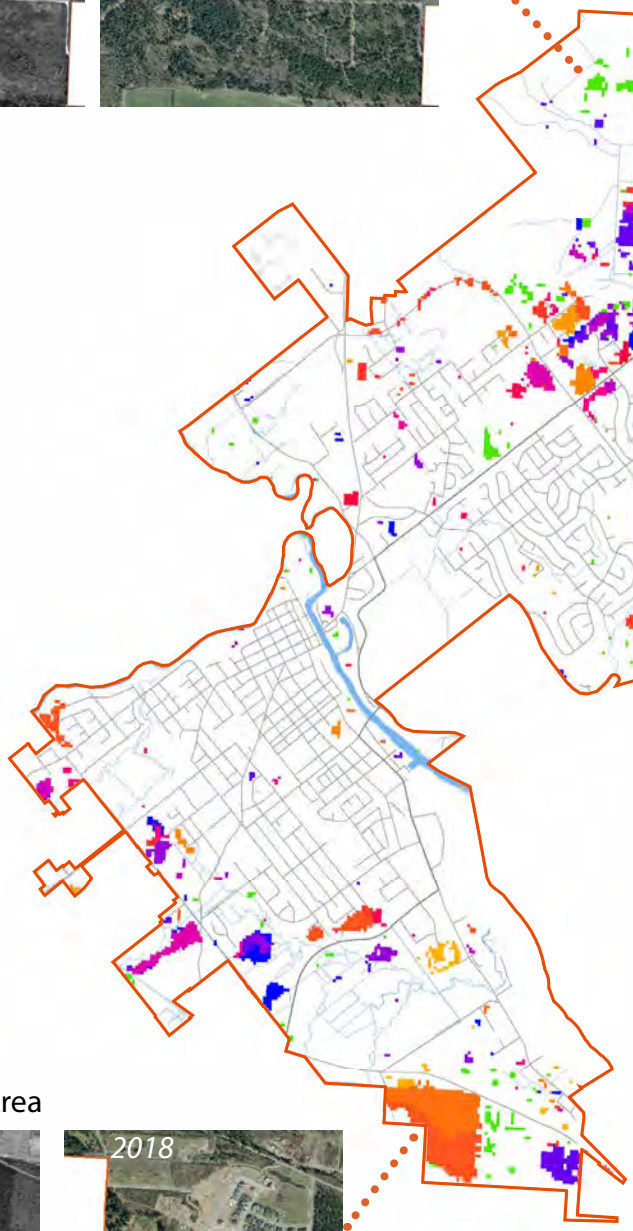
Recent large-scale canopy change in Courtenay has primarily been due to forest lands being developed into residential areas. Large-scale gain occurred in locations where fields or cleared areas reforested. New residential areas have been planted with trees but their growth was not detectable at the resolution of this satellite data.

Areas of Canopy Change 2000-2017

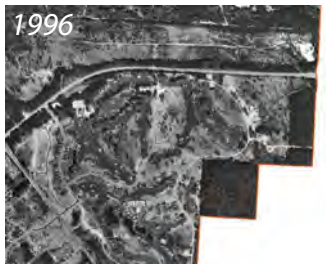
Block 71 Area







Ryan Road Area

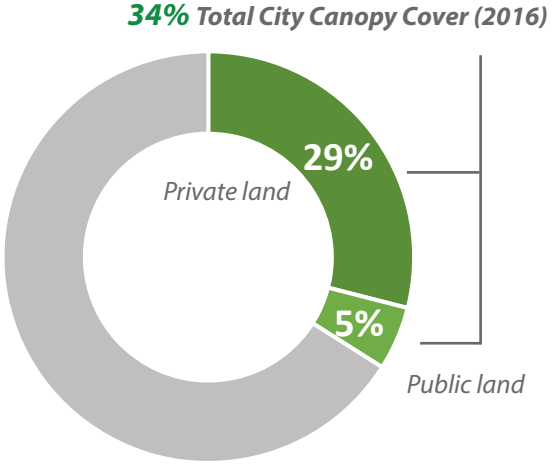


Lerwick Road Area

Buckstone Road Area

Across the Entire city

The 2016 LiDAR canopy analysis found that 34% percent of Courtenay's 3,370 ha land area was covered by trees[1]. The graph on the following page shows land cover distribution by aggregate zoning classification and reveals where most of the 2016 canopy was concentrated.



On City Land

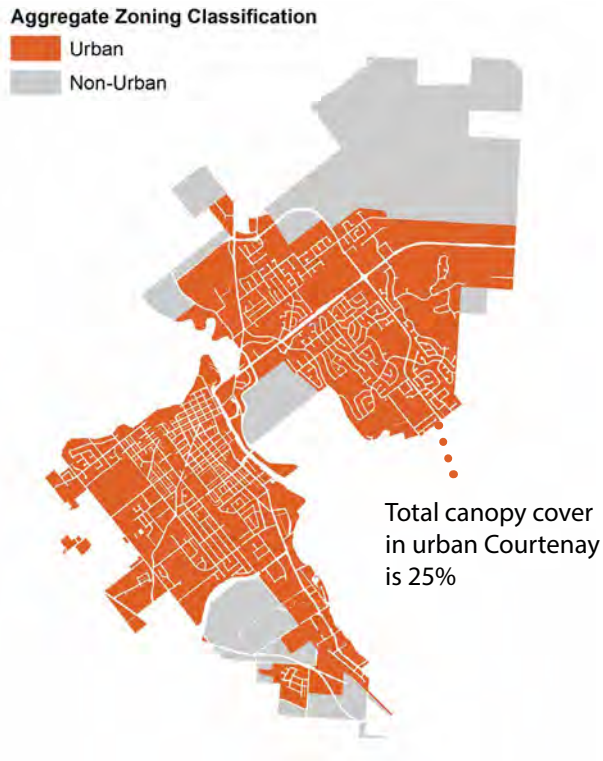
Of the proportion of tree canopy on public land, most was in parks. Parks and public properties averaged 58% canopy cover, while roads averaged just 9%.

On Private Land

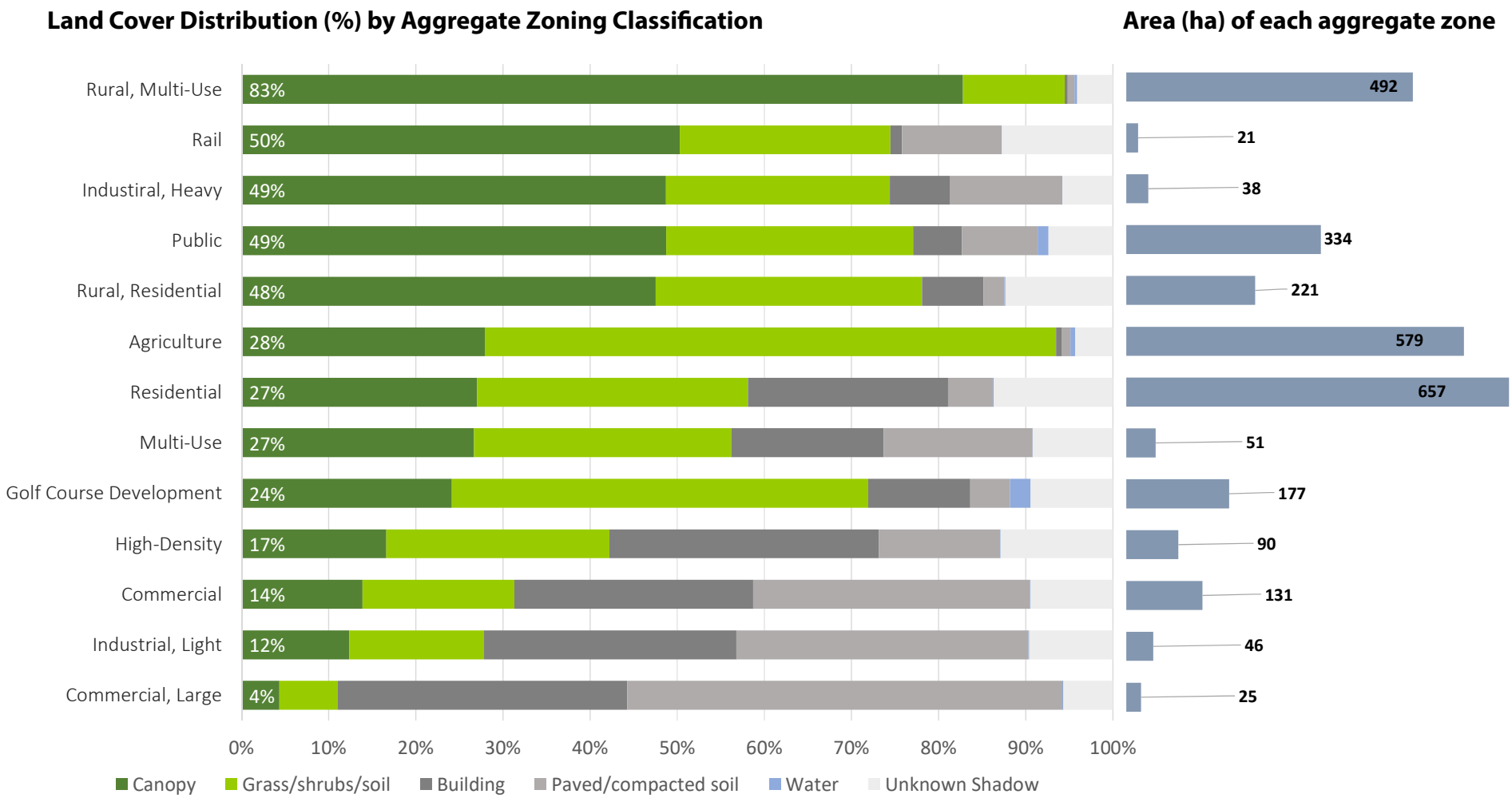
Most canopy cover was on private land. Much of Courtenay's private land area is not developed and is not zoned for development, therefore it is difficult to predict when or how canopy in these areas may change in the future. Lands within the Rural Multi-Use aggregate zoning class contained the largest proportion of Courtenay's tree canopy (392 ha). The next largest contributors were Agricultural (151 ha), Residential (146 ha) and Rural Residential (94 ha).

Within Urban Courtenay

Measuring canopy cover over developed and developable parts of the City, or 'urban' areas, establishes a useful baseline from which to measure the impact of urban forest policy. **Canopy cover in urban Courtenay today is 25%.** This is measured over all public land and private land other than the Agriculture and Rural-Multiuse land use classes defined on the following page.



1 While there has been some canopy change since 2016, the LiDAR analysis provides the most detailed information about where canopy is located across Courtenay.



Land cover distribution aggregate zoning classification summary

Individual zones within each land use summary

(CVRD Zones apply to lands that have not yet been rezoned to City zoning classifications)

Rural, Multi-use: CVRD zones: RU-1, RU-8, RU-20
Rail: I-3 & TU-1 (CVRD)
Industrial, Heavy: I-1 & IH (CVRD)
Public: all PA zones (parcels only, roads excluded)
Rural, Residential: R-1A, R-1C, RR-2, RR-2S, RR-3, RR-4, R-RU (CVRD) & CR-1
Agriculture: A-1, A-2 & RU-ALR (CVRD)

Residential: R-1, R-1B, R-1D, R-1S, R-2, R-2B, MH-1,. MH-2, CD-1A, B, G, H & I, CD-3, CD-4, CD-6, CD-7A&B, CD-12, CD-14, CD-15, CD-17, CD-21, CD-22, CD-23
Multi-Use: MU-1, 2, 3, 4 & 5, CD-7C&D, CD-9, CD-11
Golf Course Development: CD-1B
High-Density: R-3, 3A & 3B, R-4. 4A & 4B, R-5, CD-16, CD-19, CD-25
Commercial: C-1, C-2 & 2A, C-3, C-4, C-5, CD-1C, CD-1F, CD-24
Industrial, Light: I-2, IL (CVRD)
Commercial, Large: C-1A, CD-8

Canopy Cover by Block (2016)

In this map, tree canopy cover is summarized by 'blocks' of the city defined either by surrounding street boundaries or land use changes.

The outer portions of the City, particularly in the north, have high tree canopy cover because of contiguous natural forest cover on private land

Public and institutional lands including schools have an average tree canopy cover of around 35% but it is highly variable between schools

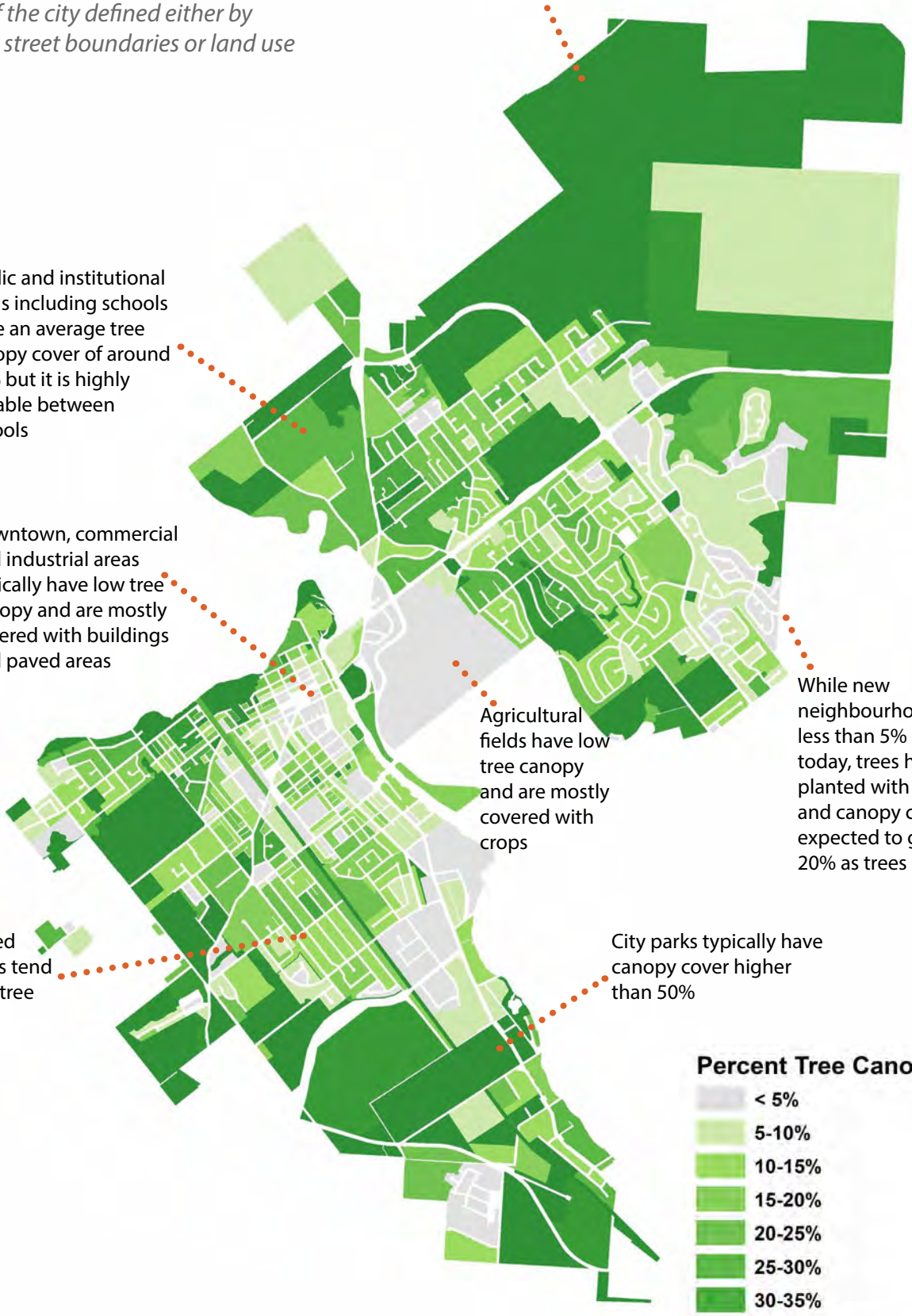
Downtown, commercial and industrial areas typically have low tree canopy and are mostly covered with buildings and paved areas

Agricultural fields have low tree canopy and are mostly covered with crops

While new neighbourhoods have less than 5% canopy cover today, trees have been planted with development and canopy cover is expected to grow to 10-20% as trees mature

Older, established neighbourhoods tend to have 10-20% tree canopy cover

City parks typically have canopy cover higher than 50%



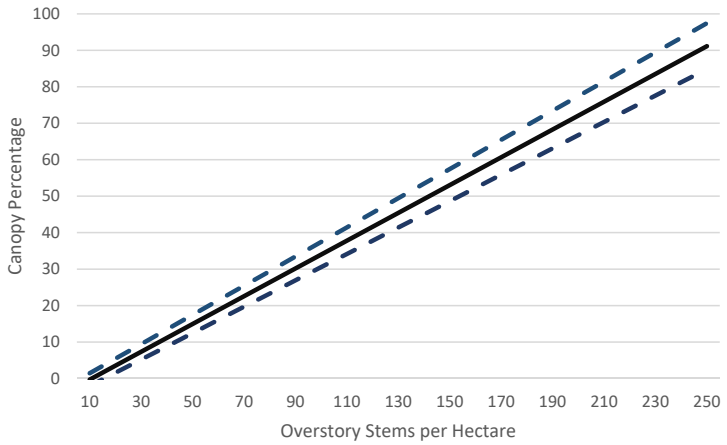
Tree Density by Block (2016)

This map summarizes the number of trees per hectare in each block to show how densely different areas are planted. These estimates are based on tree canopy segments extracted from the 2016 LiDAR and do not capture the number of

Areas of high canopy cover also have a high density of trees

Some newer neighbourhoods are still being built out. More trees will be planted in these areas as landscaping is completed. The City's tree bylaw now requires that 50 trees per ha be retained in new developments where healthy retainable trees exist

Some sections of downtown have few or no trees in the block



Older, established neighbourhoods tend to have 50-80 trees per hectare. (10-20% canopy cover)

Tree Density by Block

- Very low (<10 per ha)
- Low (10-49 per ha)
- Moderate (50-100 per ha)
- High (>100 per ha)

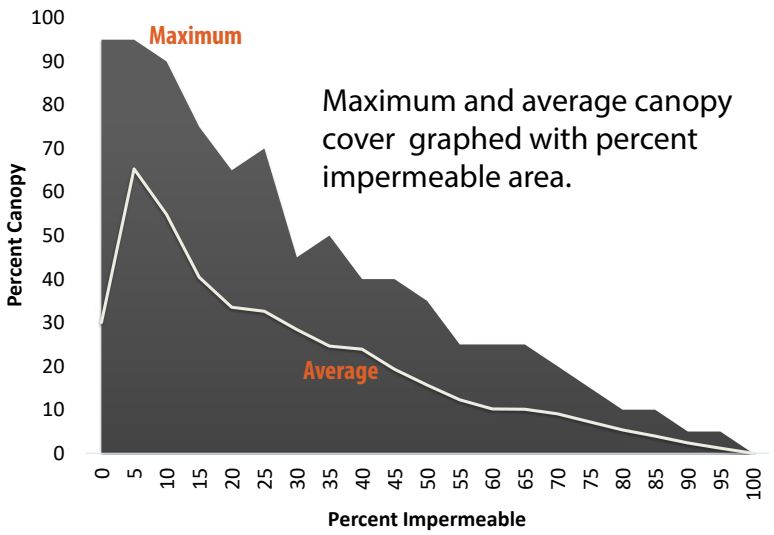
The City's 2017 Tree Bylaw requires that the lower end of a 'moderate' density of trees be achieved (retained, planted or cash-in-lieu) when removing trees on any property within the City

Using the block summary data, canopy cover can be predicted from tree density with the formula: 0.381 x overstory stems per ha – 4.1133 (R^2 0.68). The regression is graphed above with 95% confidence limits. **According to this regression, 50 trees per ha is predicted to yield canopy cover of approximately 15%.** This regression analysis provides approximate results as canopy size at maturity will vary depending on species, growing conditions and health condition.

IMPERMEABLE COVER

Impermeable cover includes hard surfaces like roads and buildings. The more impermeable an area, the less water infiltrates the soil, the more rainwater becomes stormwater runoff, and the fewer trees that area can support. Impermeable cover is a useful metric for understanding the constraints for planting new trees as well as limits to potential canopy cover.

The graph at right shows the maximum and average canopy area recorded by block in Courtenay. Canopy cover becomes increasingly limited with increasing impermeability. This is likely because, the more building, road and paving covers an area, the less space there is for gardens and trees.



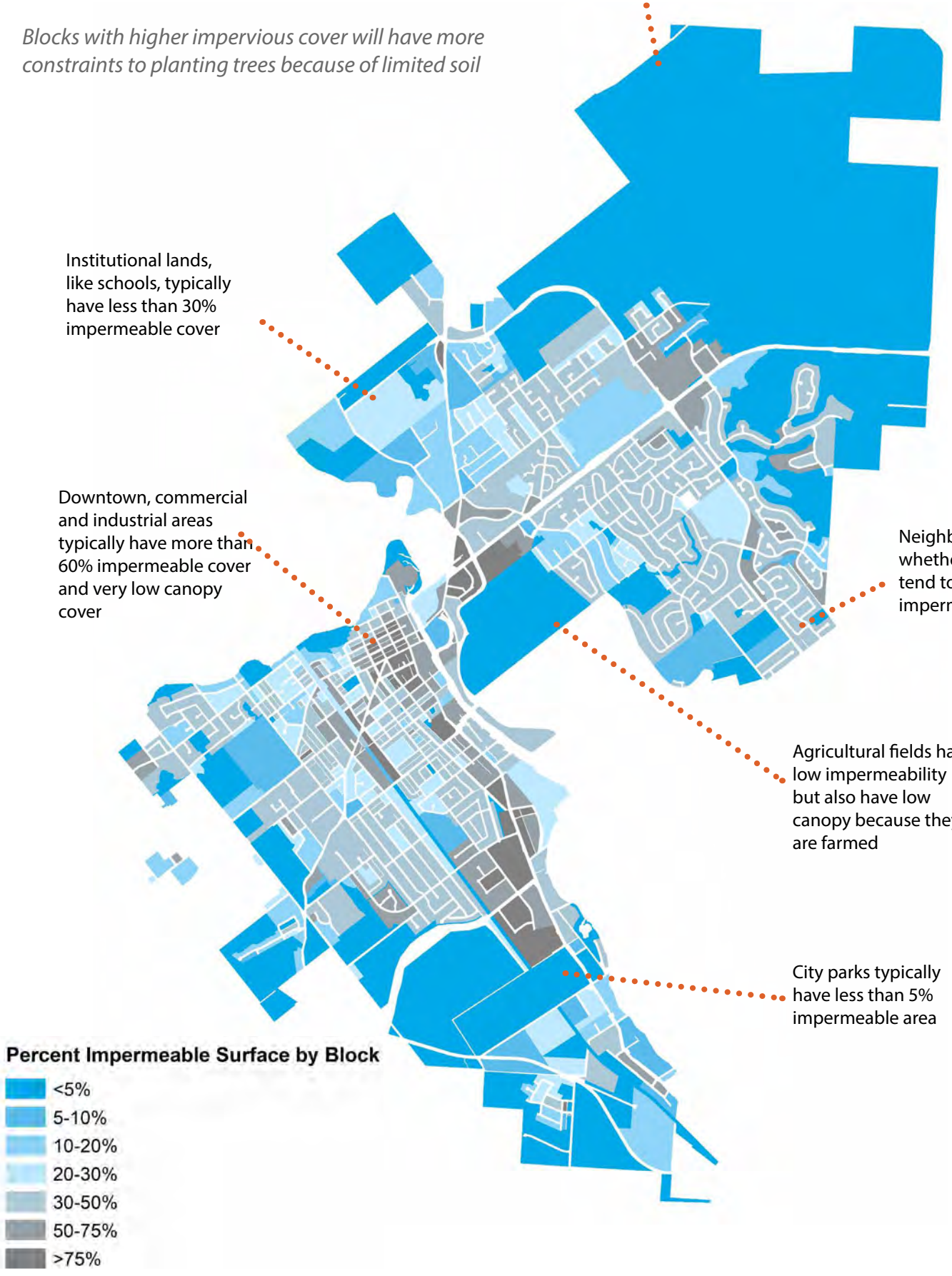
Maximum and average canopy cover graphed with percent impermeable area.

There is strong public support for limiting impervious surfaces. Nearly 90% of respondents to the Strategy survey indicated that they 'agree' or 'strongly agree' that the City should limit the area of paved surfaces allowed within the zoning regulations.

The need for more trees, shade, pervious rainwater infrastructure and less pavement within large commercial parking lots and the Downtown was cited amongst many survey participants as a key Strategy opportunity for existing and new developments.
Top images show the Home Depot parking lot (left) and its surrounding land uses (right). Bottom images show 4th Street in Downtown Courtenay (left) and its surrounding land uses (right).

Impermeable Cover by Block (2016)

Blocks with higher impervious cover will have more constraints to planting trees because of limited soil



A watershed is an area of land that collects water and drains into a large river, lake, estuary or ocean. Because impermeability is linked to the amount of stormwater runoff and soil moisture recharge in an area, it can have a big impact on watershed health. There are several key ways impermeability affects watershed health:

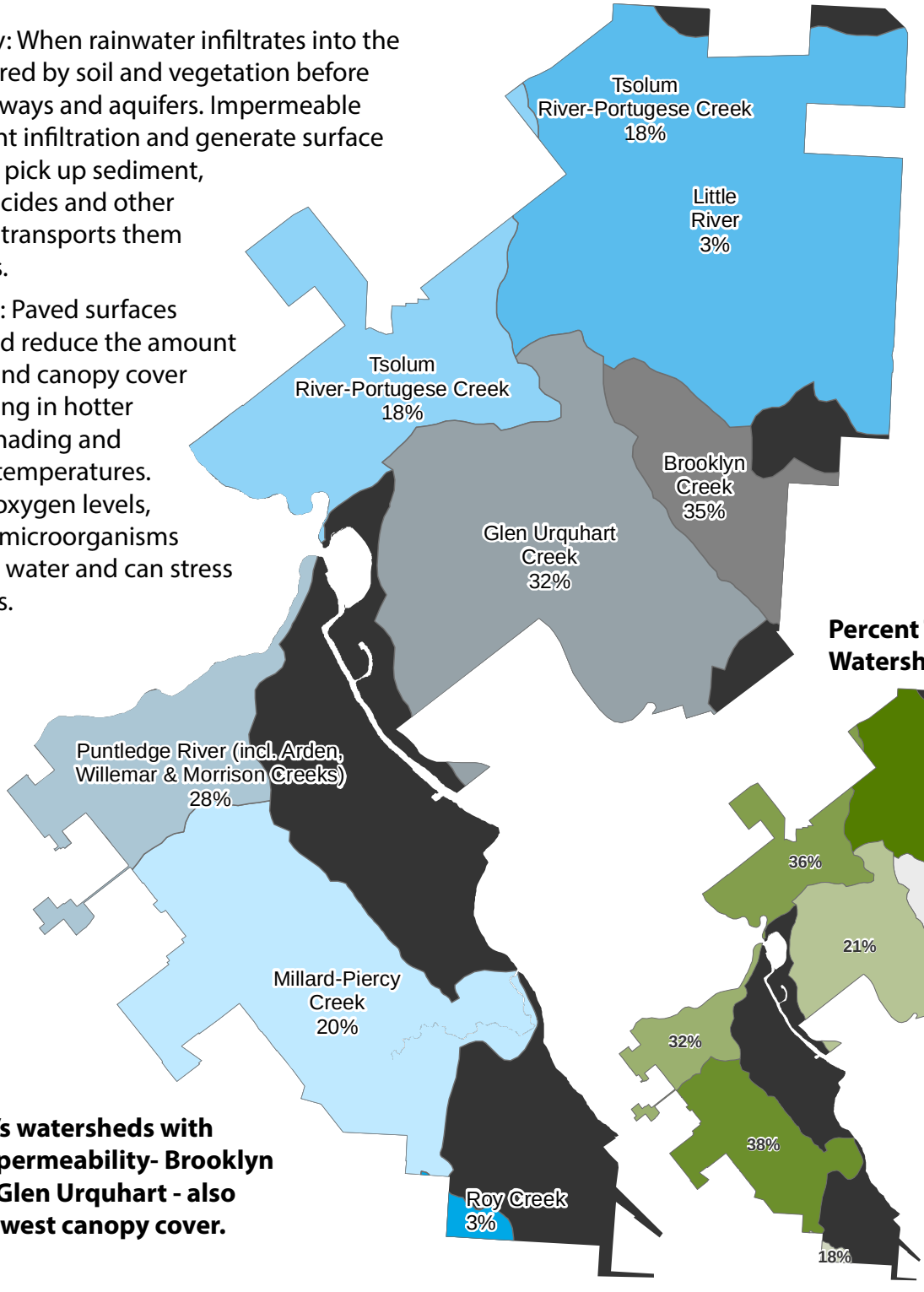
1. Water quantity: Paved surfaces create fast and high volume runoff that causes flooding and erodes soils.

2. Water quality: When rainwater infiltrates into the soil, it gets filtered by soil and vegetation before entering waterways and aquifers. Impermeable surfaces prevent infiltration and generate surface runoff that can pick up sediment, fertilizers, pesticides and other pollutants and transports them into waterways.

3. Temperature: Paved surfaces absorb heat and reduce the amount of vegetation and canopy cover on a site resulting in hotter surfaces, less shading and warmer water temperatures. This alters the oxygen levels, chemistry and microorganisms found in soil or water and can stress aquatic animals.

Percent Impermeable Surface by Watershed (2016)

Watershed health decreases with increasing impermeability



Percent Tree Canopy by Watershed

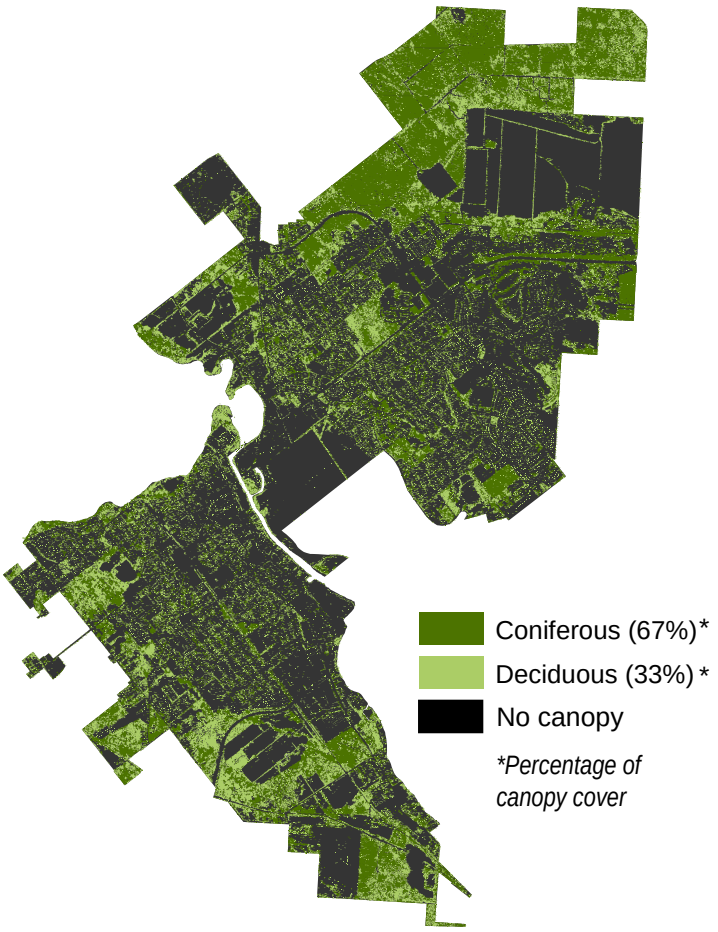
Courtenay's watersheds with highest impermeability- Brooklyn Creek and Glen Urquhart - also have the lowest canopy cover.

NATIVE FORESTS

Courtenay is within the Coastal Western Hemlock biogeoclimatic subzone (CWHxm1). Natural ecosystems in this relatively dry climate have been extensively disturbed from urbanization. Older forests are, therefore, relatively rare and fragmented.

Climate normals[1] show average yearly precipitation of 1,154 mm and an average yearly temperature of 10°C. Records also show extreme maximums as high as 35°C in July and extreme minimums as low as -21°C in January. More typically, winters are mild and summers are cool, though periods of drought are common in the summer.

There are three broad forest types found in Courtenay. Most common is second growth conifer forest that regenerated after timber harvesting. Based on LiDAR analysis, 67% of Courtenay's trees are estimated to be conifers. Less common, but still prevalent forest types, are riparian and woodland forests.



Conifer dominated forests

Conifer forests in Courtenay are typically dominated by Douglas-fir with lesser amounts of grand fir, western hemlock, western redcedar and deciduous tree species. These forests are representative of the region's most typical plant communities in the sense that they occur on average sites for the regional climate conditions. Wetter sites contain more red alder, black cottonwood or bigleaf maple.

Courtenay's coniferous forests typically consist of older second growth ranging from 60 to 100 years old. These forests have regrown following disturbances such as logging and wildfire. Past disturbances have occurred at different times and scales resulting in the mosaic of forest ages seen across the city today.

1 Comox A weather station 1981-2010 http://climate.weather.gc.ca/climate_normals/

A hairy woodpecker feeding its young in Lerwick Park

" The BC Conservation Data Centre shows that all naturally occurring forested ecosystems in Courtenay are considered at risk in BC and/or globally." - Tim Ennis, Coastal Douglas Fir Community Partnership

This pole-sapling forest just southeast of Comox valley Logging Road and Buckstone Road appears to have been clear-cut harvested in the late 1990s.

Young forests in Hurford Hill Nature Park are recovering from logging in approximately 1960. At this age the overhead canopy is very dense, preventing light from reaching the forest floor. This results in a characteristically sparse understory. If left undisturbed, or managed with intent, it could mature into old-growth forest.

This maturing forest at Lerwick park is about 100 years old and still bears stumps from when it was logged in the early 1900s. The forest is beginning to develop characteristics found in old-growth forests, such as a thick understory, a layered canopy, and dead trees that are important habitat for wildlife.

Although the majority of forests are still quite young relative to their potential life span, some are starting to develop old-growth characteristics. For example, forests in Lerwick and Roy Morrison Nature Parks contain relatively large trees, large decayed and undecayed downed logs and dead standing trees.

As these forests continue to age, dead trees will create gaps in the canopy, allowing light to enter. Young trees and thick understory can then establish in these canopy gaps. Old trees will grow increasingly large, as will the size of dead standing trees and logs on the ground. Old-growth forests may no longer exist in the City of Courtenay, but if the older forests are preserved, opportunities to experience old-growth right in the center of the city could return within our children's lifetimes.

"The trees in Courtenay make us feel so West Coast." - Survey respondent

Riparian forests

Riparian forests are also relatively common in Courtenay. These forests occur adjacent to lakes, streams and rivers, and are often dominated by red alder, black cottonwood and big leaf maple. In the absence of major disturbances, mixed deciduous and coniferous forest can establish in riparian areas. However, in locations with wet soils or frequent flooding deciduous trees are more common. Puntledge Park contains older mixed riparian forest with widely-spaced large trees, many of which are greater than 1m in diameter.

Because watercourses traverse the city, many riparian forests provide natural greenways valuable for the movement of wildlife through urbanized landscapes. For example, a strip of young alders that parallels Mallard Drive in east Courtenay provides thick vegetation cover between Hurford Hill Nature Park and Malahat Storm Park to the north (image on next page).

Woodland Forests

The less common woodland ecosystem types include the trembling aspen woodlands and Garry oak woodlands.

Trembling aspen is uncommon in Courtenay but occurs in localized, nutrient-rich swamp sites that have contiguous understory cover of reeds, sedges, and other species tolerant of seasonal flooding and a high water table. This plant community (called aspen-crabapple-sedge) is recognized by the Conservation Data Centre (CDC) as being rare (red listed) in BC. The mature forest has a canopy that is dominated by trembling aspen, with mixed components of bigleaf maple. Pacific crab apple and Nootka rose are found in the shrub layer, while the herb layer contains slough sedge and sword fern. One occurrence of the trembling aspen plant community is confirmed by the CDC in Courtenay, although similar ecosystems were found during ground truthing.

The Garry oak woodland ecosystems in the Courtenay area are unique and, notably, represent the northern-most extent of Garry oak woodlands in Canada. These woodlands are also unique because they occur on deeper, moister soils than other Garry oak populations, growing in an unusual association with Grand fir and snowberry. Many of these Garry oak trees are surprisingly old for their size with several confirmed to be older than 150 years.

A past report on the Vanier Oak property noted "The Garry oak – Grand Fir / Snowberry Mixed Forest community is not currently recognized by the BC CDC because of lack of sufficient information to designate, rather than lack of ecological value, rarity, or sensitivity" [7]. This report also determined that the forest was an open woodland stand in the early 1900s, likely fire-maintained by First Nations for acorn harvesting. In the absence of understory burning, conifers have established a more closed canopy forest today. Increasing Douglas-fir growth may eventually shade out the Garry oaks without human intervention.

The Trembling Aspen / Pacific Crab Apple / Slough Sedge is a red listed ecosystem with one occurrence confirmed in Courtenay. Based on our ground truthing, other similar aspen woodland ecosystems also exist in Courtenay.

The Garry oak woodlands that occur in and around Vanier Park are unique deep-soil woodland ecosystems in an unusual association with grand fir and snowberry. Vanier Park has been identified in the Parks and Recreation Plan as a priority to receive a specific management plan.

Thick vegetation cover shown behind the Malahat Park storm pond in the foreground. Planting trees and native vegetation as part of or in proximity to stormwater management ponds can improve water quality and overall habitat value. Incorporating vegetation into stormwater features must be carefully designed to ensure that operations and management are not negatively affected.

Image at left: Mature Garry Oaks at the St Andrew's Anglican Cemetery. At right: Garry Oak nursery spearheaded by Loys Maingon.

A Perspective on Garry Oak Value and Management...

"Not all trees are created equal. When it comes to climate change, some trees store more carbon than others. Fast growing trees are poor carbon accumulators, and are short-lived - so they release carbon quickly. Garry oaks are our best carbon investment.

Garry oaks are the heritage tree that defines Courtenay's future. Garry oaks have the second highest carbon-storage rate in the North America, exceeded minimally by California redwoods. Slow-growing and able to live well over 500 years, Garry oaks have a dense heavy wood, adapted to the wet winters and extreme droughts of our coastal summers. Requiring little care, it grows into the majestic blue-green tree in the northernmost native grasslands that have made Victoria and Eastern Vancouver Island a floristic mecca.

In the Royal Navy 1860 survey Captain G.H. Richards reported that the Comox Valley was "another Saanich", home to over 65 square miles of Garry oak prairie, stretching from Comox up both sides of the Tsolum River and north to Kye Bay. Before whalers introduced the potato to the coast in 1830 camas and corn were the main source of starch. The "Comox prairie" was the source of wealth for the Pentlatch culture which traded camas and acorn with tribes north and to the Rockies. Unfortunately, most of the prairie has been extirpated by agricultural and residential development. Throughout East Vancouver Island, Garry oaks and Garry oak ecosystems have been reduced to less than 5% of their pre-contact range. In the Comox Valley less than 1 % of Garry oaks remain.

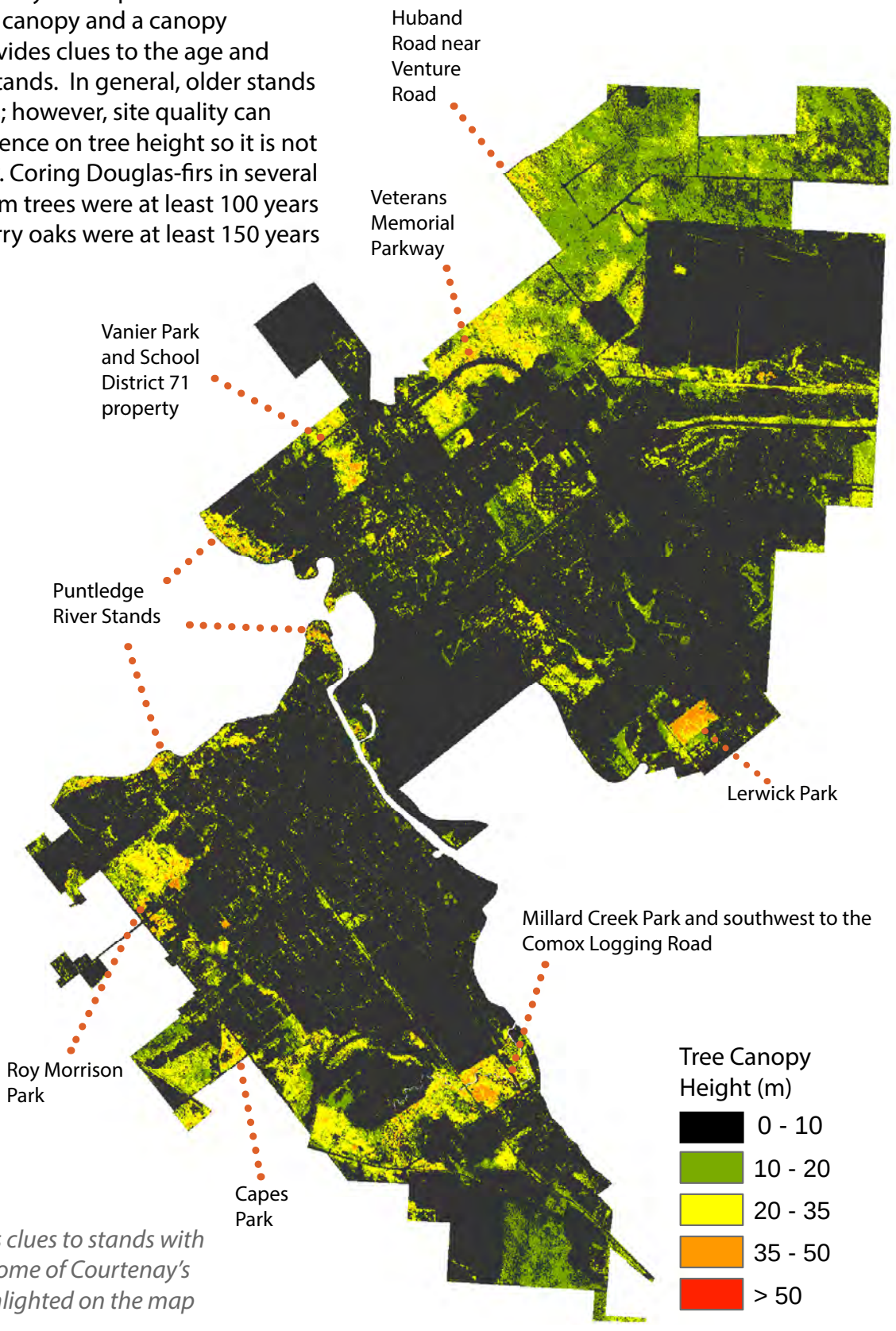
Comox Valley Nature's "Garry Oak Recovery Program" started 6 years ago in 2012 with 500 potted Garry oaks aiming to plant 1,000 oaks by 2020. The program is supported by a nursery stock of about 2,000 potted trees which range from 1 to 8 ft. The program has since planted over 800 trees, and tracks the condition of local veterans. The nursery also grows a number of associated Garry oak ecosystem plants such as Douglas Hawthorn camas, riceroot and spring gold.

Although Garry oaks are easy to grow, and well-adapted to a very broad range of conditions from drought to wet - they need protection in their early years to prevent death from browsing or mechanical damage. The greatest impediment to Garry oak recovery is the will to care for the future."

- Loys Maingon, Garry Oak Ecosystem Recovery Team and CV Nature
www.goert.ca

Forest Heights and Ages, 2016

The City does not have an inventory of Courtenay's natural forest stands that describes their ages. However, LiDAR data analysis has provided a complete inventory of canopy and a canopy height model that provides clues to the age and distribution of forest stands. In general, older stands will contain taller trees; however, site quality can have a significant influence on tree height so it is not always a reliable proxy. Coring Douglas-firs in several taller stands did confirm trees were at least 100 years old, and that some Garry oaks were at least 150 years old.



Canopy height provides clues to stands with older forest potential. Some of Courtenay's very tall stands are highlighted on the map below.

Significant Stands and Corridors

To aid urban forest planning, the City wanted to map significant stands and tree corridors that contribute to urban biodiversity in Courtenay.

An urban forest is inherently modified by humans and, while there are established standards for mapping rare or sensitive ecosystems in natural areas, there are no equivalent standards for mapping 'significant stands and corridors' in the urban forest. In Courtenay's case, significant stands and corridors are those that are:

- Confirmed to, or are likely to, contain sensitive ecosystems or species of interest including aspen woodlands, Garry oak woodlands, older riparian forests and older coniferous forest, based on ground-truthing, LiDAR and orthophoto interpretation.
- Within a 30 m buffer of watercourses or greenways.
- Within mapped Sensitive Ecosystem Inventory (SEI), Conservation Data Centre (CDC) areas or municipal parks.
- Key patches or stepping stones that are important for connectivity based on a network analysis of 3 forest-dependent species.
- Identified by the public as containing values significant to their enjoyment and appreciation of the urban forest.

These significant stands and corridors can inform urban forest planning by flagging locations of potential significance for protecting, restoring or enhancing urban forest values. Not all mapped locations have been ground truthed, nor is there a detailed inventory of sensitive ecosystems and species of interest.

The City also sought to identify areas with a concentration of Garry oak, Pacific dogwood, arbutus, western white pine, Pacific yew and trembling aspen. These are all native species that are relatively rare in Courtenay and BC. Western white pine has become particularly rare because of the disease white pine blister rust.

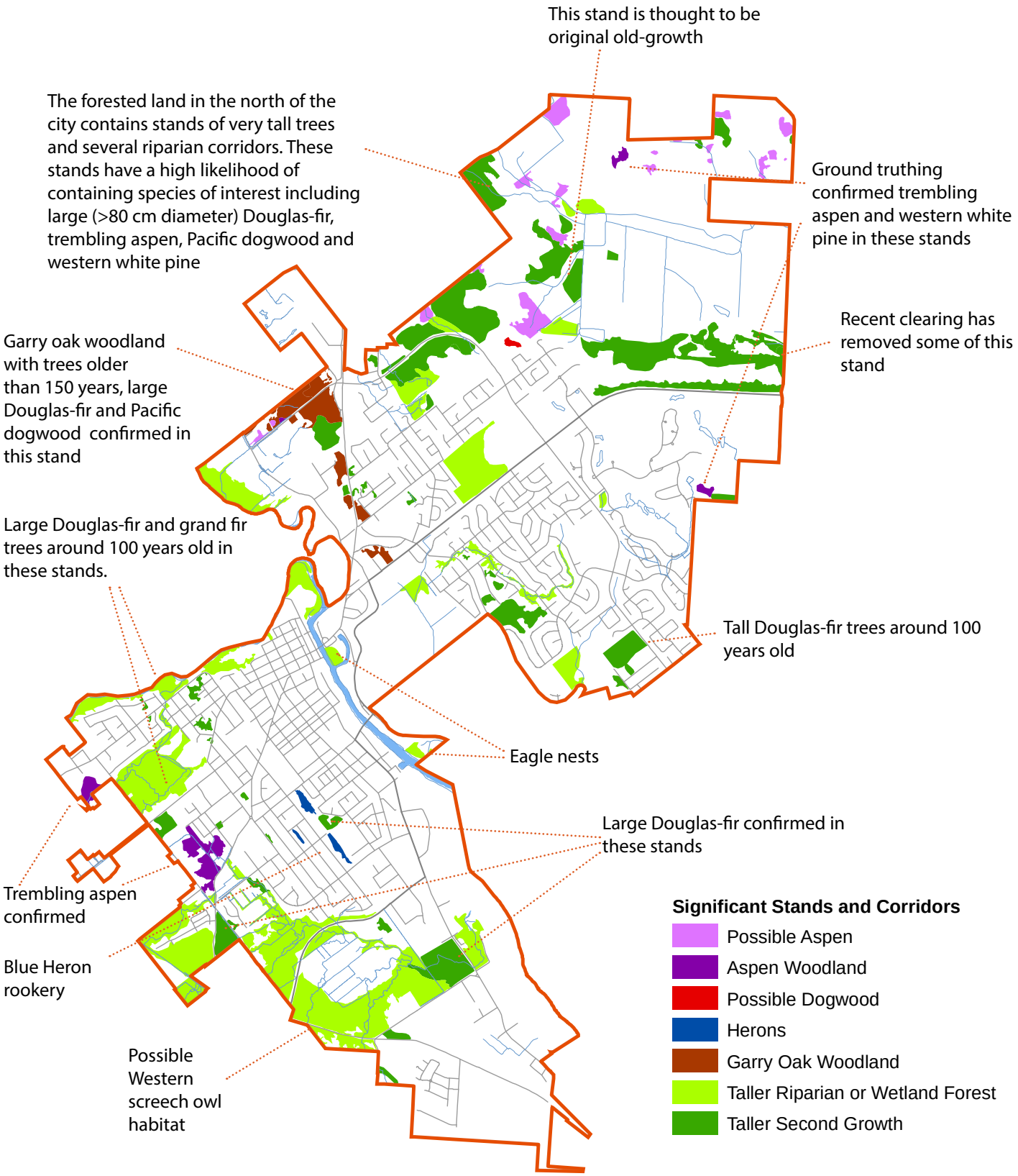
Ground truthing did detect Garry oak, Pacific dogwood, western white pine and trembling aspen in some stands. Due to the limited extent of ground truthing, the results are not an indication of the distribution of these species of interest, or of the absence of arbutus or pacific yew in Courtenay.

Western white pine

Garry oak

The map below highlights some of Courtenay's significant stands. The highlighted areas contain values related to large trees or tree species of interest, sensitive ecosystems, special places, habitats and riparian or greenway corridors.

These areas are potentially significant for maintaining and enhancing Courtenay's urban forest ecosystems, their connectivity and character.

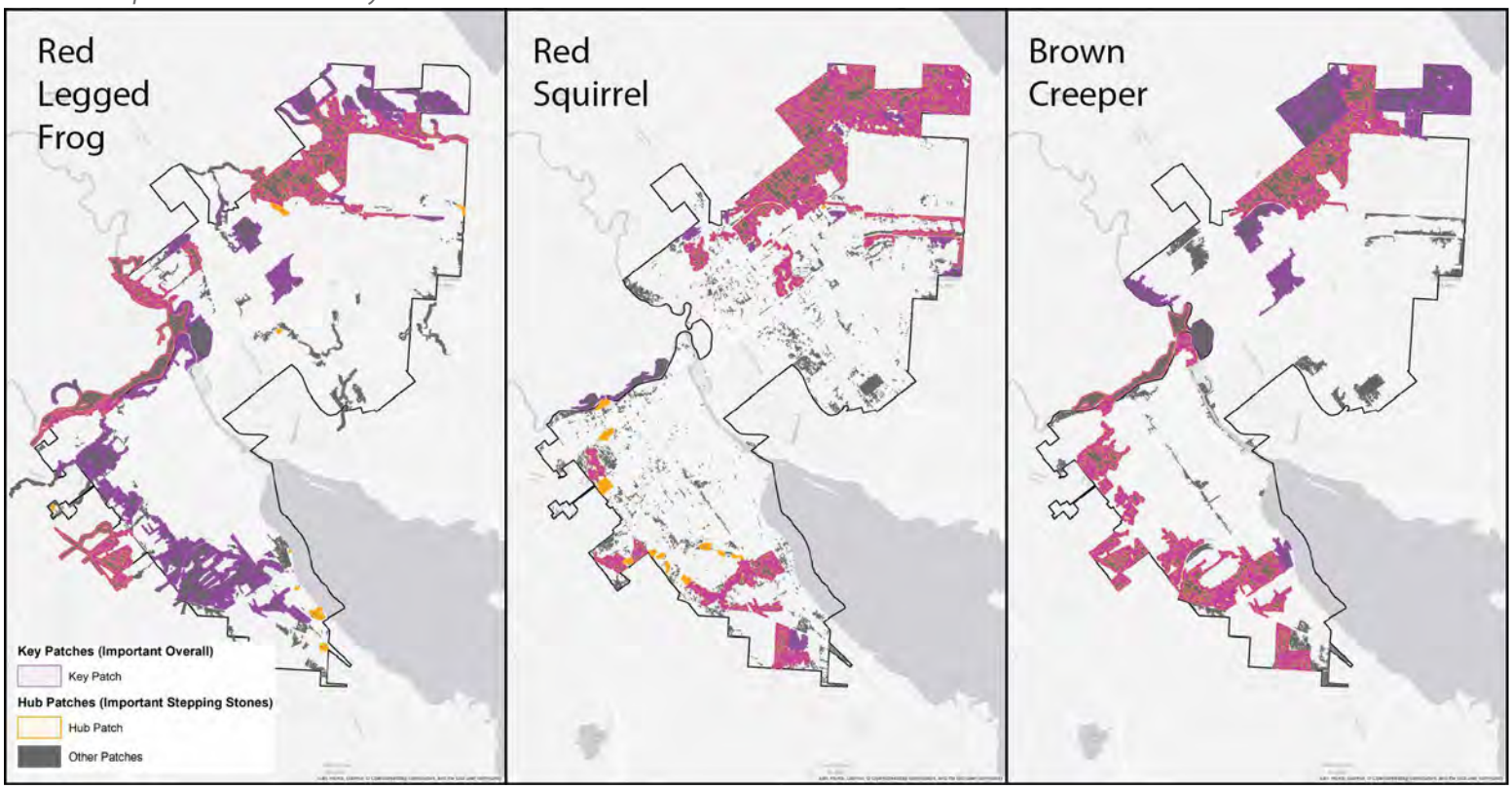


The urban forest can be thought of as a network of habitat patches through which species move. Understanding how connected this network is, and which patches play an important role in maintaining network connectivity can better inform conservation planning.

To understand forest connectivity in Courtenay, consultants used a program called Conefor to quantify how connected the landscape is from the perspective of three forest-dependent species: the red-legged frog, red squirrel, and the brown creeper. Each species can be considered an umbrella species for conserving particular habitat types: aquatic, riparian and moist mature forest for the red-legged frog; mature coniferous forest for the red squirrel; and larger patches of mature forest, either deciduous, coniferous or mixed for the brown creeper.

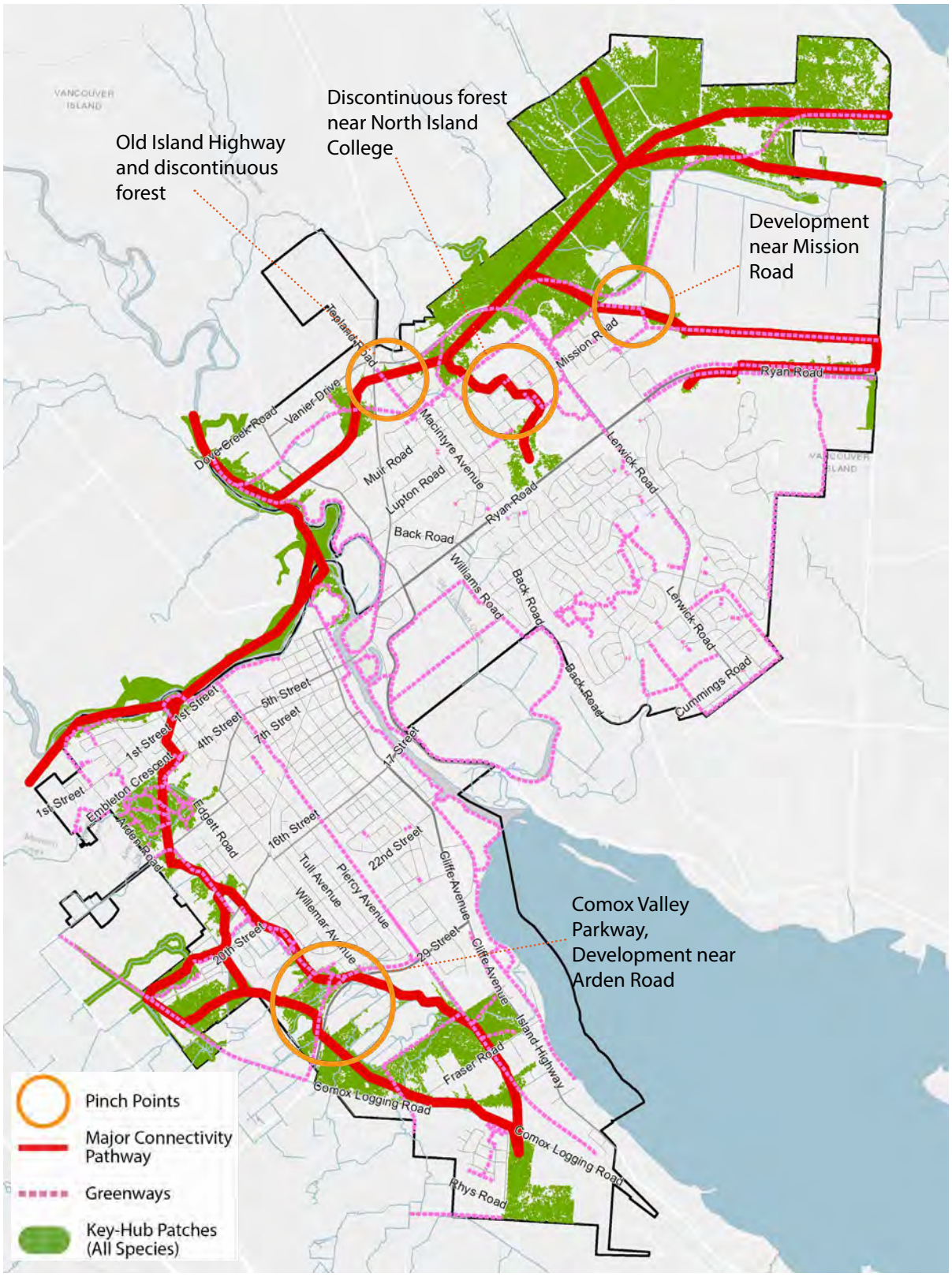
This analysis identified both the key patches that are important for overall connectivity, as well as hubs that are important stepping stones. The maps below show the key patches and hubs identified for each species. Conservation planning for forested areas can be informed by each patch's importance for maintaining the connectivity of the wider network of natural areas, as well as their overlap with other conservation values (e.g., significant stands of trees, sensitive ecosystems etc.).

These three maps show forest areas that the red-legged frog, Red Squirrel and Brown Creeper are expected to utilize, respectively. The most important patches for connectivity are highlighted. The map on the following page shows the most likely pathways of movement through the landscape based on these analyses.



The map below shows the key patches and hubs for all three species. Because these patches are most important for maintaining network connectivity, they are part of routes through the landscape that have the highest probability of successful dispersal for the species modeled.

The major connectivity pathways identify routes for maintaining connectivity throughout and between patches, and to greenspace in the broader Comox Valley region. Pinch points have been identified where barriers to connectivity exist today. These tend to be major roads, built-up areas and recent land clearing.



CITY TREES

City trees are those that have been planted in roads, parks or other City-owned lands. The City plants 300-350 new trees each year. About 50 are street trees installed in new developments and the remainder are planted as shade trees in parks and to help restore natural areas.

Courtenay has a partial inventory of 3,255 of its trees planted in streets and landscaped parks, but the total number of trees on City property is estimated to be closer to 30,000. This higher number comes from a coarse LiDAR-derived estimate of natural forest trees growing in parks or road rights-of-way, and front of yard trees planted by residents that may now have shared or unclear ownership. The purpose of the individual tree inventory is to capture the intensively managed trees in streets and parks, which is why it only covers a portion of the total public tree population.

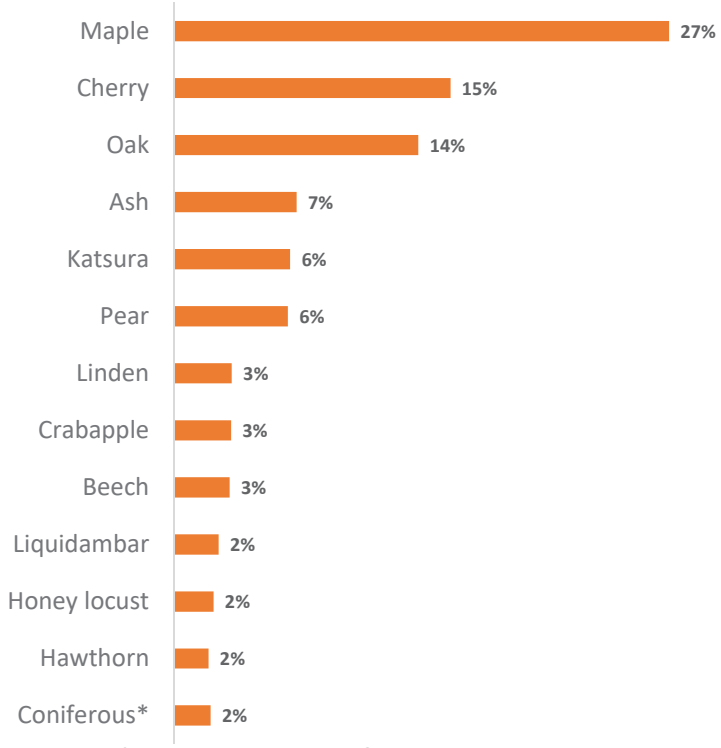
Diversity

The tree inventory provides a good indication of the diversity of species and ages among trees planted in City streets. Species and size information was available for approximately 2,500 City trees.

The five most common species planted are Japanese cherry (*Prunus serrulata*), red maple (*Acer rubrum*), Norway maple (*Acer platanoides*), katsura (*Cercidiphyllum japonicum*) and callery pear (*Pyrus calleryana*). The next level of classification above species is genus (i.e., Norway maple and red maple are grouped within the maple genus). The most common genera are graphed above and show that maple (Acer), cherry (Prunus) and oak (Quercus) are particularly dominant in Courtenay's streets and landscaped parks.

Diversity guidelines for urban forests are often recommended to reduce vulnerability in the tree population to pests and disease. The most recent guidance recommends 5-15-20 as a rule-of-thumb so that urban forest populations have no more than 5% of any one species, 15% of any genus, and 20% of any family [9]. In Courtenay, maple exceeds the genus guideline. The diversity of species in Courtenay's streets and manicured parks can be increased. In addition, tree species that have invasive potential or are not suitable for future climate will be avoided in future.

MOST COMMON GENERA IN COURTENAY STREETS AND LANDSCAPED PARKS



**In order of abundance: Douglas-fir, redcedar, pine, cypress, spruce, fir, sequoia*

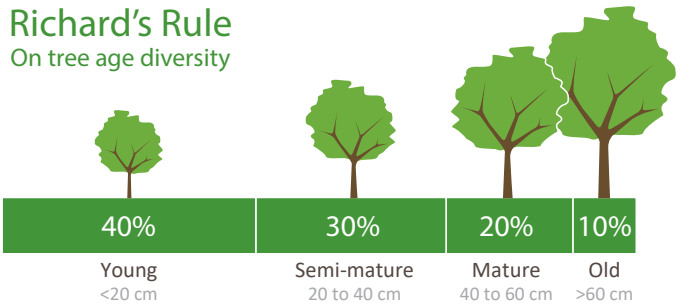
Aerial photo of a public street tree in front of a private property. The depth of the public boulevard in front of a property line can be as much as 5.5m. The City allows people to plant and maintain other vegetation within these boulevards. However, it must not inhibit traffic sight lines or pedestrian passage where sidewalks are present. The City retains the right to remove vegetation from the public boulevard without compensation in case of a conflict.

Age, size and genetic diversity are also important for maintaining stability in urban forest populations over time. Using size as a proxy for age, the 40:30:20:10 guideline suggests that 40% of an urban forest should have a diameter at breast height of < 20 cm, 30% between 20-40 cm, 20% between 40-60 cm and 10% > 60 cm [10]. Maintaining these size ratios in a population promotes stability by ensuring there are enough young trees to replace older ones without sacrificing the ecosystem services provided by more mature trees.

Courtenay's inventoried trees are very skewed towards trees less than 20 cm (55%) and trees 20-40 cm (39%). There are very few larger, older planted trees in streets or parks. This indicates that Courtenay's planted tree population is fairly young and that tree planting has been an inconsistent practice until relatively recently. However, as Courtenay's planted urban trees mature, differentiation in size and age class will increase due to the different size and life expectancy among species. For example, maples, oaks and ash are typically large, long-lived urban trees in the absence of pests and disease. Cherries, katsura and pears are comparatively smaller, short lived species.

Genetic diversity is also important in a tree population, particularly for within-species resistance to pests and diseases. Genus-level pests or diseases such as Dutch elm disease, emerald ash borer and mountain pine beetle have dramatically impacted populations of elms, ash and pine respectively. In areas where these pests occur, individual trees or species with natural resistance are key to the persistence of these genera. Genetic diversity within species is hard to measure without genetic testing. However, it is likely low in the planted urban forest because modern nursery practices rely heavily on industrial scale production of a limited variety of clonal trees.

Many more of Courtenay's City trees are in uninventoried natural areas described in the Native Forests section of the report. The LiDAR and ground truthing indicate that there are large numbers of trees in larger size classes in the natural forests on City property. It is likely that genetic diversity is also higher in naturally regenerated forests.



This guideline for size diversity comes from research on tree populations that found street tree population stability was driven by young tree mortality and replacement. This distribution of size classes was proposed as a guideline for maintaining a stable supply of tree canopy over time.

Young trees in the street with an older stand of native Douglas-fir trees in the background

Inside an older second growth stand of trees in Lerwick Park

Value of City Trees

It is helpful to value City trees in terms of both cost and value to inform decisions about tree preservation, asset management, urban forest budgeting and also as a way of communicating that trees have value.

The Council of Tree and Landscape Appraiser's (CTLA) Guide to Plant Appraisal (latest edition) is the resource used by arborists to guide tree appraisal methodology[1]. City trees may be appraised on a case by case basis when, for example, a tree is hit in a motor vehicle accident or illegally cut. An arborist will assess the tree and provide their professional opinion on the value to be sought in damages. Some cities also use appraisal methods to calculate compensation to be paid for trees removed and replaced with development.

For the purposes of informing tree preservation and asset management, it is not practical or necessary to have every City tree appraised to the CTLA standard. Coarser methods can effectively provide a relative estimate of tree value from the City's tree inventory data. One tool that enables coarse tree valuation is the USDA's i-Tree Eco. This tool provides and estimate of:

- Structural (compensatory) value using a trunk formula method and a version of the location values described in the 8th edition of the CTLA Guide to plant appraisal [11].
- Present value of future benefits based on an income approach to monetizing ecosystem services.

i-Tree Eco was used to estimate tree value for approximately 2,500 inventoried trees that had species, condition and diameter at breast height (DBH) measurements. Because the inventory data and i-Tree's methods are coarse, the structural value outputs are reported as value rankings from very low to very high, rather than specific values. Also, tree condition can change as tree health or structure improves or declines so these estimates are only relevant for the inventory period.

Based on i-Tree Eco estimates, Courtenay's 2,500 inventoried trees store 326,477 kg of Carbon and annually:

- Sequester 9,888 kg of carbon.
- Remove 191 kg of pollution.
- Produce 26,380 kg of oxygen.
- Intercept 4,146 m^3 of water resulting in 926 m^3 of avoided runoff.

Given that these values are quantified for only 2,500 of an estimated 30,000 City trees, the total ecosystem services provided by Courtenay's tree population would be much higher.

Large trees such as this Douglas Fir on 1st Street store much more carbon than a young tree. For optimum carbon storage, Garry Oaks are the best local choice for their dense wood properties and long life.

1 The CTLA Guide to Plant Appraisal considers the following factors: tree **size**, **species**, **condition** and **location**. An example of a high value tree would be a larger and older tree of a species well adapted and durable for the location conditions, which is healthy and well-maintained and stand-alone near a building.

The highest value inventoried trees in Courtenay are concentrated in the older neighbourhoods and are large oaks, sycamores and horsechestnuts. Many large City trees are not inventoried and pockets of high value trees are likely also concentrated in tall second growth or riparian stands.

>50 cm diameter Japanese cherry on Centennial Drive

>50 cm diameter Garry oak on Valley Crescent

80-90 cm diameter horsechestnuts and sycamores on Harmston Avenue. Two of the sycamores have since been removed.

70-90 cm diameter sycamores and honey locusts on 2nd Street

>50 cm diameter tulip tree on Royal Vista Way

Row of 50-60 cm diameter Japanese cherries on Williams Road

>50 cm diameter Japanese cherry on Robert Lang Drive

Structural value

- Very low
- Low
- Moderate
- High
- Very high
- Potential City trees (uninventoried)

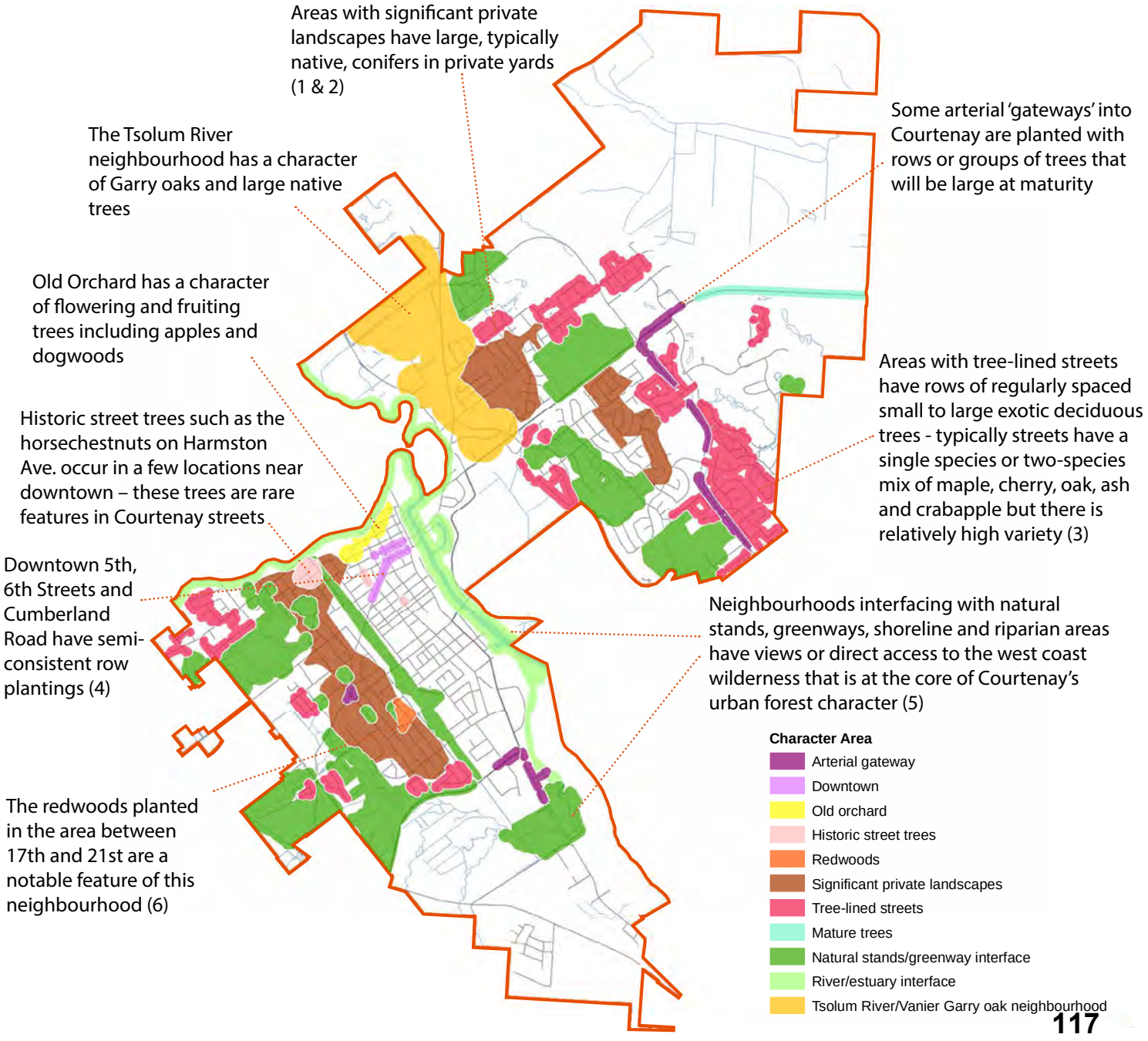
"Trees are the lungs of our city." - Survey

50-80 cm diameter English and scarlet oaks on Fitzgerald Avenue

URBAN FOREST CHARACTER

Trees and vegetation in forests, streets, parks and private yards contribute to the unique character of Courtenay neighbourhoods. Flowering and deciduous trees provide signs of changing seasons. Stands of native trees bring the sounds of wildlife and a reminder of our west coast rainforest surroundings. Even a single tree standing out against buildings or from the roadway can be a wayfinding feature for a neighbourhood.

The map below defines broad urban forest character areas for Courtenay based on what is on the landscape. Corresponding numbered character images are on the following pages. This information will guide the reinforcement of existing urban forest character as neighbourhood planning evolves. Future local area planning processes will define the aspirational urban forest character for each neighbourhood and guide new tree planting.



Significant Private Landscapes
(1) In east Courtenay, the mature trees along the hillside facing west provide highly valued hillside views from below and across the Courtenay River and K'ómoks Estuary. Hillside can be seen from Photos 5.

Significant Private Landscapes
(2) In west Courtenay, this Willemar Avenue residence is one of over a dozen properties that have voluntarily retained their mature conifers, lending to a unique character for this busy street.

Arterial Gateway
(3) These Scarlet Oaks on Malahat Road are some of the most mature suburban street trees in Courtenay. Intentionally chosen years ago, they are just now beginning to provide the colour and street framing characteristics originally envisioned.

Downtown
(4) While small canopied, the street trees downtown are valued for their contribution to the street scape. Residents also noted they appreciate the views on 5th Street of either the forested east Courtenay (shown here) or the glacier. Photo credit: Craig Carson.

Greenway
(5 - left) Part of the Riverway Greenway and adjacent to Millard Creek Park, the apartments at Anfield Road demonstrate what an urban-nature interface can achieve.

Redwoods
(6 - right) Redwoods, not native to BC, are scattered throughout a number of west Courtenay properties, a legacy from a resident who brought seeds up from California decades ago.

"Our street has lots of trees because it's an older one. The trees are what attracted us to this neighbourhood." - Survey respondent

"Plant trees along Ryan road from Back Road up to North Island College to screen traffic, noise and pollution." - Survey respondent

"Corridors of trees should be maintained or planted between neighbourhoods to create distinct character" - Survey

"With strategic tree planting we have an opportunity to dramatically improve Courtenay's main entrance points and thoroughfares." - Survey

"The existing urban forests on public lands should be nurtured and grown." - Survey respondent

"We could use more trees on streets running east-west. I walk a lot and they are very hot in the summer." - Survey respondent

"I think most streets and parks in Courtenay could use a lot more tree cover." - Survey respondent

PLANTING OPPORTUNITIES ON PUBLIC LAND

Planting opportunities on public land are concentrated in parks and along road right-of-ways. The map below shows potential planting opportunities identified using LiDAR.

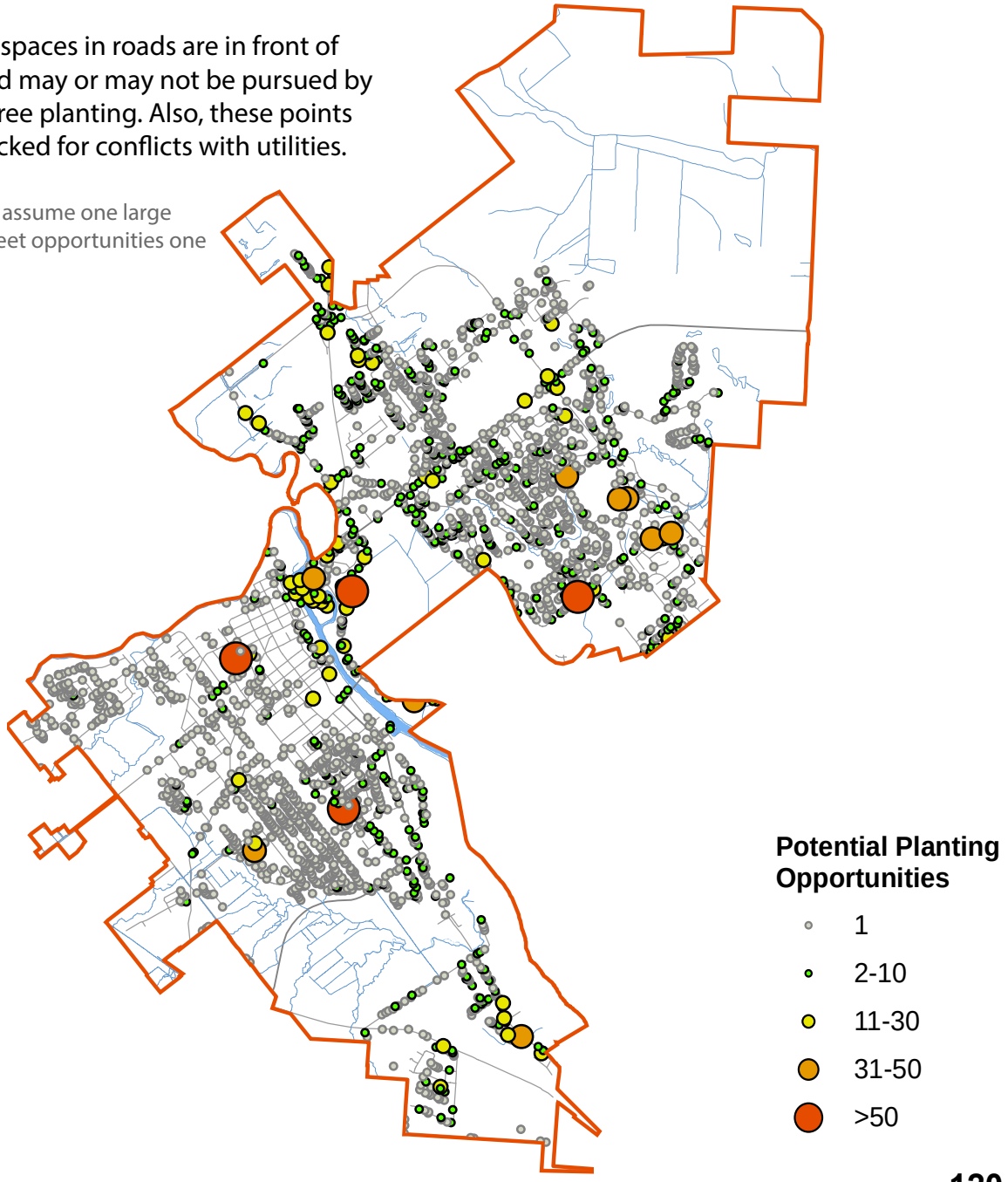
Permeable areas on public land were assumed to be potentially plantable and assigned a number of planting opportunities based on their size[1]. In parks with active uses like sports field, the number of opportunities was reduced to what could likely be planted around the park's edges.

Many of the single spaces in roads are in front of people's homes and may or may not be pursued by the City for street tree planting. Also, these points have not been checked for conflicts with utilities.

As a result, the 5,200 estimated planting opportunities will be an overestimate. Though further office and field review is required prior to planting, this map still provides an indication of where existing planting opportunities are concentrated on public land.

This map does not identify locations where new planting sites could be constructed, for example in downtown streets.

1 Park opportunities assume one large tree per 150m^2 and street opportunities one large tree per 60m^2.



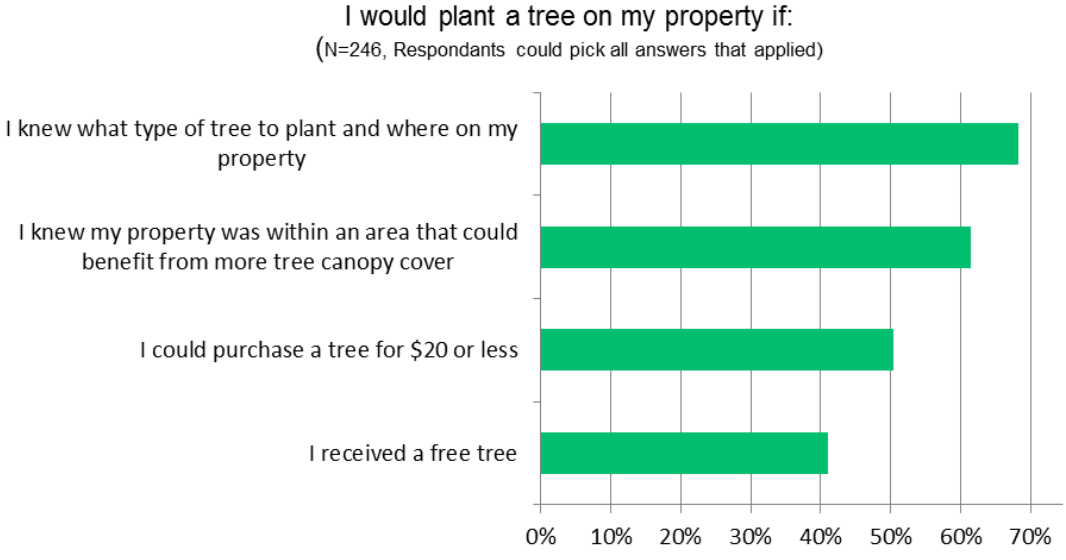
PLANTING OPPORTUNITIES ON PRIVATE LAND

Planting opportunities on private land are determined by the extent of permeable area that could be planted, the land use, and people's preferences for planting trees on their properties.

In Courtenay, the private land uses with the greatest permeable areas are agricultural, residential and golf courses. Obviously, agriculture and golf require unforested, open spaces, therefore, residential land is where the largest potential planting opportunities occur in Courtenay.

Below, we present an estimate of the potential planting opportunities on private land if a target of 100 stems per hectare (expected to yield ~33% canopy cover) were set. This is double the Tree Bylaw Tree Density Target requirement when removing mature trees. This more ambitious target that exceeds minimum replacement standards is possible and encouraged. Agriculture, golf course and industrial land uses were excluded due to likely conflicts with trees. **Almost 40,000 opportunities are estimated to exist on private land, over seven times those on public land.**

Aggregate Zone	Total Hectares	Permeable Hectares	Estimated Planting Opportunities (Density of 100 stems/ha)
Agriculture	579	380	N/A
Residential	657	204	20,417
Golf Course Development	177	84	N/A
Rural, Residential	221	68	6,768
Rural, Multi-Use	492	58	5,757
High-Density	90	23	2,292
Commercial	131	23	2,282
Multi-Use	51	15	1,493
Industrial, Heavy	38	10	N/A
Industrial, Light	46	7	N/A
Rail	21	5	496
Commercial, Large	25	2	171
Total			**39,676**



Residents indicated through the survey an interest to plant trees in support of the Urban Forest Strategy, as shown in the graph to the left.

REGIONAL CONTEXT

The University of Maryland's global forest cover change dataset [8] shows large scale forest cover change in the region.

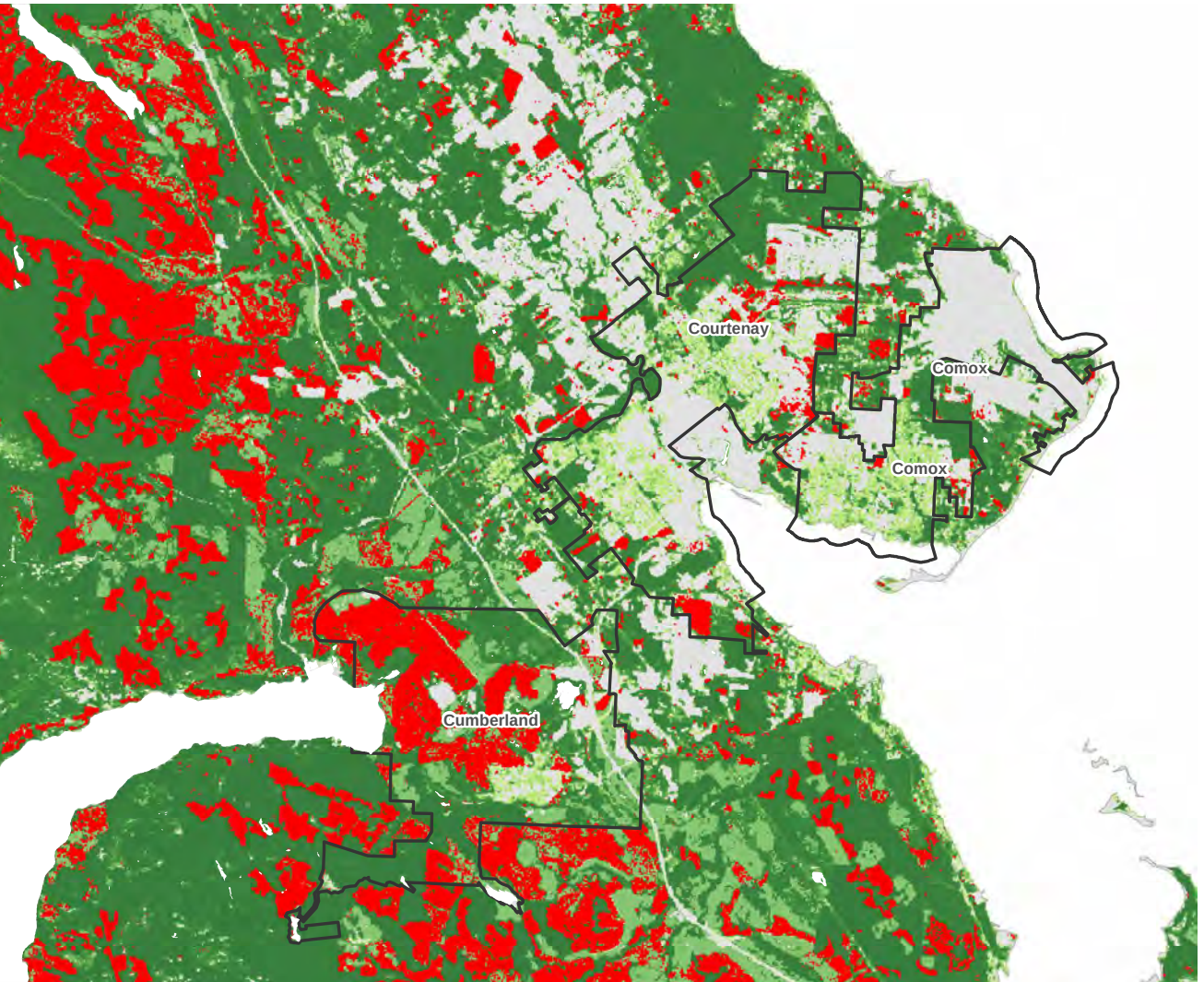
Forestry is the largest cause of regional canopy cover change outside the boundaries of Courtenay, Comox and Cumberland. The red cutblocks show as 'loss' in the satellite data but because they will regenerate, they are not permanent forest cover losses. Some land clearing for agriculture, mining and development also occurs outside the municipal boundaries.

Within the municipal boundaries, the forest cover loss visible on the map below is typically associated with a permanent change from a natural forested area to a residential land use. While these areas will likely be replanted with some yard and street trees, this new canopy will not completely replace the lost forest cover.

Large-scale losses exceed gains in more than 90% of BC municipalities. Slow growing municipalities and fully developed cities like Victoria and Vancouver do not have much new development in forested lands and therefore do not show much large-scale loss. However, tree canopy may still be declining in those cities due to individual tree losses.

Most forest cover loss detected in Courtenay has occurred in the last three years (2015-2017) and is related to land clearing for development. Very little large-scale loss was detected within Courtenay's boundary between 2000 and 2014.

"Focusing on infill housing instead of approving big lot developments that start by clear-cutting would help maintain tree cover." - Survey respondent



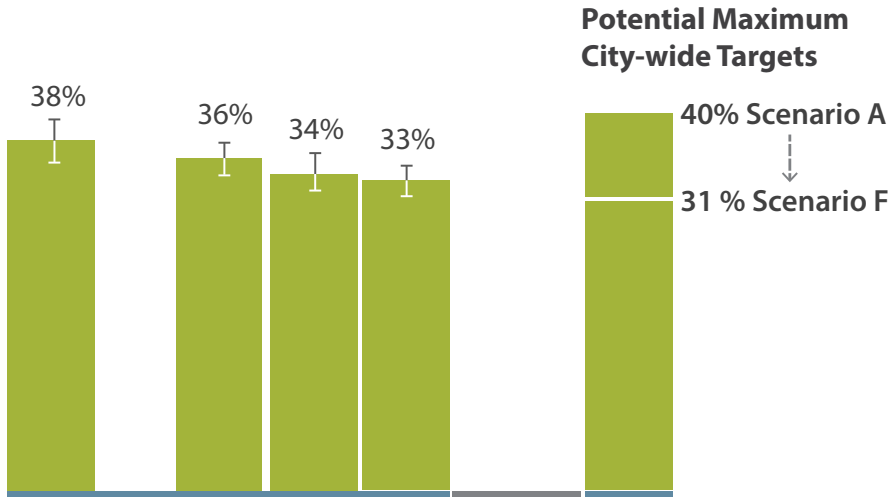
EXPLORING CANOPY COVER TARGETS

The data collected on Courtenay's urban forest and its policy context provide insight into how Courtenay's canopy cover has been and is likely to change in the future.

Canopy loss is anticipated to occur as private forested lands develop over time. The City's tree bylaw, Environmental Development Permit Area Guidelines and parkland dedication requirements will see some forest canopy retained or replaced in development areas. As well, there are opportunities for canopy growth by planting out available spaces on public and private land, or by creating new spaces when streets or lots are redeveloped.

Using current canopy cover and its relationship with tree density as a guide, it is possible to coarsely estimate the impact of different scenarios on Courtenay's canopy cover. Six potential canopy cover target scenarios are described below and each includes the following assumptions:

- Canopy area on aggregated agriculture zone, rural-multi-use zone and golf courses is kept constant. While lands could be rezoned in the future, the timing and extent of that process is too uncertain to forecast.
- Of the total aggregate rural residential zone, at least 15% of land is assumed to be undevelopable due to the allocation of lands for public parks and ESAs.
- Canopy targets are reported as both total city-wide canopy targets (graphed below) and urban area targets (described on next page). The urban area refers to aggregate zones that are developed or developable. Canopy targets for the urban areas are forecast with greater certainty because they are already developable.



Canopy cover target scenarios A to F are discussed on the next page.

"The canopy cover should be distributed through the town relatively equally. If a neighbourhood has lost a lot of trees in a year, then removals should be restricted."

"I feel we have adequate tree coverage. I believe trees need to be removed to support development and growth and the removal can be mitigated with new planting." - Survey

"Presently, often only the wealthy have rich tree cover... the poor are left with cement. Trees and greenery enrich our lives in so many ways, and this is required by everyone." - Survey

Canopy Cover Target Scenarios

Each scenario assumes 5,000 new trees are planted on public land and a 15% canopy target over commercial and industrial aggregate zones.

Scenario*	City-Wide Canopy Target (max)	Urban Area Canopy Target	Tree Bylaw Density Target (sph[1])	New Trees Planted on Private Land (voluntarily)	Canopy Target Over Aggregated Residential, Multi-Use and High Density Zones	Canopy Target Over Aggregated Rural-Residential Zones	Actions		
							Regulation (Tree Bylaw Density Target)	Voluntary Private Land Planting	Public Land Planting
A	40%	34%	100	17,000	40%	50%	Highest	High	High
B	37%	29%	75	17,000	30%	40%	High	High	High
C	36%	27%	75	8,500	27%	38%	High	Moderate	High
D	34%	24%	50	17,000	20%	35%	Current	High	High
E	33%	23%	50	8,500	18%	30%	Current	Moderate	High
F	31%	21%	50	0	15%	28%	Current	None	High

1 Stems per hectare

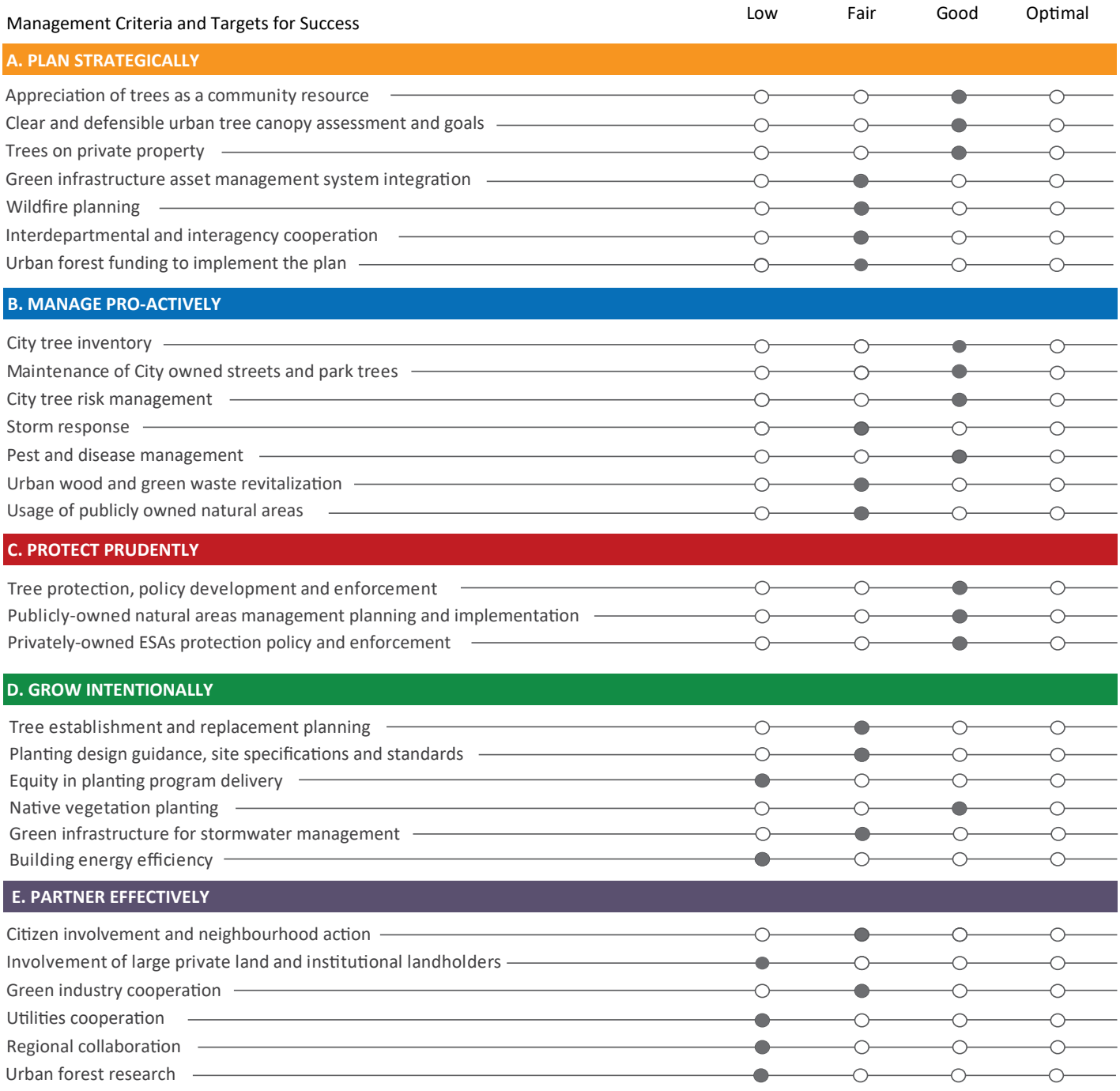
"Courtenay could use a lot more canopy in big box store parking lots, on hospital grounds and in school yards." - Survey respondent

"Downtown Courtenay is very hot on a summer day. Likely a lack of tree cover/shade, and lots of pavement has something to do with it." - Survey

HOW ARE WE DOING?

Courtenay's urban forestry program is in the early stages of development. Developing this strategy establishes the vision, goals and management criteria for the urban forestry program.

The criteria below have been adapted for Courtenay from "The Sustainable Urban Forest: A Step By Step Approach" [9]. Descriptions of each criteria are provided in Section 6.



Targets	***2018 baseline***	***2050 target***
Canopy cover city-wide (percentage)	33%	34-40%
Block tree density (average trees per ha per block excl. industrial, ALR)	67	100-120
Species diversity (maximum percent species, genus in City tree inventory)	S8%-G27%	S5%-G15%
Useful life expectancy distribution (percent of City tree inventory) with >30 yr ULE	87%	90%
Young tree mortality rate (annual percent mortality in City trees less than 5 years old)	>3.5%	3.5%
Climate suitability of tree inventory (percent of inventory considered suitable)	71%	90%

5 PLANNING PRIORITIES

CLIMATE CHANGE

The Pacific Climate Impacts Consortium 2080s[1] climate projections for the Comox Valley are that:

- Summer precipitation will decline by 17%
- Precipitation in other seasons will increase
- Snowfall in winter and spring will decline by 51% and 71% respectively
- Annual temperature will increase by 2.5*°C*
- Growing Degree Days (above 5°C)[2] will increase to 582

The anticipated impacts of climate change for Courtenay include sea level rise and more extreme rainfall events, higher storm surges, flooding and waterlogged soils outside the summer months. Lower winter and spring snowpacks, less summer rainfall and warmer temperatures are expected to reduce stream flows, and lower ground water tables and reservoir levels. Warmer temperatures will increase evaporation and vegetation water demand. Overall, water supply is expected to be reduced while water demand is likely to grow, increasing the possibility of drought.

Growing degree days provide an index of the amount of heat available to support the growth and maturation of plants and insects. More Growing Degree Days and milder winters are likely to increase the range of plants that can grow successfully in the Comox Valley. This change could also benefit the range of potential forest pests that can survive in our climate.

Warmer, wetter springs may increase the initial growth of plant biomass, which will then dry out in the summer months. It is possible this pattern,

1 https://pacificclimate.org/analysis-tools/plan2adapt

2 Growing degree days accumulate whenever the daily mean temperature is above 5°C; the value is not the accumulation of actual days but rather the number of degrees each day's average temperature is above the threshold temperature)

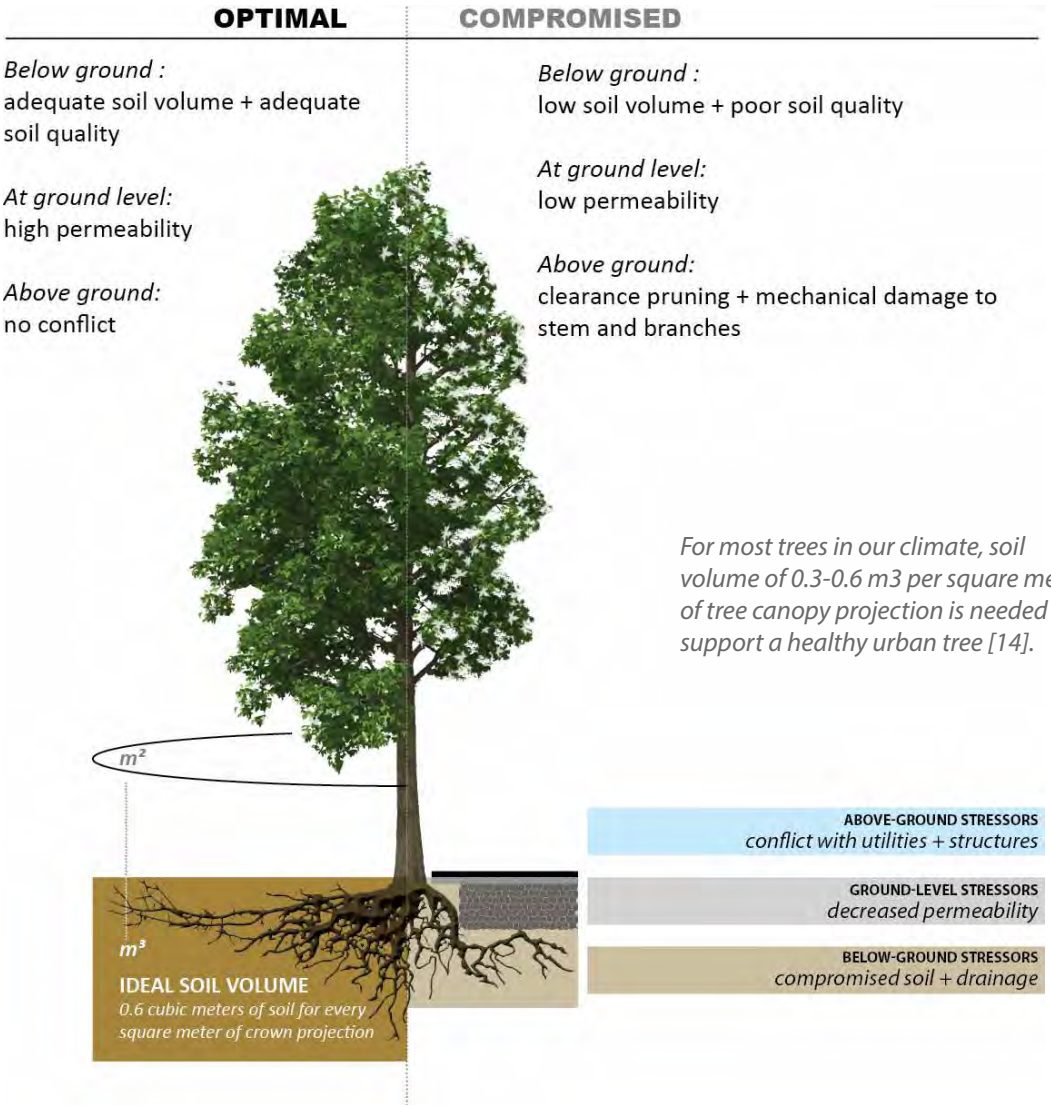
A recent study of the factors contributing to BC's record breaking 2017 wildfire season that burned 1.2 million hectares - now surpassed by the 2018 fire season - found that human-induced climate change substantially increased the fire risk and area burned [13]. The authors conclude that extreme wildfire seasons will be more likely in the future.

combined with a higher possibility of drought, will increase the amount of fuel available to burn in forests. Longer, hotter, drier summers are also likely to increase the length of the fire season, duration of high fire risk and the area burned by wildfire [13]. Hotter, drier conditions and smoky summers are likely to increase stress on people, plants and animals. For people and animals, the urban forest can be used to help adapt to climate change impacts, as well as mitigate greenhouse gas emissions.

Trees can be used to shade people and buildings to reduce air conditioning requirements and energy demand. Trees can shade surfaces and streams and cool the air with evapotranspiration, creating cool refuges for people and animals in hot weather.

Irrigated landscapes planted with low flammability trees can also act as fire breaks if properly maintained. Vegetation flammability will need to be considered in wildfire interface areas. Wildfire planning can identify locations where strategic fuel breaks and vegetation fuel treatments would benefit the community. Strategically designed forested parks in low lying areas can double as flood protection by being places for water to accumulate safely in times of flooding.

For the urban forest, adapting to warmer, drier summers will require that planting sites have enough good quality soil to hold moisture and support healthy trees. Planting at the appropriate time of the year will be critical. Tree species will also need to be adequately drought tolerant for the planting site and a list of species and their climate suitability rating is provided in Appendix 1. Tree diversity will need to be managed to reduce vulnerability to pests and diseases.



For most trees in our climate, soil volume of 0.3-0.6 m3 per square metre of tree canopy projection is needed to support a healthy urban tree [14].

COOLKIT AT A GLANCE

A do-it-yourself process on climate change that gradually ramps up community engagement in several steps

UBC CALP
calp.forestry.ubc.ca/

UBC Forestry's Collaborative for Advanced Landscape Planning (CALP) have developed a citizens 'Coolkit' to support community members understanding of how climate change affects where they live, and to facilitate working together to climate-proof their neighbourhoods[1].

1 http://calp2016.sites.olt.ubc.ca/files/2018/07/CALP-UBC_Coolkit-reduced-size.pdf

ECOSYSTEMS AND BIODIVERSITY

Courtenay' s natural environment is an identifiable and memorable feature of the community for residents and visitors alike. Bird watching, wildlife and 'habitat' in general were commonly cited 'most important values' provided by Courtenay's urban forest in the open ended portion of the public survey. Key attributes include rich biodiversity, multiple forest types (described earlier in the Strategy) and a number of ecosystems and species at the northern extent of their range (e.g. Arbutus, Garry Oak meadows), thus providing for many nature protection, education and stewardship opportunities.

Healthy ecosystems and biodiversity are essential to the provision of habitat and for sustaining natural processes to support life. In Courtenay, the ecosystems that exist are also part of the community's culture and livelihood.

The Comox Valley has experienced intense and rapid development and associated degradation and fragmentation of natural ecosystems [15]. In the 1990s, seven intact and rare/fragile ecosystems types were mapped to create the Comox Valley Sensitive Ecosystem Inventory (SEI): wetland, riparian, older forest, woodland terrestrial herbaceous (rocky outcrops), coastal bluff and sparsely vegetated (dunes, spits and cliffs). **The SEI, when re-evaluated in 2002 and 2012, found that 42% of the rare/fragile ecosystems identified in the 1990s had been disturbed and that these once abundant ecosystems now cover only 6% of the land base [15].**

Because intact natural ecosystems are rare in Courtenay, modified urban ecosystems are more commonly what is available for habitat. For example, Great Blue Herons have established a rookery in a narrow strip of tall trees between homes and the railroad tracks even though they are known to prefer undisturbed sites [16]. In light of this, two human modified ecosystems have also been identified for conservation: 60 to 100 year old forests and seasonally flooded agricultural fields. The SEI updates found that 97% of these ecosystems had been reduced in size and now cover only 7% of the Comox Valley.

The 2013 document "Nature Without Borders: The Comox Valley Land Trust Regional Conservation Strategy"[17] provides a regional conservation planning framework for the protection of sensitive natural areas. The Conservation Strategy identifies priority ecological areas for conservation in the region.

Both the Sensitive Ecosystem Inventory and the Conservation Strategy's priority ecological areas for conservation are integrated into Courtenay's Official Community Plan (OCP) as areas requiring Environmental Development Permits. In addition, Courtenay includes riparian areas, rare ecosystems, important habitat features and areas near active or inactive raptor or Great Blue Heron nests in Environmental Development Permit Areas (EDPAs). This means that, prior to any development occurring adjacent to these areas, a Registered Professional Biologist and other relevant professionals need to undertake an Environmental Impact Assessment and make recommendations for the minimization and mitigation of any impacts to EDPAs.

Recent ground truthing suggests that not all of the occurrences of some ecosystems slated for conservation in Courtenay are captured in the mapped sources informing the EDPA. These include instances of Riparian, Woodland, Wetland, Seasonally Flooded Agricultural Fields and Older Second Growth Forest ecosystems.

Courtenay's municipal park system and the use of EDPAs protects sensitive ecosystems. However, there are still areas of potentially significant and sensitive ecosystems that are not under municipal ownership or otherwise protected. The Garry oak woodlands in the vicinity of Vanier Park a notable example. Other sensitive ecosystems are likely to occur in the privately held forest lands around the outer edges of the community.

"Heron colonies will often relocate when becoming too vulnerable to their predators, bald eagles. As communities grow, it's very important to maintain mature stands on the landscape so that our local herons have options for nesting. They are proving that they can cohabit our urban environments as shown in west Courtenay which is good news for this provincially blue-listed species!"

- Connie Miller Retzer, Ecosystems Biologist, BC FLNRO

CONNECTIVITY

The protection of sensitive ecosystems is an important aspect of maintaining urban ecosystems and biodiversity, but restoring habitat and connectivity between them is also essential for their long term resilience.

In addition to EDPAs for sensitive ecosystems and riparian areas, some municipalities have started to include habitat 'hubs' and potential locations for corridors that could be restored or protected to support biodiversity and connectivity. A co-benefit of this approach is that defined hubs and corridors can become part of a long-term parks acquisition strategy that provides connected recreation access for people.

Beyond the options for the municipality to eventually protect ecosystems and corridors through park acquisition or the development permit process, landowners can also voluntarily conserve land with a Conservation Covenant. The covenants remain on title and secure parts of the land for long-term conservation; the lands are still for private enjoyment but cannot be destroyed or built on beyond the terms of the covenant.

Courtenay's expanding greenways are a highly valued amenity. When designed to retain mature forest features, greenways can provide forest connectivity as well as recreational and aesthetic values. The greenway pictured above borders Piercy Creek.

SOILS

We often focus on what is above ground when thinking about biodiversity and connectivity. However, a vast amount of living biomass is below ground, including plant roots, fungal mycorrhizae and soil animals. Recent work by researcher Suzanne Simard and others has been exposing the importance of mycorrhizal fungal networks for facilitating inter-tree communication. These networks have been found to enhance understory seedling survival, growth, nutrition, and mycorrhization, improve plant defense chemistry and kin selection, and enhance the health of the whole forest ecosystem [18].

Given the importance of soil for biodiversity and plant productivity, and its function in water filtration and storage, management of soil in urban environments requires more attention. Municipalities such as Vancouver and Surrey have been developing guidance for improving soil management to enhance green infrastructure performance[1]. Courtenay still has a native soil resource where soil disturbance and removal has been limited, thus presenting an opportunity to establish good practices to maintain healthy soils.

1 https://vancouver.ca/files/cov/integrated-stormwater-management-best-practice-toolkit-volume-2.pdf https://www.waterbucket.ca/gi/sites/wbcgi/documents/media/289.pdf

The opportune time to retain native soils is following land clearing and prior to soil compaction practices.

"As I bike through Courtenay a lot, I notice the value of trees in decreasing temperature and their value to other species."
- Survey respondent

"I moved to this neighbourhood because it has lots of big, mature trees. People/ walking groups from around the Valley come to my neighbourhood to walk because of the connectivity. This is probably the only neighbourhood in the Valley where you can do almost a complete circuit in wonderful, forested habitat without having to repeat yourself. The forests are wonderful and different every time you go out so you never know what gem you will find around the corner."

- Kathryn Clouston, Morrison Creek Streamkeeper and avid dog walker

CITY TREE MANAGEMENT

City trees are part of Courtenay's municipal infrastructure, just like roads, sewers, lighting and water assets. Elevating trees to the status of a municipal asset ensures that they will be budgeted for, maintained and protected for the community's benefit.

Municipalities are increasingly incorporating trees into their asset management systems as a means of accounting for their costs, replacement timeframes and asset value. Courtenay has an existing asset management framework and is in the process of incorporating intensively managed City trees into that system.

The City's urban forest management program has evolved over the last two years to include a full time staff member and completion of a partial tree inventory. Courtenay has recently procured technology to manage work orders and maintenance of inventoried trees. In the past, trees have predominantly been planted with development or by the Parks department but have not been tracked or had a dedicated maintenance budget.

Investing in planting the right tree, and properly maintaining it over its life-cycle can create an asset with a useful life expectancy of more than 100 years - much longer than most other types of infrastructure assets.

Over a tree's life-cycle, the greatest costs come at the time of planting and removal. Planting long-lived trees in suitable locations, combined with proactive maintenance, extends the beneficial service life of trees by maximizing their establishment success and correcting defects before they become serious. Proactive inspections and corrective actions are also an important component of a defensible tree risk management program.

Within the last couple of years Courtenay has been transitioning to a proactive maintenance program for intensively managed City trees. An analysis of the current tree resource has yielded an estimate of the budget impact to transition Courtenay to an optimal proactive maintenance program (Table 1).

There appears to be public support for investing in City trees. When surveyed, Courtenay respondents indicated they were willing to pay more tax to implement the urban forest strategy with $25/year being the most supported tax increase.

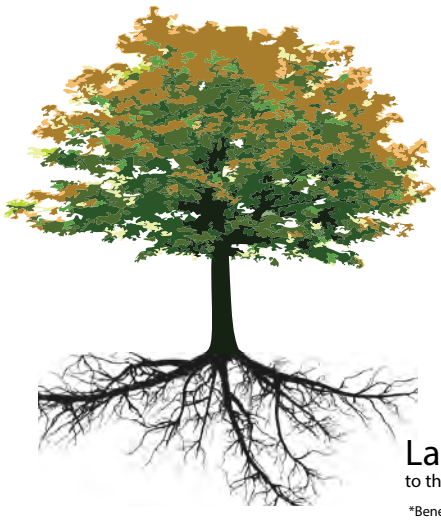
TABLE 1 Estimated budget implications based for implementing a tree maintenance program for City trees in Courtenay

Tree age class	Maintenance activity	Total trees in class	Est. annual budget impact
New and young[1]	Planting (285 new trees), watering, pruning	800	$140,000
Semi-mature and mature in pruning cycle (streets and manicured parks)	Proactive inspections and 5-year pruning cycle	2,700	$40,000
Semi-mature and mature in risk assessment zones (forest trees in trails/parks/facilities/road ends/buffer parks etc.)	Proactive and reactive risk assessment	3,000	$20,000
Stressed and overmature	Reactive health or risk management treatments	200	$30,000
Dead or high risk removals	Removal Stump grinding	50	$50,000
	Total annual budget estimate to maintain Courtenay's current inventory of trees		$280,000

1 Most of the cost associated with new and young trees is related to tree planting. Per tree planting cost vary depending on the location; for example street tree planting costs are higher than park planting due to the equipment, installations (e.g. roots barriers) and larger tree size required.

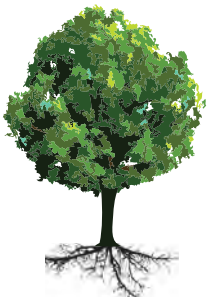
THE LARGE TREE ARGUMENT

Large, long-lived tree species provide many times the benefits of small tree species over a much longer timeframe when planted in the right place.



Large tree
60 cm scarlet oak
northeast side City Hall

$107 benefits/year*
>100 years
life expectancy



Small tree
30 cm yoshino cherry
northeast side City Hall

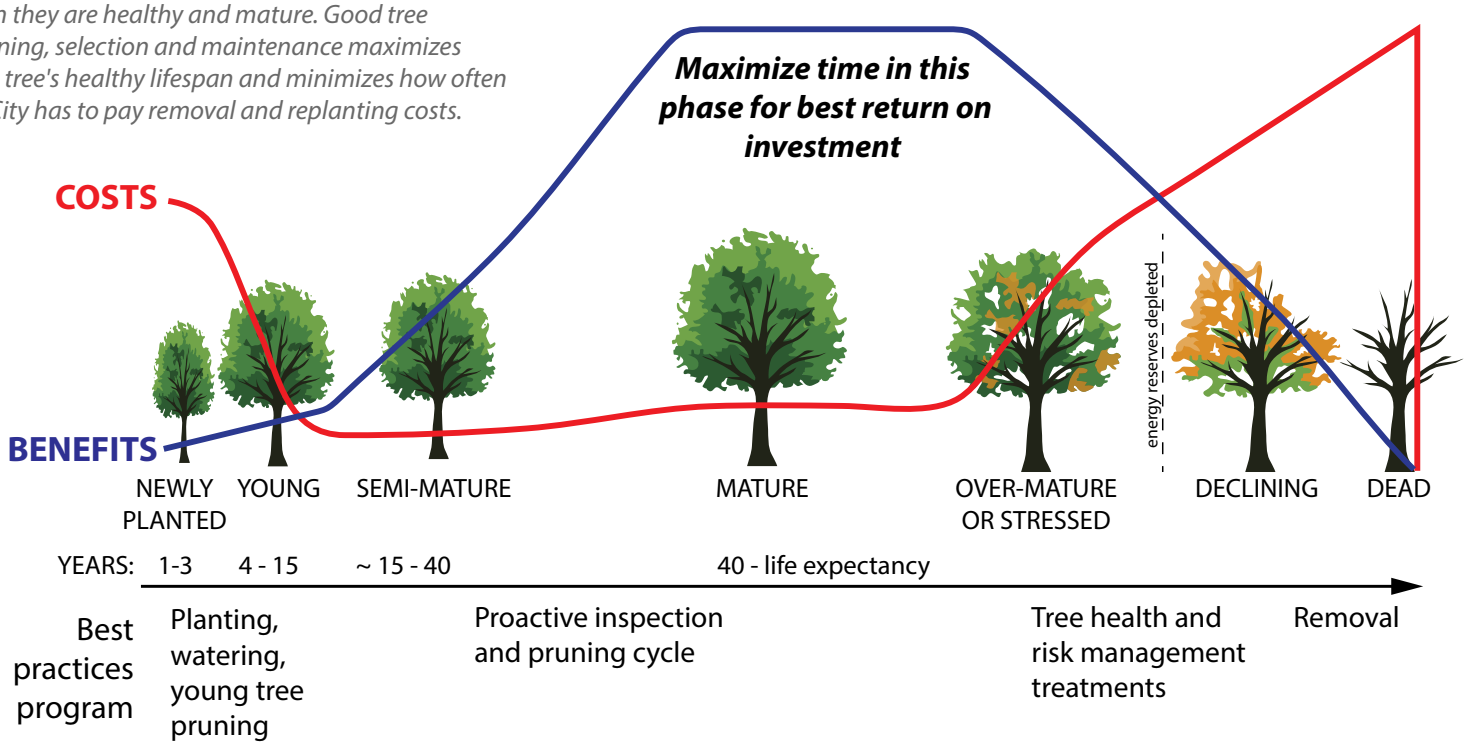
$27 benefits/year*
<40 years
life expectancy

Large tree species provide **many times the value** to the community compared to small trees over their lifetime.

*Benefits calculated using i-Tree Design https://design.itreetools.org/

LIFE-CYCLE COSTS

Trees cost the most at the start and end of their lives and produce the greatest benefits in the middle, when they are healthy and mature. Good tree planning, selection and maintenance maximizes each tree's healthy lifespan and minimizes how often the City has to pay removal and replanting costs.



A 2014 TD Economics report on the value of urban forests in Canadian cities found that, for every dollar spent on trees, the return in benefits was between $1.88 and $12.70 [19].

STREETSCAPE IMPROVEMENTS

Courtenay's streets presently average 9% canopy cover and have space to support more canopy. When surveyed, Courtenay respondents indicated that there is room to improve Courtenay's streetscapes, with the most preferred outcomes being:

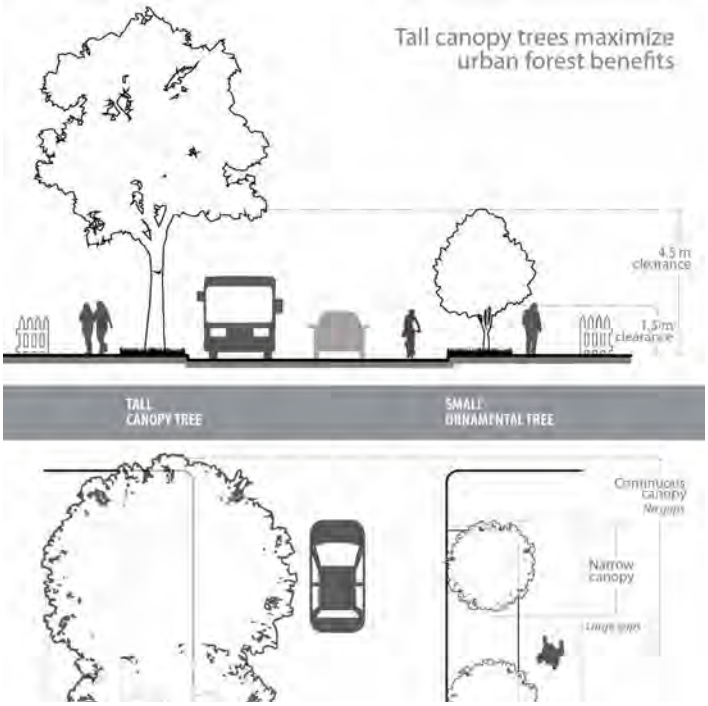
- Mixed native tree planting
- Regularly spaced medium or large trees

These preferences represent two distinct planting characters that would provide an appropriate contrast between streets in more urban parts of the city and those bordering natural forest. **Future local area planning processes are an opportunity to clearly define urban forest character at the neighbourhood scale.**

Courtenay has developed a vision for the future of downtown to revitalize the city's core and the plan includes incorporating trees into key streets. The City recently initiated a complete streets pilot project to upgrade 5th Street with new utilities, enhanced walking and cycling facilities, and improved stormwater facilities and vegetation. Unfortunately street trees could not be accommodated in the road improvements but the green infrastructure retrofit has shown a transformative impact on the streetscape. In the core downtown areas with large building coverage, street trees are often the only opportunity for greening.

"I own a business Downtown, and love the small trees but would love to see more green space, and to see those trees continue to be cared for and grow to create shade." - Survey

Retrofitting trees and stormwater infrastructure into streets is often a costly project. However, several potential funding sources are available to support green infrastructure projects. The federal government has been funding green infrastructure projects and climate innovation projects in municipalities. Another possibility is cost-sharing streetscape improvements with BIAs, such as in Toronto's Streetscape Improvement Program. Courtenay has recently established a Tree Planting and Replacement Reserve Fund, which will be used for planting trees within the City.



Large canopy trees create a comfortable pedestrian space, maintain horizontal sight lines and allow vertical clearance while maximizing the functional benefits from trees.

Duncan Avenue, looking north from 6th Street

Visualization of the street transformed with mature street trees

The Vancouver Island Health Authority's 'Healthy Built Environment Linkages Toolkit' [20] includes guidance to plant and place urban trees strategically to reduce energy use, air pollution and storm water runoff, improve pedestrian safety and to add to the aesthetic appeal for recreation and tourism.

PRIVATE YARDS

Private land holds 84% of Courtenay's canopy cover and approximately 88% of potential planting opportunities. The future of Courtenay's urban forest canopy will largely be determined by what happens in people's yards - both those of existing and new homes. **Implementing the urban forest strategy will be a shared effort combining the resources and governance of the City with residents' voluntary actions on public and private land.**

While it is a mandate of municipal governments to provide services for the public good (like maintaining trees in parks), not all homeowners may be willing to pay to maintain a private tree for the benefit of the broader community. Some communities have addressed this by providing rebates for tree maintenance. Others have provided free or subsidized trees. However, when surveyed, most Courtenay respondents indicated that they were willing to plant a tree on their own property and that a subsidy was not an incentive. Rather, respondents preferred to know what and where to plant to contribute to enhancing the urban forest.

In terms of where to plant a tree in a yard, the following guidelines are recommended:

- When planting near a building, preferentially place trees on the east- or west-facing sides to provide the greatest shading and energy conservation benefit.
- For shade, trees should ideally grow to at least 6 m tall and be planted at least 3 m away from the building foundation. Trees can be planted between 3 m and 18 m from buildings and still provide energy savings.
- For wind protection, plant groups of trees upwind from the building at least 2.5 tree heights away.
- If the yard is too small for a shade tree, then plant a small tree anywhere and select for desirable benefits such as fruit, nativeness, pollinator or bird friendliness.

When considering the size and type of tree to plant,

- Measure the size of the yard and consider the amount of soil available below ground, as well as how much room is available for the tree to grow above ground, and where it will cast shade.
- If possible, plant the tree far enough from the building that its branches will not touch the structure, although this can be managed with pruning.
  - Large trees grow taller than 15 m and generally spread 10-30 m depending on the species.
  - Medium trees grow 10-15 m tall and spread 7-12 m depending on the species.
  - Small trees grow to less than 10 m and generally have a spread of up to 8 m.
- Deciduous trees are often more suitable for shade trees in proximity to homes because they allow winter solar access, coniferous trees are often more suitable for windbreaks because of their dense evergreen canopies and, if native, also provide habitat value for native wildlife.
- The decision of what to plant should incorporate personal preference to ensure that the tree will be loved.
- A list of climate suitable small, medium and large trees is provided in Appendix 1.

Current neighbourhood street design standards do not require street trees on both sides of the street, and many existing properties do not have street trees. Private front yards provide the perfect opportunity to plant a tree that will provide street tree character.

"Leaving or removing trees on private land may have to be considered on a case by case scenario. Citizens own these trees and should have allowances on their property as to what they want to do with them. Danger trees need to come down, but if a tree isn't in the way then it should be left to provide bird habitat and everything else a tree does for

"The Fruit Tree Project is an interesting mix of private and public, in that people are sharing their private food resources for the public good. This is a really important model for long term food security in our community. Annual average harvests range between 25,000 – 40,000 lbs, picked by dozens of volunteers on over a hundred properties across the valley. That is a lot of capacity and food and we're always welcoming more people to get involved!"

– Maurita Prato, Executive Director, LUSH Valley

TREE PROTECTION AND DEVELOPMENT

Courtenay is a growing city, which recently has seen a marked increase in the rate of development. **New subdivisions typically occur in previously undeveloped 'greenfield' lands, that were once-forested.** As a result, building homes to support Courtenay's growing population often comes with a loss of forest canopy.

It is a reality of development, whether building new homes or replacing old homes, that there will be conflicts with trees in the landscape. In the case of forest stands, the trees have grown up in groups and often cannot be retained alone due to windthrow risks. In the case of individual trees, they typically have to be removed if they are too close to a building foundation or servicing because the cuts to their roots would cause them to become unstable.

Many developers and home builders have historically made voluntary efforts to either retain or replace trees in their developments. However, the City noted that tree retention was too often failing due to inadequate protection measures, and recently updated its Tree Protection Bylaw to address this and other urban forest objectives. The update focused on improving the standards for assessment of retention and removal decisions, measures for tree protection, and requiring replacement or retention to a standardized density of 50 trees per net developable hectare.

General outcomes that the City intends to achieve by regulating trees in the development process are to:

- Retain high value trees (based on size, specimen quality, species or their significance in the landscape) that will contribute to the quality of the future urban landscape.
- Retain significant groups of trees that provide connectivity of habitat, perform important ecosystem functions and will contribute to the quality and enjoyment of the future neighbourhood.
- Replace trees, when retention is not possible, with trees that will grow to contribute to a resilient urban forest and a beautiful neighbourhood.
- Apply regulation of tree retention and replacement fairly and consistently.

For a tree bylaw process to run smoothly, City staff, consulting arborists and developers need to work together to identify the best outcomes for retention and replacement in the context of each development. To inform the process, each participant has an important role to play:

- **City staff** need to clearly communicate the application process, information standards, and decision criteria staff use to approve retention, removal and replacement per the Council policy.
- **Developers** need to consider where high value or significant groups of trees exist on their properties when first developing their concept plan at the pre-application stage so that staff can provide early feedback to inform further development design.
- **Consulting arborists** need to provide accurate information on tree condition, location and the nature of conflicts to justify removal recommendations or protection measures.

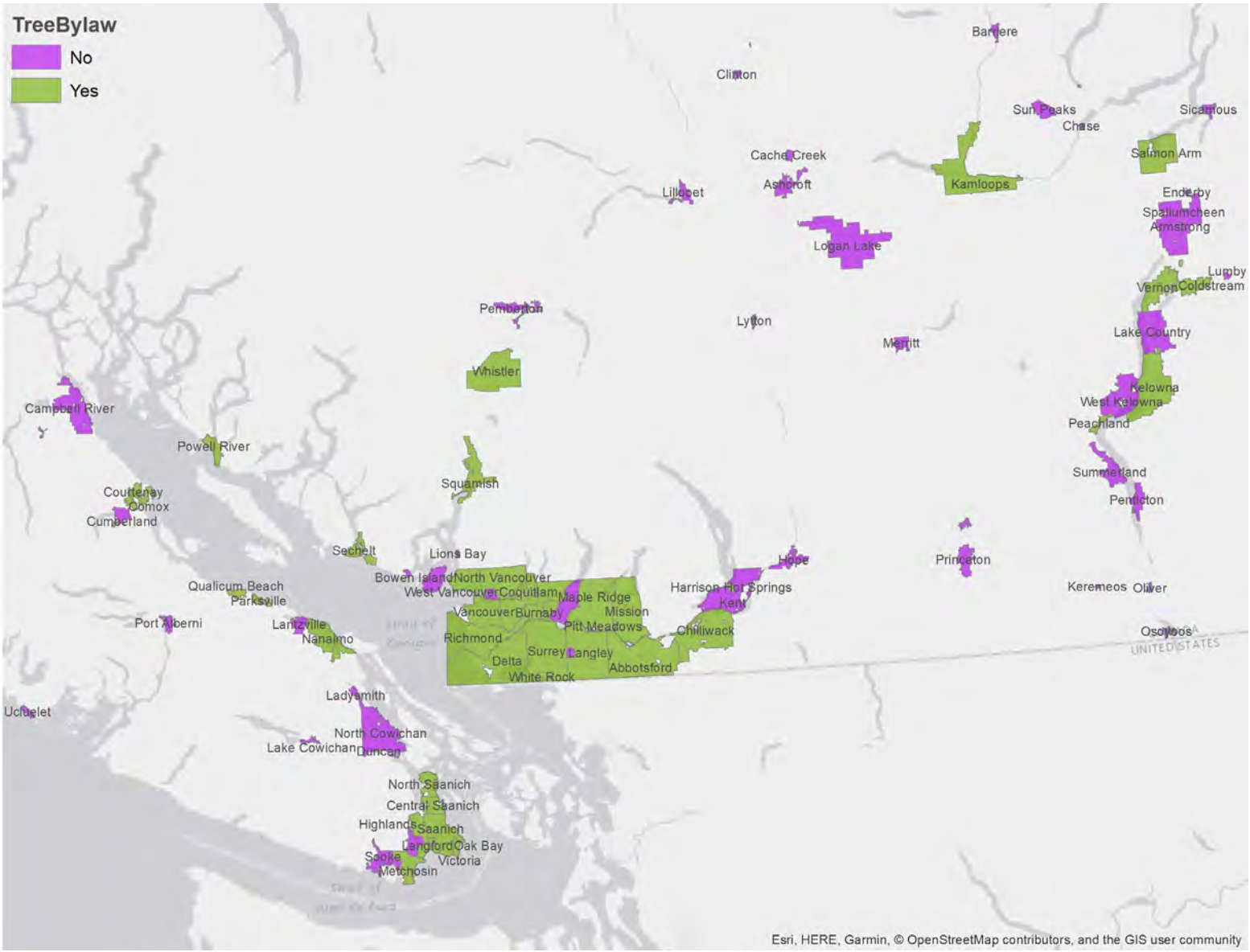
Recent engagement with arborists, developers and City staff highlighted several issues including:

- Retention of unsuitable or non-windfirm trees on some lots or park dedications.
- Inaccurate tree locations resulting in unplanned conflicts with protected trees at the time of building.
- Clarity and flexibility for development in making retention versus replacement decisions.
- Increased cost of the process to development.
- Identification of significant stands to be prioritized for protection.
- Lack of protection for large, mature trees or stands of trees (not already meeting the definition of protected trees) outside the development process.

The Strategy provides a number of recommendations to improve the Tree Bylaw, discussed in Section 6.

" Setting a number of trees is too arbitrary. When a development occurs trees have to be removed to put in services, roads, etc. It is not practical to create a plan to try and force developers to keep trees. There should be a tree replacement plan and that is all." -

"Developers should not be allowed to 'clear cut' a lot slated for development. I don't understand why they are permitted to cut down beautiful mature trees just to make it easier to develop, then plant little saplings that will take decades to look like real trees. I have seen this happen over and over again and it never fails to frustrate me." - Survey respondent



Based on a review of tree bylaws available online, 77% of municipalities Courtenay's size or larger have a private tree bylaw. Tree bylaws are increasingly common in BC municipalities as population densities increase.

STEWARDSHIP

Stewardship described here refers to activities undertaken by individuals and organizations to protect, monitor, restore and advocate for the natural environment whether on public or private land. Stewards include traditional environmental non-profits such as Land Trusts, Streamkeepers and naturalist organizations, and may include any individual working towards nature protection and enhancement goals on their own land no matter the size.

The Comox Valley is home to a highly engaged, organized and dedicated stewardship sector made up of dozens of individual organizations. In 2008 groups came together to form the Comox Valley Conservation Partnership (CVCP) after concern was raised that fewer than 5% of original regional sensitive ecosystems remained, and that there was no regional plan to prioritize and protect sensitive ecosystems. Since that time the CVCP has worked with their 25 member organizations to develop the regional strategy "Nature Without Borders" which is used as a guiding document by the private and public sector to understand nature conservation priorities for the region. These currently include: protecting our drinking water, eco-asset valuation and government policy and land use development practices.

The stewardship sector has initiated, secured capital and project managed a number of significant restoration activities within Courtenay's boundaries notably along the Courtenay River and K'ómoks Estuary, further enhancing their role as an active stakeholder in the health of the local environment. The K'ómoks First Nation has been a leading partner on a number of these initiatives and has valued perspective to share in advising on the stewardship of Courtenay's urban forest.

In the context of stewarding Courtenay's public urban forest, the City relies on the activities and expertise of the stewardship sector to help understand the ecology of municipal nature parks, identify restoration priorities, assist with restoration efforts, educate the public of the value of these public lands and secure funding for these activities. Routine stewardship activities within public nature parks includes ecological inventorying and monitoring, invasive species, rubbish and fire-fuel removal, native vegetation planting, informal trail decommissioning, creating content for interpretive signage and reaching out to adjacent land owners to educate on the negative impacts of dumping and encroaching into these areas. Further partnership opportunities include defining a more active management role for volunteers through the creation of individual nature park management plans.

The stewardship sector also currently plays, and has an opportunity to expand, an important role in advising private land owners of urban forest management opportunities. In support of this Strategy, the stewardship sector is well positioned to assist in leading, advising and monitoring tree planting initiatives, and provide educational tools to help build stewardship capacity within the general public.

In addition to nature stewardship, the Strategy also recognizes the value of stewardship in the cultivation of an urban food forest, for the purposes of supporting food security principles. Food security emerged as a common theme when survey respondents were asked to describe their vision for Courtenay's urban forest. With local leadership and capacity to build upon, a favorable climate and an engaged public, Courtenay has the potential to enhance the number of fruit and nut trees on private and even public land.

"I envision in 2050 areas with common food trees, fruit, nuts. Programs that support community use of the trees and share and teach to future generations" - Survey respondent

Image above shows the industrial site in its current condition. Image below shows adjacent protected Hollyhock Flats which is what the industrial site will restore to. Photo inset shows the Kus-kus-sum restoration vision from above.

Photos from Marine Side

Photo from Robert Lundquist

"The restoration of the Kus-kus-sum site will turn this industrial site into an ecological asset for the community and will help local salmon runs that have to migrate through the area. The site used to be a tidal forested wetland dominated by Sitka Spruce. These tidal forests are rare, and have been hit hard by shoreline development and industrial activities, yet they form significant habitat for salmon. Restoring this area to a forested wetland will provide green infrastructure that will support fish by providing shade, food (overhanging branches feed bugs and other nutrients into the water below) and hiding places from predators. The trees will also provide habitat for other wildlife, improve water and air quality, provide some flood attenuation, and provide recreational opportunities for the public."

- Jennifer Sutherst, Project Watershed Biologist

6 GOALS, STRATEGIES AND ACTIONS

The purpose of Courtenay's Urban Forest Strategy is to provide strategy to achieve the community vision:

Courtenay residents envision a future urban forest that is more extensive than today, is connected and accessible, maintains mature trees and ecosystem services, is comprised of a sustainable mix of ages and locally adapted species, and is used as a design treatment to reduce the prevalence of pavement in commercial areas, create neighbourhood distinction and canopy streets on key routes.

A canopy cover target of 34-40% distributed throughout Courtenay will inform the refinement of policies and actions to achieve this Vision, as the urban forest changes to accommodate development, climate change and through the natural life span of trees.

URBAN FOREST GOALS

Plan strategically to inform and monitor land use changes on the urban forest and integrate into public asset management

Manage proactively to enhance urban forest health, safety and resilience by managing alongside other infrastructure goals

Protect prudently to maintain the quality and connectedness of the urban forest

Grow intentionally to provide urban forest benefits when and where they are needed

Partner effectively to share stewardship and promote appreciation for the urban forest

To achieve each goal, a set of strategies and supporting actions have been defined. These are provided in the following Sections. The estimated timeframe and cost for implementation is provided in the next Section.

URBAN FOREST INDICATORS

Urban forest indicators have been established under each goal to enable measurement of Courtenay's implementation performance. These indicators have been adapted from the urban forest sustainability model first proposed by Clark et al. in 1997 [12] and recently updated in Leff, 2016 [9]. In some cases, indicators have been modified to better meet Courtenay's urban forest context and program goals.

Each indicator is further described by its key objective, its optimal condition rating, and the current rating for Courtenay.

Optimal conditions provide a benchmark to strive towards but are not a commitment by the City, or any stakeholder, to achieve that rating. As the actions section of the Strategy notes, most actions will require further study to understand what level of service is achievable and what condition rating the City will ultimately strive for.

URBAN FOREST TARGETS

Targets

- **34-40% canopy cover**
- **100-120 trees per hectare per block**
- **No more than 5% of any single species and no more than 15% of any genus for City trees**
- **Useful life expectancy >30 years in 90% of the tree population**
- **Young tree mortality <3.5% for City trees**
- **90% of species in the inventory are suitable for future climate**

Art work by Sofie Skapski

PLAN – INDICATORS

INDICATORS	Low	Fair	Good	Optimal
1. Appreciation of trees as a community resource			●	

a. Key objective: Courtenay's urban forest is recognized as vital to the community's environmental, social, and economic well-being.

b. We have achieved this when: Stakeholders understand, appreciate, and advocate for the urban forest as a community resource. There is widespread public and political support and advocacy for trees, resulting in strong policies and plans that advance the viability and sustainability of the urban forest.

c. **How we rate now**: Good. Trees are widely acknowledged as providing environmental, social and economic services – resulting in some action or advocacy in support of the urban forest.

2. Clear and defensible urban tree canopy assessment and goals			●	

a. **Key objective:** Urban forest policy and practice is driven by comprehensive goals municipality-wide and at the neighbourhood or land use scale informed by accurate, high-resolution assessments of existing and potential canopy cover.

b. **We have achieved this when:** The City has a complete, detailed, and spatially explicit high-resolution Urban Tree Canopy (UTC) assessment accompanied by a comprehensive set of goals by neighbourhood and land use.

c. **How we rate now:** Good. The City has a complete City-wide, detailed, and spatially explicit high-resolution UTC baseline assessment, but not yet for the neighbourhood or land use scale.

3. Trees on private property			●	

a. **Key objective:** Understand the extent, location and general condition of privately owned trees.

b. **We have achieved this when:** The City has a sample-based assessment of trees on private property, as well as detailed Urban Tree Canopy analysis of the entire urban forest integrated into a municipality-wide GIS system.

c. **How we rate now**: Good. LIDAR-based assessment of individual trees on private property.

4. Green infrastructure asset management integration		●		

a. **Key objective:** Integrate green infrastructure asset value into the municipal asset management system to support valuing and accounting for natural assets in the City's financial planning to build a climate resilient infrastructure.

b. We have achieved this when: The City recognizes and accounts for the value of natural forms and functions within an asset management system and invests in green infrastructure protection and enhancement.

c. **How we rate now**: Fair. The City recognizes the value of natural forms and functions but does not yet have adequate information to value green infrastructure as a municipal asset. This is a current work in progress.

5. Wildfire planning		●		

a. **Key objective:** Proactively manage forest fire risk.

b. We have achieved this when: A wildfire protection plan is in place and implemented along with FireSmart development guidelines .

c. **How we rate now**: Fair. Open burning regulations in place, online guidance on fire danger and high risk activities.

6. Interdepartmental and interagency cooperation		●		

a. **Key objective:** Ensure all relevant municipal departments and agencies cooperate to advance goals related to urban forest issues and opportunities.

b. We have achieved this when: Municipal urban forest policy is implemented by formal inter-departmental and inter-agency working teams on all municipal projects.

c. **How we rate now**: Fair. Municipal departments, affected agencies and urban forest managers recognize potential conflicts and reach out to each other on an ad hoc basis.

7. Urban forest funding to implement the plan		●		

a. **Key objective:** Maintain adequate funding to implement the urban forest strategy.

b. We have achieved this when: There is sustained public and private funding to comprehensively implement the strategy.

c. **How we rate now**: Fair. Resourcing for public lands in the form of a dedicated staff, equipment and tree-care specific funds are provided for some proactive management, all of which has been enhanced significantly in the past few years. However, a dedicated budget is required for tree management.

PLAN – ACTIONS

1. On public lands, formalize urban forest asset management and protection in City corporate policies and systems

1a. Adopt a Council-approved City Tree Asset Management Policy to guide City tree protection, removal, replacement and level of service expectations and decisions.

1b. Utilize the Policy to inform the creation of a City Tree Operations Manual to guide staff decisions and respond to public inquiries regarding public trees. This action item discussed in more detail in the Manage section.

2. Set neighbourhood tree canopy and character goals in consultation with the community to refine expectations and specificity regarding protection, character and function of the urban forest

2a. Establish neighbourhood planning units across the City through the next OCP review process. Use these planning units when creating Local Area Plans.

2b. Whenever conducting Local Area Plans, ensure UFS goals are discussed alongside other community planning goals, using a standardized framework. The framework would include, but not be limited to: setting a neighbourhood specific canopy cover target; identifying key streets and other transportation routes eligible for enhanced canopy and green infrastructure rainwater treatments that support trees; neighbourhood planting character goals; street naming conventions to reflect ecological or cultural heritage; identifying specific locations for tree planting or replacement; identifying significant trees or stands of trees; and UBC developed Climate Action Coolkit.

2c. Set street tree character goals along key transportation routes in conjunction with neighbourhood planning, and community servicing study updates

3. Identify and proactively manage forest fire risk

3a. Once available, work with the Comox Valley Regional District to investigate opportunities to support the CVRD-KFN Community Wildfire Protection Plan with regards to Courtenay.

3b. Apply for UBCM funding to support municipal Fire Smart planning for the City which could include defining risk and risk mitigation including fuel treatments on public land, FireSmart standards, training, education and suppression resources.

3c. Within the next OCP review, consider implementing a Wildfire Development Permit Area for development within or adjacent to the wildland forest edge to require new construction and landscaping to meet FireSmart standards.

4. Regularly update urban forest data and key planning and policy documents to respond to changes in land use and technology

4a. Collect aerial LiDAR imagery every 5 years to detect canopy cover changes and remeasure tree density by neighbourhood. Ensure LiDAR data is classified into different data types (e.g. bare earth, vegetation, building, etc.).

4b. Research cost estimates of arborist reports and memos, tree protection installation and arborist supervision to enable City staff to quantify the cost impact of tree protection on development.

4c. Review and update the UFS Implementation Plan as close to 10 years as possible using the monitoring information identified above.

4d. When conducting comprehensive OCP reviews, ensure that the most currently available information regarding canopy cover, sensitive ecosystem inventories, connectivity analysis and invasive species inventories are included to inform long range land use decisions and Development Permit guidelines.

4e. Provide updates to Council and the public every two years on the implementation progress of the UFS and any pertinent new information available.

5. Actively pursue funds and respond to partnership requests to support the UFS

5a. Use the Tree Replacement Reserve Fund contributions, pursue grants, partnerships and allocate dedicated Council funding.

5b. Consider developing a policy for Municipal Ticket fines and financial outcomes of enforcement negotiations and prosecutions to be dedicated to initiatives such as the Tree Replacement Reserve Fund.

5c. Consider amending the application of Tree Replacement Reserve Funding to address required UFS needs, as monitored over time. Currently the program designation is for the planting of trees on public lands or on private lands in accordance with a program created to provide tree planting incentives to private land owners. For example, explore whether tree management could be an eligible use of funds.

6. Amend the Tree Bylaw, as needed, to respond to community wide urban forest information

6a. Expected amendment cycles include following Urban Forest Strategy plan updates, in coordination with Official Community Plan updates or in response to canopy cover monitoring information.

MANAGE – INDICATORS

INDICATORS	Low	Fair	Good	Optimal
1. City tree inventory			●	

a. **Key objective:** A current and comprehensive inventory of intensively managed trees to guide management, including data such as age distribution, species mix, tree condition and risk assessment.

b. **We have achieved this when:** The City tree inventory is complete, is GIS-based, supported by mapping and includes detailed tree condition as well as risk ratings.

c. **How we rate now:** Good. Significant improvements over 2017 status. The street tree inventory is accurate, GIS compatible and includes detailed tree condition ratings.

2. Maintenance of City owned streets and park trees			●	

a. **Key objective:** Maintain all publicly owned intensively managed trees for optimal health and condition in order to extend longevity and maximize current and future benefits.

b. **We have achieved this when:** All publicly owned, intensively managed trees are routinely maintained on an ongoing basis according to level of service expectations.

c. **How we rate now:** Good. Significant improvements over 2017 practices. Publicly owned trees are inspected regularly and street trees are proactively maintained on a 5 year cycle.

3. City tree risk management			●	

a. **Key objective:** Fully implement a comprehensive tree risk management program according to ANSI A300 (Part9) "Tree Risk Assessment" standards, and supporting industry best management practices.

b. **We have achieved this when:** Risk management is integrated with the routine pruning cycle, the level of assessment and response is reasonable to meet the duty of care (i.e., priorities and timelines for mitigation are established based on the characterization of risk).

c. **How we rate now:** Good. Risk inspections are conducted periodically, resulting in scheduled follow-ups or more advanced assessments when needed but the program is newly initiated and not yet integrated with a routine pruning cycle.

4. Storm response		●		

a. **Key objective:** A response plan guides call-out procedures, resources available and the clean-up response.

b. **We have achieved this when:** An action plan for responding to storm damage is in place and a response drill occurs periodically.

c. **How we rate now:** Fair. A call-out procedure, roles and responsibilities, and criteria for prioritizing tree hazards and removing debris is in place, but there is need for further development in this area.

5. Pest and disease management			●	

a. **Key objective:** An Integrated Pest Management (IMP) plan guides treatment responses to existing and potential pest threats to the urban forest.

b. **We have achieved this when:** An integrated pest management plan is in place and is implemented.

c. **How we rate now:** Good. No integrated pest management plan but IMP is practiced.

6. Urban wood and green waste revitalization		●		

a. **Key objective:** A closed system diverts all urban wood and green waste through reuse and recycling.

b. We have achieved this when: All green waste is diverted to its best use.

c. **How we rate now**: Fair. While most green waste does not go to the landfill, uses are limited to chips or mulch.

7. Usage of publicly owned natural areas		●		

a. **Key objective:** Management levels of service are informed by a detailed understanding of the ecological structure and function of all publicly owned natural areas as well as usage patterns.

b. We have achieved this when: In addition to usage patterns, ecological structure and function of all publicly owned natural areas are assessed and documented.

c. **How we rate now**: Fair. Publicly owned natural areas are identified in a plan (e.g. the Parks and Recreation Plan).

MANAGE – ACTIONS

7. Develop a City Tree Operations Manual to formalize urban forest asset management and protection in City corporate policies and systems

7a. The Operations Manual will guide staff and arboriculture contractors (where relevant) in the following topic modules, which are currently under development:

i. Planning and Design (pre-planting): define strategic priorities for planning the urban forest by spatial area and specific typologies. In addition, this will cover authority to plant, planting design, species selection and stock quality and diversity standards.

ii. Planting: include cover bulk soil management and soil volume standards, technical standards for planting trees in streets, parks rainwater facilities, and notification and engagement.

iii. Management and Plant Health Care: include tree protection, watering, pruning, integrated pest management, prevention and management of infrastructure conflicts and notification. Include liaison with Canadian Food Inspection Agency's Plan Pest Surveillance Unit.

iv. Inventory, Inspection and Emergency Response: covers the inventory and work management system, inspection policy for risk management and emergency response including personnel responsibilities, resources available and clean-up priorities.

v. Succession Planning and Removal Management: define strategic priorities for succession management, authority to remove, poorly performing trees, development/capital works related removals, notification and engagement, re-use tree waste.

vi. Monitoring and Adaptive Management: cover how key metrics at the City tree level and public urban forest level will be monitored and include recommendations for adaptive management, including resourcing, to continuously improve implementation.

7b. Priority implementation items to explore for inclusion in the City Tree Operations Manual include:

i. A tree watering protocol or program for trees within 1-3 years of planting, and for older trees as needed.

ii. Continue to transition from demand risk management and tree maintenance to a preventative program. Define zones for inspection cycles, define frequency, inspection methods, assessor qualifications, responsibilities and documentation, as well as a rating system to prioritize and complete corrective action within a timeframe to meet a reasonable standard of care.

iii. Develop a system for evaluating and prioritizing demand maintenance and removal requests within defined level of service expectations.

7c. Develop management plans for unmanaged parkland dedications in partnership with community stewardship groups.

8. Continue to regularly collect information to populate the city tree asset management system

8a. Inventory trees and vacant planting sites with the maintenance cycle.

8b. Value, life expectancy, maintenance and replacement costs of City Tree assets.

8c. Mortality rates, failure rates, pest incidence and causality in City trees.

8d. Research opportunities to account for public tree carbon storage and sequestration in corporate climate action GHG reporting.

9. Use information from the asset management system to inform resourcing requirements, including human resources, for the desired level of service

9a. Provide dedicated capital and operational budgets for urban forestry to meet the desired level of service defined in the City Tree Asset Management Policy and supported by the City Tree Operations Manual, with emphasis on the first 5 years to transition to preventative maintenance and risk management programs. The 5-year work-plan shall include staffing, equipment, budget requirements and a review of investment to inform future budgets.

9b. Maintain regular staff training, participation in industry workshops and conferences, and industry standard certifications.

10. Establish forums for interdepartmental, interjurisdictional and interagency communication to continuously improve tree management protocols and clarify tree management expectations across public and private lands

10a. Hold annual interdepartmental staff workshops focused on: upcoming and current capital projects; on-the-ground activities around City trees; and design or planning projects involving City trees to identify recurring tree conflicts, quality issues and innovative solutions. Include utilities and contract labour when appropriate.

10b. Include all staff who interact with tree management in their course of work. For example, planning staff who administer the Tree Bylaw in order to build tree literacy for more helpful Bylaw administration.

PROTECT – INDICATORS

INDICATORS	Low	Fair	Good	Optimal
1. Tree protection, policy development and enforcement			●	

a. **Key objective:** Secure the benefits derived from trees on public and private land by enforcement of municipality-wide policies and practices including tree protection.

b. **We have achieved this when:** Municipality-wide policies and practices are integrated to protect public and priority private trees, and the policies are consistently enforced.

c. **How we rate now:** Good. Policies and practices are in place to protect public and private trees, and are generally enforced.

2. Publicly-owned natural areas management planning and implementation			●	

a. **Key objective:** Acquire and restore publicly-owned natural areas in pursuit of meeting municipal-wide biodiversity and connectivity goals.

b. **We have achieved this when:** A biodiversity strategy, or equivalent, is in effect to manage, restore existing natural areas and acquire future natural areas network throughout the municipality.

c. **How we rate now:** Approaching Good. The Parks and Recreation Plan is adopted. Parks/area specific plans will be created.

3. Privately-owned environmentally sensitive areas protection policy and enforcement			●	

a. **Key objective:** Secure the benefits derived from environmentally sensitive areas by enforcement of municipality-wide policies in pursuit of meeting biodiversity and connectivity goals.

b. **We have achieved this when:** Policy and enforcement are in place to protect environmentally sensitive areas on private land.

c. **How we rate now:** Good. Policy is in place to protect privately-owned identified environmentally sensitive areas, but enforcement powers are limited.

PROTECT – ACTIONS

11. Prioritize protection of significant trees and forest stands on both public and private land

11a. Consider expanding the definition of "Protected Tree" to include trees with a single stem exceeding 60cm DBH, and update Section 5.3 of the Tree Bylaw to include a permit requirement for these trees.

11b. Explore designating western redcedar as a protected species, given its vulnerability to climate change.

11c. Consider options, such as land acquisition or regulation, to enhance protection of Significant Stands and Corridors (see pages 44 and 46) on private property.

11d. Set targets for protecting key habitat patches, Significant Stands and Corridors in the OCP review

11e. Develop soil preservation guidelines to encourage retention or storage of native soils for use on development sites.

11f. Meet an equivalent standard for tree protection, removal and replacement on City projects to that required on private land, and incorporate Local Area Plan urban forest priorities.

11g. Where significant trees on City property cannot be retained, explore the opportunity to memorialize the removed tree by milling specialty timber for use in other City projects.

11h. Target a permanent protection solution for the Garry Oak ecosystems in the vicinity of G.P. Vanier Secondary School and Vanier park.

11i. Explore development incentives such as density bonusing and amenity contribution policy to protect Significant Stands and Corridors in the OCP and Zoning Bylaw review.

12. Refine understanding of the linkages between changes to hydrology and forest patches through land development

12a. Explore how to maintain hydrological pathways to retained forest patches through management initiatives or bylaw changes affecting rainwater infrastructure.

12b. Require that calculations for stormwater management plans for new development utilize runoff coefficients that incorporate the historical land cover value for up to 25 years.

13. Review the Tree Bylaw to consider possible amendments that enhance interpretation and tree protection outcomes

13a. On greenfield properties where forest cluster or corridor configurations may be possible but are not proposed, require a design rationale for why such configurations are not possible.

13b. Require a tree survey by a BC Land Surveyor for any trees that are proposed to be retained in order to accurately inform the arborist's tree inventory report and tree protection requirements.

13c. Require a CAD (Computer-aided design) drawing Tree Protection and Removal Plan that accurately maps the tree survey, site plan, trees to be removed and retained, protection fencing and annotations for arborist supervision.

13d. Consistently apply arborist monitoring requirements as follows:

i. Prior to tree cutting permit issuance, require arborists to submit a comfort letter outlining work near trees that needs to be supervised and ensure it is signed by the arborist and owner, and accepted by the City.

ii. Require an arborist memo be submitted to confirm tree protection fences are field constructed to the required standard. Such memos shall be submitted prior to construction drawing approval, issuance of building permit on any property that has a retained tree, and at time of or immediately following adjacent tree removal for greenfield tree removals.

iii. Regardless of the size of the property, require a final arborist memo at the conclusion of all development activities adjacent to retained trees, confirming that protection measures were properly implemented as a condition of releasing securities.

13e. Limit the number of tree security releases per project.

13f. Clarify hazard tree replacement requirements.

13g. Require TRAQ (Tree Risk Assessor Qualification) Certification for arborists submitting any tree risk assessment.

13h. Require Registered Professional Forester status for windfirm boundary assessments when cutting into a forest stand.

13i. Update Section 12.1 such that a permit may be refused if "the proposed work would adversely impact a protected tree, and alternatives to tree preservation have not been explored to the satisfaction of the Director."

13j. Update Section 10.1(c) (tree replacement within Environmentally Sensitive Areas) to require that replacement ratios follow Provincial Planting Criteria.

13k. Create a tree cutting permit fee for small-scale removal on greenfield properties.

13l. Require that tree replacement security requests occur during active growing season in order to best determine health of the tree.

13m. Allow Tree Bylaw Tree Density Target requirements to be achieved on trail connection lands designated as "highway".

14. Improve the quality of park assets inherited through development

14a. In support of Parks and Recreation master planning:

i. Locate community parks next to natural areas where synergies will benefit users.

ii. Include and protect existing trees within parks where possible.

14b. Review development design and procedural guidelines for parkland dedications to improve retention of windfirm groups of trees, maintenance efficiency, fire suppression access and amenity value.

i. Determine minimum greenway corridor widths, and develop nature trail specifications, to protect retained forest stands adequately. Ensure that corridor widths reflect that 3m trails include a minimum of a 5m zone of impact and therefore 10m corridors allow for very minimal mature tree retention, unless adjacent lands contain forest values that are protected.

ii. Require invasive species, high risk trees, windthrow risk and fuel hazard mitigation prior to acceptance of new park land.

iii. Require a tree asset management plan from the applicant's arborist upon park dedication in order to incorporate management needs into the City's Asset Management inventory and resourcing framework. The plan shall include at minimum: a description of the tree assets, estimated age and composition, identified risks, potential impacts from changes in adjacent land use (e.g., hydrology), management recommendations and timeframe.

iv. Adopt a City review and inspection procedure involving public works staff to ensure that incoming park tree assets are selected carefully and treated sensitively during all phases of development from adjacent land clearing to park dedication.

15. Consider the creation of a tree heritage registry or significant tree list within the Tree Bylaw in order to protect individual trees of community significance

15a. Use local area planning processes as the opportunity to create the heritage/ significant tree list.

15b. Allow for trees of significant scientific, cultural or landscape visual value to be included.

GROW – INDICATORS

INDICATORS	Low	Fair	Good	Optimal
1. Tree establishment and replacement planting		●		

a. **Key objective:** Develop a comprehensive and effective tree planting and establishment program that is driven by canopy cover goals and other considerations according to the UFS.

b. **We have achieved this when:** Tree planting and replacement is guided by strategic priorities and makes progress towards targets set for canopy cover, diversity and tree health.

c. **How we rate now:** Fair. Some tree planting and replacement occurs, but with limited overall municipality-wide planning and post planting care.

2. Planting design guidance, site specifications and standards		●		

a. **Key objective:** Ensure all publicly owned trees are suitable for the site and planted into conditions that meet requirements for survival and maximize current and future tree benefits.

b. **We have achieved this when:** All trees planted are in sites with adequate soil quality and quantity, and with sufficient growing space and over all site conditions to achieve their genetic potential and thus provide maximum ecosystem services.

c. **How we rate now:** Fair. Appropriate tree species are considered in site selection.

3. Equity in planting program delivery	●			

a. **Key objective:** Ensure that the benefits of urban forests are made available to all, especially to those in greatest need of tree benefits.

b. **We have achieved this when:** Equitable planting and outreach at the neighbourhood level are guided by strong citizen engagement in identified low-canopy/high-need areas.

c. **How we rate now:** Low. Tree planting and outreach are not determined equitably by canopy cover or need for benefits.

4. Native vegetation planting			●	

a. **Key objective:** Encourage the appreciation of native vegetation by the community and ensure native species are widely planted to enhance native biodiversity and connectivity

b. **We have achieved this when:** Policies require the use of native species and management of invasive species on a project-appropriate basis, in public and private land development projects, and native species are commonly voluntarily used.

c. **How we rate now:** Good. Policies require the use of native species and management of invasive species on a project-appropriate basis.

5. Green infrastructure for stormwater management		●		

a. **Key objective:** Incorporate passive and active rainwater capture into streetscapes and development projects to improve tree health, stormwater management and green and blue community-wide connectivity.

b. **We have achieved this when:** Stormwater management guidelines incorporate passive and active water capture[1] considerations for vegetated landscapes and are equivalent to regional best practices standards.

c. **How we rate now:** Fair. Passive and active water capture considerations for vegetated landscapes are occasionally incorporated into City or private land development projects.

6. Building energy efficiency	●			

a. **Key objective:** Use trees and vegetation to improve building energy efficiency.

b. **We have achieved this when:** Energy Conservation Development Permit Area Guidelines (Local Government Act S.488 (1)(h)) are established based on equivalent regional climatic best practices standards and include the valuation/calculation of avoided emissions.

c. **How we rate now:** Low. Landscapes are planted, and new developments designed, without consideration for the location for building energy efficiency.

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1 **Passive rainwater capture systems** receive and hold water to gradually infiltrate it into surrounding soil. These systems do not have any mechanical components. For example, a vegetated swale by the side of the road or pervious paving that receive rainfall and allow it to permeate from the surface into the surrounding soil.
Active rainwater capture systems actively collect, filter, store and reuse water. These systems generally include mechanical components such as pumps or filters that require electricity and require ongoing maintenance. For example, a biofiltration rain garden that filters road runoff into a below ground cistern used to irrigate landscapes.

GROW – ACTIONS

16. Improve the quality of new tree planting in the public and private realm

16a. Develop design guidelines and species selection criteria to guide planting on public land and private development projects. Guidance should cover downtown streets and other street types, parking lots, narrow yards and planting beds, aerial servicing and property lines. Ensure climate adaptability and fire resistance are factored in.

16b. Update streetscape standards and details for City infrastructure (e.g. boulevards, tree pits, soil trenches, soil cells, structural soil, etc.) to incorporate street trees with stormwater management options in targeted areas. As guidance, minimum single/shared soil volume targets recommended are: 10m3/5m3 for small trees, 25m3/15m3 for medium trees and 50m3/30m3 for large trees. Soil volume can be met in the tree pit or by providing root bridges to adjacent soil areas.

16c. Develop soil investigation protocols and remediation standards for new and failing planting locations.

16d. In the next Zoning Bylaw review, and as part of neighbourhood consultations, consider limiting the area of paved surfaces within certain zones.

17. Increase the quantity of new tree planting in the public and private realm

17a. Plant 300 trees per year on public land (in addition to replacement and restoration plantings) and work with residents to plant approximately 850 trees per year on private land.

17b. Within the next OCP review explore Development Permit Areas for the establishment of objectives to promote energy and water conservation and the reduction of greenhouse gas emissions, in order to utilize tree planting and landscaping to support these goals (S.488 (1) (h)(i) & (j) of the Local Government Act). Details to explore include standards for tree canopy, permeable cover and extent, green infrastructure such as raingardens, soil volume and quality with emphasis on adequate tree canopy in parking lots, along publicly fronting streets, and property perimeters.

17c. Within the next OCP review, clarify that landscaping targets shall achieve the Tree Bylaw Tree Density Target for Development Permit Areas that may set stipulations on landscaping. For infill properties (as defined by the Tree Bylaw), that require such a Development Permit, the Tree Density Target shall be achieved through retention wherever possible.

17d. Within the next Specifications and Standards Bylaw update, include specifications to support larger canopied trees, and on both sides of the street in identified key transportation character routes. This will require increased soil volumes and spacing depending on size of tree (e.g. 6-9m for small trees, 8-12m for medium trees and 10-20m for large trees).

18. Plan and prioritize tree planting where it will most benefit community and ecological health, and support other City strategies

18a. Prioritize tree planting in the public and private realm through the Local Area Plan process and using metrics on street tree density, block tree density, canopy and impervious cover. Additional context should be provided Environmentally Sensitive Areas, Significant Stands and Corridors, transportation character routes, heritage and Integrated Rainwater Management watershed restoration locations.

18b. Prioritize street tree improvements when downtown streets are scheduled for capital improvements towards implementation of the Downtown Playbook vision.

18c. When planting in or adjacent to significant stands or corridors prioritize the use of ecologically appropriate native species.

19. Support local food security through the urban forest

19a. Establish a community orchard on public land as a food security demonstration project provided that adequate community partnership support is available.

19b. Explore opportunities for fruit and nut trees in the public realm where there is demand from the community.

PARTNER – INDICATORS

INDICATORS	Low	Fair	Good	Optimal
1. Citizen involvement and neighbourhood action		●		

a. **Key objective:** Citizens and groups participate and collaborate at the neighbourhood level with the municipality and/or its partnering NGOs in urban forest management activities to advance municipality-wide plans.

b. **We have achieved this when:** Proactive outreach and coordination efforts by the City and NGO partners result in widespread citizen involvement and collaboration among active neighbourhood groups engaged in urban forest management.

c. **How we rate now:** Fair. Some active neighbourhood groups engaged in advancing urban forest goals, but with little or no overall coordination with or direction by municipality or its partnering NGOs.

2. Involvement of large private and institutional landholders	●			

a. **Key objective:** Large private landholders to embrace and advance city-wide urban forest goals and objectives by implementing specific resource management plans.

b. **We have achieved this when:** Large landholders develop comprehensive tree management plans (including funding strategies) that advance UFS goals, and there is active community engagement and access to the property's forest resource.

c. **How we rate now:** Low. Large private landholders are generally uninformed about urban forest issues and opportunities.

3. Green industry<?> cooperation		●		

a. **Key objective:** Green industry works together to advance city-wide urban forest goals and objectives, and adheres to high professional standards.

b. **We have achieved this when:** There is a shared vision, goals and extensive committed partnerships in place as well as solid adherence to high professional standards.

c. **How we rate now:** Fair. There is some cooperation among green industry as well as general awareness and acceptance of city-wide goals and objectives.

4. Utilities cooperation	●			

a. **Key objective:** All utilities – above and below ground, City and 3rd party – employ best management practices and cooperate with the City to advance goals and objectives related to urban forest issues and opportunities.

b. **We have achieved this when:** Utilities support engineered solutions to accommodate trees and utilities, and participate in formal interdepartmental/interagency working teams on all municipal projects.

c. **How we rate now:** Low. Utilities take actions impacting the urban forest with varying degrees of municipal coordination or consideration of the urban forest. Notifications from some 3rd parties occur, although best management pruning practices are not always followed. Coordination internally on utilities maintenance could be improved.

5. Regional collaboration	●			

a. **Key objective:** There is cooperation and interaction on urban forest plans among neighbouring municipalities within the region, and/or within regional agencies.

b. **We have achieved this when:** There is widespread regional cooperation, including with relevant authorities such as the health authority , resulting in development and implementation of a regional Urban Forest Strategy.

c. **How we rate now:** Low. Municipalities have no interaction with each other or the broader region for planning or coordination on urban forestry.

6. Urban forest research	●			

a. **Key objective:** Research is active and ongoing towards improving our understanding of the urban forest resource, the benefits it produces, and the impacts of planning, policy, design and management initiatives.

b. **We have achieved this when:** The urban forest is a living laboratory - in collaboration with public, private, NGO and academic institutions - integrating research and innovation into urban forest management.

c. **How we rate now:** Low. No urban forest research is currently occurring.

PARTNER – ACTIONS

20. Work together with K'ómoks First Nation and community groups to steward the City's urban forest

20a. Work together with K'ómoks First Nation to identify culturally appropriate stewardship activities and opportunities for public land.

20b. Develop a volunteer strategy to include objectives and guidance for community urban forest stewardship. Volunteer activities could include, but not be limited to: tree or understory restoration planting, invasive species removal, stewardship education, citizen science projects and basic tree health monitoring, subject to training.

20c. Actively respond to requests for partnership, recognizing that the City has limited resources to implement the urban forest strategy.

21. Develop a Communications Strategy to effectively share the story of the urban forest and engage the community in managing public and private trees

21a. The Communication Strategy shall serve as a long term marketing and education tool and shall seek to identify the values of the urban forest, promote urban forest supportive behaviours, clarify regulatory expectations and celebrate the role of the stewardship sector in promoting and being an active stakeholder in the UFS.

i. Key behaviours that the Communication Strategy shall promote are assistance with watering public trees during establishment years, avoiding impact within critical root areas, and not initiating any work on public trees.

ii. Include messaging on responsible fruit tree management (to avoid vermin and bears).

iii. Identify when to use competitions, promotions and prizes to build awareness and a spirit of fun.

iv. Identify partners to target for engagement to increase awareness of UFS goals and advance urban forest management on large private and institutional lands.

21b. Work together with K'ómoks First Nation to include their perspective in the urban forest story and its connection to culture and reconciliation.

21c. Maintain information on the City's website and public GIS or Story Map that:

i. Is an interactive City tree map linked to the City's tree inventory that reports individual tree data.

ii. Shares the story of Courtenay's urban forest, its heritage and trends.

iii. Explains the urban forest's critical role in maintaining healthy community, ecology and culture.

iv. Links to the ISA Consumer Information Program www.treesaregood.org as a reliable and current source of tree care information for tree owners.

v. Provides season-relevant information, updated each month, such as that from the www.treesaregood.org website, and bird nesting season reminders.

21d. Revisit the Communication Strategy to respond to changes in public messaging, emerging research and urban forest trends over time.

22. Partner with institutions such as UBC Urban Forestry to identify research and co-op student opportunities to study the urban forest and effectiveness of management outcomes

22a. Topics for exploration include but are not limited to:

i. Mapping protected species for inclusion in the City's mapping to have accurate information when responding to public inquiries.

ii. Monitoring restoration efforts for effectiveness;

iii. Use of the UBC developed Climate Action Coolkit in neighbourhood engagement endeavours.

iv. Identifying trees of cultural and historical significance and documenting local stories.

v. Production value of the urban food forest.

vi. Carbon credit accounting.

vii. Biodiversity characteristics and value of the urban forest.

viii. Habitation of the urban forest (by the homeless) including drug usage increase and management solutions.

ix. Any other item within the UFS that does not involve sensitive or confidential information.

22b. Participate in the Canadian Urban Forest Network to share information, develop best practices and stay informed of funding opportunities.

23. Partner with government, municipal and 3rd party utilities and green industry to implement the urban forest strategy

23a. Work with and educate local nurseries on non-invasive and climate-appropriate species lists as a strategic point of communication to consumers.

23b. Work with local nurseries to procure diverse and climate suitable tree stock, including exploring the possibility of municipal growing contracts to provide future public trees and/or protected species.

23c. Work together with the local non-profit Garry Oak Nursery to explore the potential to expand the number of endangered native species available, and promote the work of this group.

23d. Explore salvage options for sourcing protected species to be removed during land clearing activities when they cannot be retained or in adjacent jurisdictions that do not have Tree Bylaw protection. For example, local provenance genetic stock of pacific dogwoods are difficult to germinate commercially due to climate and are not currently locally available.

23e. Continue to work with the consulting arborist and development community towards a mutual understanding of Tree Bylaw information requirements and tree protection measures.

23f. Continue to work with BC Hydro to share information about pruning City trees and expectations for pruning standards.

23g. Work with Comox Valley Regional District to ensure that Courtenay's urban forest, and urban forests within the region, are included in future Regional Growth Strategy deliberations, and identify opportunities to share costs, resources or messaging for implementation regional urban forest strategies.

23h. Work with all neighbouring jurisdictions to address boundary opportunities, common public messaging and partnerships with green industry that have regional applicability.

23i. Encourage developers to engage the stewardship sector during the land development process.

24. Respond to creative ideas from potential partners that advance Urban Forest Strategy implementation

24a. Assisting teachers develop modules for student exploration of the urban forest.

24b. Working with a community arts program that celebrates the urban forest.

24c. Participating in events promoting the urban forest, such as annual arbor days, Earth Day, green industry, food and arts festivals.

Photos by Kathryn Clouston

7 10-YEAR IMPLEMENTATION PLAN

The implementation plan sets the timeframe and approximate budget for implementing the Strategy over the next 10 years. Given that the planning horizon for the Strategy is 30 years, out to 2050, the implementation plan and Strategy will be revisited at regular intervals. The following implementation framework summarizes the City's approach to achieving the Vision and Goals:

1. Set a canopy cover target and monitor over time. How the urban forest is changing will inform which policy levers and programs to invest in over time.
2. Protect a network of the critical remaining urban forest. Significant stands and corridors will be evaluated along the community's growth plan to target conservation areas alongside development needs.
3. Encourage neighbourhoods to determine their neighbourhood forest goals. Residents will be invited to share their neighbourhood's specific urban forest vision through local area planning.
4. Support a dynamic urban forest on infill properties outside of identified protection areas. Flexibility in tree management is permitted on lands targeted for infill development.
5. Continue to integrate City trees and forests into asset management planning. Information about public tree management will be used to inform level of service expectations.
6. Demonstrate leadership and build partnership. As a shared asset, we must steward the urban forest together.

Updates on Urban Forest Strategy implementation will occur every two years at a minimum to inform the public and the City of Courtenay Mayor and Council of implementation progress. Full recommendations within the plan will be incrementally implemented within the general timeline described on the following page.

To stay up to date on the City of Courtenay's Urban Forest Strategy, please visit www.courtenay.ca/urbanforest

Implementation Timing and Responsibility

Strategy	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Lead Department
PLAN											
1. On public lands, formalize urban forest asset management and protection in City corporate policies and systems+	1a 1b										Public Works
2. Set neighbourhood tree canopy and character goals in consultation with the community to refine expectations and specificity regarding protection, character and function of the urban forest+	2a 2b 2c	2a 2b 2c									Development Services
3. Identify and proactively manage forest fire risk+	3a 3b 3c										Development Services
4. Regularly update urban forest data and key planning and policy documents to respond to changes in land use and technology*+	4b	4d 4e	4a*	4e		4e		4a* 4e	4c*		Development Services/ Legislative Services
5. Actively pursue funds and respond to partnership requests to support the UFS+	5a	5b 5c									Development Services/Public Works/ Legislative Services
6. Amend the Tree Bylaw, as needed, to respond to community wide urban forest information+			6a						6a		Development Services
Budget sub-total			30k					30k	60k		
MANAGE											
7. Develop a City Tree Operations Manual to formalize urban forest asset management and protection in City corporate policies and systems+		7a/b	7c								Public Works Public Works
8. Continue to regularly collect information to populate the city tree asset management system+	8a-d										Public Works
9. Use information from the asset management system to inform resourcing requirements, including human resources, for the desired level of service*+	9a*										Public Works
	9b										Public Works
10. Establish forums for interdepartmental, interjurisdictional and interagency communication to continuously improve tree management protocols and clarify tree management expectations across public and private lands+	10b										Public Works
Budget sub-total	100k	140k	180k	200k	215k	230k	245k	260k	275k	290k	
PROTECT											
11. Prioritize protection of significant trees and forest stands on both public and private land+*			11a 11b								Development Services
	11c										Development Services
		11d									Development Services
	11e 11f										Public Works
	11g* (cost unknown)										Recreation and Cultural Services
	11h										Development Services
12. Refine understanding of the linkages between changes to hydrology and forest patches through land development+	12a/b										Development Services
13. Review the Tree Bylaw to consider possible amendments that enhance interpretation and tree protection outcomes+			13a-m								Development Services
14. Improve the quality of park assets inherited through development+	14a										Development Services/ Public Works/ Recreation and Cultural Services
		14b									Development Services/ Public Works/ Recreation and Cultural Services
15. Consider the creation of a tree heritage registry or significant tree list within the Tree Bylaw in order to protect individual trees of community significance+			15a/b								Development Services
Budget sub-total	To be completed in house or within other planned projects (e.g., OCP update)										
GROW											
16. Improve the quality of new tree planting in the public and private realm+	16a-d										Development Services/ Public Works
17. Increase the quantity of new tree planting in the public and private realm*+	17a*										Public Works
	17b-d										Development Services
18. Plan and prioritize tree planting where it will most benefit community and ecological health, and support other City strategies+	18a-c										Development Services/ Public Works
19. Support local food security through the urban forest*+	19a/b* (cost unknown)										Public Works/ Recreation and Cultural Services
Budget sub-total		40k	60k	80k	80k	80k	80k	80k	80k	80k	
PARTNER											
20. Work together with K'ómoks First Nation and community groups to steward the City's urban forest+	20a-c										Recreation and Cultural Services/ Public Works
21. Develop a Communications Strategy to effectively share the story of the urban forest and engage the community in managing public and private trees+		21a									Development Services/ Legislative Services
	21b 21c										Development Services/ Legislative Services
								21d			Development Services/ Legislative Services
22. Partner with institutions such as UBC Urban Forestry to identify research and co-op student opportunities to study the urban forest and effectiveness of management outcomes+	22a/b										Development Services
23. Partner with government, municipal and 3rd party utilities and green industry to implement the urban forest strategy+	23a-h										Public Works/ Development Services
24. Respond to creative ideas from potential partners that advance Urban Forest Strategy implementation+	24a-c										Development Services/ Legislative Services
Budget sub-total											
Budget estimate	100k	180k	270k	280k	295k	310k	325k	370k	415k	370k	

* Recommendation with budget implication (some maintenance costs are already paid through other budgets)

+Recommendation with staff time implication (staff time or positions not costed)

REFERENCES

[1] Kardan, O., Gozdyra, P., Misic, B., Moola, F., Palmer, L.J., Pauls T., and M.G. Berman. (2015). Neighbourhood Greenspace and Health in a Large Urban Center. Scientific Reports (5). [Online] http://www.nature.com/articles/srep11610

[2] Park, S.H., and R.H. Mattson. 2009. Ornamental Indoor Plants in Hospital Rooms Enhanced Health Outcomes of Patients Recovering From Surgery. Journal of Alternative and Complementary Medicine 15, 9:975-980.

[3] Maas, J., R.A. Verheij, P.P. Groenewegen, S. de Vries, and P. Spreeuwenberg. 2006. Green Space, Urbanity, and Health: How Strong is the Relation? Journal of Epidemiology and Community Health 60:587–592.

[4] Taylor, A.F., F.E. Kuo, and W.C. Sullivan. 2001. Coping with ADD: The Surprising Connection to Green Play Settings. Environment and Behavior 33:54-77.

[5] Gonzalez, M.T. 2010. Therapeutic Horticulture in Clinical Depression: a Prospective Study of Active Components. Journal of Advanced Nursing 66, 9:2002-13.

[6] Mooney, P., and P.L. Nicell. 1992. The Importance of Exterior Environment for Alzheimer Residents: Effective Care and Risk Management. Healthcare Management Forum 5:23-29.

[7] Current Environmental, Raincoast Applied Ecology and MDI Design. 2013. SD 71 Vanier Oak Property Ecological Assessment and Protection Plan. Consultant report prepared for School District 71. [Online] https://24.files.edl.io/dwek4VdhM4E4wrFbRb9qVZgkmM8gI1DYoMFaCMSZoINz6HoQ.pdf

[8] Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Townshend. 2013. "High-Resolution Global Maps of 21st-Century Forest Cover Change." Science 342 (15 November): 850–53. Data available on-line from: http://earthenginepartners.appspot.com/science-2013-global-forest.

[9] Leff, M. 2016. The Sustainable Urban Forest A Step-by-Step Approach. Report prepared by Davey Institute funded by the USDA Forest Service. [Online] http://www.itreetools.org/resources/content/Sustainable_Urban_Forest_Guide_14Nov2016.pdf

[10] Richards, N.A., 1983. Diversity and stability in a street tree population. Urban Ecology, 7, 159–171.

[11] Council ofTree & Landscape Appraisers (CTLA). 2000. Guide for Plant Appraisal (9th ed.). International Society of Arboriculture, Champaign, IL

[12] Clark, J.R., N.P. Matheny, G. Cross, and V. Wake. 1997. A model of urban forest sustainability. J. Arboric. 23:17-30.

[13] Kirchmeier-Young, M. C., Gillett, N. P.,Zwiers, F. W., Cannon, A. J., and Anslow, F. S. (2019). Attribution of the influence of human-induced climate change on an extreme fire season. Earth's Future,7. [Online] https://doi.org/10.1029/2018EF001050

[14] Metro Vancouver. 2017. Urban Forest Climate Adaptation Framework for Metro Vancouver. Consultant report prepared by Diamond Head Consulting for Metro Vancouver. [Online] http://www.metrovancouver.org/services/regional-planning/PlanningPublications/UrbanForestClimateAdaptationFrameworkTreeSpeciesSelection.pdf

[15] Juniper Environmental Services .2014. Comox Valley Sensitive Ecosystems Inventory Disturbance Assessment. Consultant report prepared for Comox Valley Conservation Strategy - Community Partnership Courtenay, BC.

[16] Environment Canada. 2016. Management Plan for the Great Blue Heron fannini subspecies (Ardea herodias fannini) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment Canada, Ottawa.

[17] Comox Valley Conservation Strategy and Juniper Environmental Services. 2013. Nature without Borders. [online] https://www.cvlandtrust.ca/wp-content/uploads/2018/01/NWB_2ndED_web-1.pdf.

[18] Simard, S. 2018. Mycorrhizal Networks Facilitate Tree Communication, Learning, and Memory *in* Memory and Learning in Plants. Editors F. Baluska, M. Gagliano, G. Witzany. Springer International Publishing, Pages 191-213

[19] TD Economics. 2014. Special Report – The Value of Urban Forests in Cities Across Canada. [Online] https://www.td.com/document/PDF/economics/special/UrbanForestsInCanadianCities.pdf[

[20] Vancouver Island Health Authority. 2018. Healthy Built Environment Linkages Toolkit. [Online] http://www.bccdc.ca/pop-public-health/Documents/HBE_linkages_toolkit_2018.pdf

APPENDIX 1 - URBAN TREES FOR THE FUTURE

Metro Vancouver has developed an urban tree list of over 300 species that indicates their suitability to current and projected future climate. Search "Urban Forest" on www.metrovancouver.org for more information. Projections for Courtenay's future climate are within the same range as parts of Metro Vancouver and this list is therefore anticipated to be relevant for Courtenay also.

VERY SUITABLE = species anticipated to tolerate a broad range of sites under future climate

Arbutus menziesii
Albizia julibrissin *
Arbutus unedo
Calocedrus decurrens *
Catalpa speciosa *
Cedrus deodara *
Celtis occidentalis *
Celtis sinensis ●
Cercis canadensis
Cotinus coggygria
Crataegus crus-galli
Crataegus x lavalleei
Crataegus x mordenensis
Cupressus arizonica *●
Cupressus macrocarpa *
Cupressus sempervirens
Cupressus x leylandii
Eucommia ulmoides
Ficus carica *
Fraxinus ornus
Ginkgo biloba
Gleditsia triacanthos
Gymnocladus dioicus
Juglans major ●
Juniperus chinensis
Juniperus virginiana *
Koelreuteria bipinnata *●
Koelreuteria paniculata *
Lagerstroemia x 'tuscarora' ●
Maackia amurensis ●
Maclura pomifera *●
Notholithocarpus densiflorus
Nyssa sinensis
Olea europaea *●
Phellodendron amurense *
Pinus banksiana
Pinus contorta
Pinus flexilis
Pinus mugo
Pinus nigra
Pinus pinea *●
Pinus ponderosa
Pinus sylvestris *
Pinus thunbergii *
Pistacia chinensis
Prunus dulcis ●
Pyrus calleryana *
Pyrus pyrifolia ●
Quercus acutissima *
Quercus agrifolia ●
Quercus alba
Quercus coccinea
Quercus garryana
Quercus ilex ●
Quercus imbricaria ●
Quercus macrocarpa
Quercus shumardii
Quercus suber ●
Quercus virginiana ●
Rhus typhina
Sorbus aria
Ulmus propinqua ●

SUITABLE = species anticipated to tolerate all but the driest sites under future climate

Abies concolor
Abies procera
Acer buergerianum ●
Acer campestre *
Acer cappadocicum
Acer grandidentatum ●
Acer griseum
Acer japonicum
Acer miyabei
Acer negundo *
Acer nigrum
Acer platanoides *
Acer pseudoplatanus *
Acer rubrum *
Acer saccharinum
Acer saccharum
Acer tataricum *
Acer triflorum
Acer x freemanii
Aesculus hippocastanum *
Aesculus x carnea
Alnus cordata *
Alnus rubra
Amelanchier canadensis
Amelanchier laevis
Amelanchier x grandiflora
Araucaria araucana
Arbutus 'marina' ●
Betula alleghaniensis
Carpinus betulus
Carpinus japonica
Castanea mollissima
Castanea sativa
Catalpa bignonioides *
Cedrus atlantica
Cercis chinensis
Cercis occidentalis ●
Cercis siliquastrum
Chamaecyparis obtusa
Chamaecyparis pisifera
Chionanthus retusus ●
Cladrastis kentukea
Clerodendrum trichotomum
Cornus controversa
Cornus florida
Cornus mas
Corylus avellana *
Corylus colurna
Crataegus douglasii
Crataegus grignonensis ●
Crataegus phaenopyrum *
Cryptomeria japonica *
Davidia involucrata
Eriobotrya japonica ●
Eucalyptus pauciflora ●
Fraxinus angustifolia
Fraxinus excelsior
Fraxinus velutina
Heptacodium miconioides ●
Hibiscus syriacus *
Juglans regia
Laburnum anagyroides *
Laburnum x watereri *
Lagerstroemia indica *●
Ligustrum japonicum *●
Ligustrum lucidum *●
Liquidambar styraciflua
Liriodendron tulipifera
Magnolia grandiflora
Malus baccata *
Malus domestica
Malus floribunda *
Malus pumila *
Malus sylvestris *
Malus transitoria
Malus tschonoskii ●
Malus x moerlandsii ●
Malus x zumi
Manglietia insignis
Morus alba *
Nothofagus antarctica
Ostrya carpinifolia
Ostrya virginiana
Oxydendrum arboreum
Parrotia persica
Photinia x fraseri ●
Picea glauca
Picea omorika
Picea pungens
Pinus parviflora
Pinus radiata *
Platanus x hispanica
Platycladus orientalis ●
Populus alba *
Populus fremontii ●
Populus nigra *
Prunus americana
Prunus armeniaca
Prunus avium *
Prunus caroliniana
Prunus cerasifera *
Prunus cerasus *
Prunus domestica *
Prunus emarginata
Prunus pendula ●
Prunus salicina
Prunus sargentii
Prunus serotina
Prunus serrula
Prunus serrulata
Prunus subhirtella
Prunus virginiana *
Prunus x blireana
Prunus x yedoensis
Pseudotsuga menziesii
Pyrus communis *
Pyrus kawakamii ●
Pyrus salicifolia
Quercus alba x robur
Quercus bicolor
Quercus frainetto
Quercus lobata ●
Quercus robur *
Quercus rubra
Rhamnus purshiana
Salix scouleriana
Salix x sepulcralis
Sequoiadendron giganteum
Sophora japonica *
Sorbus x thuringiaca
Stewartia monadelpha
Stewartia pseudocamellia
Styrax japonicus
Syringa pekinensis ●
Syringa vulgaris *
Taxodium distichum
Taxus baccata
Taxus brevifolia
Thuja occidentalis *
Tilia americana
Tilia cordata
Tilia platyphyllos
Tilia tomentosa
Tilia x euchlora
Tilia x europaea
Trachycarpus fortunei
Ulmus americana *
Ulmus parvifolia *
Ulmus procera *
Ulmus wilsoniana 'prospector' ●
Ulmus x hollandica
xChitalpa tashkentensis
Zelkova serrata

MARGINAL = species anticipated to be restricted to moist sites under future climate

Abies grandis
Acer capillipes
Acer circinatum
Acer macrophyllum
Acer palmatum *
Acer pensylvanicum
Acer truncatum
Aesculus flava
Aesculus pavia
Alnus rhombifolia
Amelanchier arborea
Betula jacquemontii
Betula nigra
Betula papyrifera
Betula populifolia
Betula utilis
Carpinus caroliniana
Carya illinoinensis ●
Cercidiphyllum japonicum
Chamaecyparis lawsoniana *
Chamaecyparis nootkatensis
Cornus kousa
Cornus nuttallii
Cornus x nuttallii
Cornus x rutgersensis *
Fagus grandifolia
Fagus sylvatica
Fraxinus americana
Fraxinus latifolia
Halesia carolina
Juglans cinerea
Juglans nigra *
Larix decidua
Laurus nobilis
Liriodendron chinense
Magnolia denudata
Magnolia 'galaxy'
Magnolia kobus
Magnolia sieboldii
Magnolia stellata
Magnolia virginiana
Magnolia x kewensis
Magnolia x loebneri
Magnolia x soulangeana
Malus fusca
Metasequoia glyptostroboides
Nyssa sylvatica
Picea abies *
Picea sitchensis
Pinus halepensis ●
Pinus monticola
Pinus strobus *
Platanus occidentalis
Populus balsamifera
Populus tremuloides
Prunus ilicifolia ●
Prunus padus *
Prunus persica ●
Quercus palustris *
Quercus phellos
Salix babylonica
Salix matsudana *
Sequoia sempervirens
Sorbus alnifolia
Sorbus americana
Sorbus intermedia ●
Styrax obassia
Syringa reticulata
Thuja plicata
Thujopsis dolabrata
Tsuga canadensis
Tsuga heterophylla
Tsuga mertensiana
Ulmus davidiana
Ulmus glabra
Umbellularia californica ●

* Invasive potential - capable of self-seeding so avoid planting in locations where seeds can disperse and germinate

● Trial - species is present in future analog (comparable) climates and has the potential for introduction to Metro Vancouver

Courtenay residents envision a future urban forest that is more extensive than today, is connected and accessible, maintains mature trees and ecosystem services, is comprised of a sustainable mix of ages and locally adapted species, and is used as a design treatment to reduce the prevalence of pavement in commercial areas, create neighbourhood distinction and canopy streets on key routes.

Courtenay's long-term vision will be most achievable if management decisions can be framed within the context of stewarding the urban forest over a time-frame spanning multiple generations - past, present and future.

THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council **File No.:** 3060-20-1824

From: Deputy Chief Administrative Officer **Date:** July 15th, 2019

Subject: Development Permit with Variances No. 1824 – 344, 356, 370 -14th Street and 1450, 1480, 1508 - England Avenue

PURPOSE:

The purpose of this report is to consider a Development Permit with Variances to permit the construction of a 16-unit townhome development on the properties located at 344, 356, 370 - 14th Street and 1450, 1480, 1508 England Avenue.

DEPUTY CAO RECOMMENDATIONS:

That based on the July 15th, 2019 staff report "Development Permit with Variances No. 1824 – 344, 356, 370 -14th Street and 1450, 1480, 1508 England Avenue", Council approve OPTION 1 and proceed with issuing Development Permit with Variances No. 1824.

Respectfully submitted,

John Ward, CMC
Deputy Chief Administrative Officer

BACKGROUND:

The subject properties are currently vacant and located on the southeast corner of the intersection of 14th Street and England Avenue. The development site is composed of six parcels with a combined area of 4,029 m² (1.0 ac.) that will be consolidated as part of the development process. The consolidation will also involve the closure of a City owned lane right-of-way described below. The Official Community Plan (OCP) designates the subject property as "Multi-residential" and it is zoned Multiple Use 2 Zone (MU-2). The consolidated property is shown in ***Figure No. 1***.

Figure No. 1: Subject Property and Context

Figure No. 2: Front Elevation (as seen from England Avenue)

Figure No. 3: Front Elevation (as seen from 14th Street)

The properties are located within an area of the City that was subdivided in the early 1950's. Surrounding land uses are predominately commercial (professional office, retail, restaurant use, Courtenay Crossing centre) and a few multi-family (i.e. apartment buildings) located along England Avenue between 14th and 11th Streets. There is also an apartment building at 330 13th Street, two fourplex buildings located at 344 and 356 12th Street and six-plex building located at 1225 England Avenue.

Figure No.4: Building Rendering

Figure No.5: Building rendering illustrating both Phase 1 and 2 of the Development

This site will be developed in two phases. The first phase is for a 16-unit town home development in two five-unit buildings fronting England Avenue and two three-unit buildings fronting 14th Street. The attached

development permit and variance only pertain to Phase 1. Phase 2 requires subsequent development permit approval and is shown here only for context. Each of the buildings in phase 1 is three storeys and contains a total of 12 two-bedroom units and four three-bedroom units. Parking stalls are provided within single car garages and driveways at the rear of each building. The remainder of the site will be landscaped with a natural play area, pedestrian pathways and a series of patio areas.

This proposal requires a Development Permit evaluating the form and character of the proposal relative to the Multi-Unit Development permit guidelines as well as variances to the minimum front yard, interior side yard and exterior side yard building setback requirements of the MU-2 zone.

DISCUSSION:

Form and Character

The building and site design are consistent with the Multi-Residential Development permit guidelines. The building's design reflects a westcoast architectural style characterized by the use of natural materials (timber, stone) open space floor plans, shed style metal roofing and large amounts of glazing. The buildings are clad with a mix of shake, lap board and board and batten siding. While the five buildings are very similar in layout, exterior finishes and colour schemes have been customised to avoid repetitive façade design.

The buildings have been designed to appear to front onto both England Avenue and 14th Streets and integrate outdoor spaces into the landscape design. Surface parking is hidden at the rear of the buildings. The sidewalks through the site effectively connect the units to the front and rear of the property. As discussed below, the building setbacks and requested variances generally reflect the pattern of development in this neighborhood without significantly deviating from the existing scale of development and act to enhance the overall streetscape.

Road Closure

On March 18, 2019 Council gave First, Second and Third Readings to Road Closure Bylaw no. 2966 to dispose of 552 square metres of closed road. At this meeting Council also authorized staff to negotiate the required road dedications and statutory right of ways. The public notice was subsequently published and subsequent to the publication Council approved the disposition of the portion of closed road to the applicant. Council gave final adoption of the road closure bylaw at their April 15th, 2019 Council meeting.

The applicant is in their final stages of the road closure and lot consolidation processes and expects this process to be completed within the next month.

Other Planning Permits

Tree Permit

The applicant's arborist conducted a tree inventory for phase 1 of the development. To accommodate this phase, 29 trees require removal. The trees being removed (i.e. gary oak, bigleaf maple, cottonwood, willow, fir, hawthorn, bitter cherry) are showing signs of decline, rot, crown decline and are located within the building envelope. Regarding the Garry Oak, an arborist's report has confirmed the tree is in poor condition and unable to be retained as a result of the proposed development.

The applicant is required to have 24 trees on the property which is achieved through the applicant's landscape plan which includes the installation of 50 new trees (maple, dogwood and sumac). One western red cedar tree located directly outside the development boundary at the southern corner of the site will be

retained by providing a 3m radius tree protection zone. The tree protection zone will be marked with a combination of signage and fencing so that construction works, vehicle movement and storage of materials do not occur within a 3m radius of the stem of the tree. The project arborist will be working closely with the developer to ensure tree protection measures are abided by.

Variances

Three variances requested are summarized below:

Section 8.14.5 (1) - Front Yard (west side) from a minimum of 7.5 m to 5.55m

Section 8.14.5 (3) - Side Yard (south side) from a minimum of 4.5m to 2.0m

Section 8.4.25 (3) -Corner Side Yard (north side) from a minimum of 7.5m to 5.72m

All variance measurements are taken from the lot line to the closest point on the building which includes elements such as roof overhangs, eaves and bump-outs.

The applicant rationalizes the reduction in both the front and exterior side yard as necessary due to the placement of decorative timber arbours within each yard. These arbours not only provide useable semi-private outdoor space for occupants but they also act to break up building facades along both fronting streets. Because the development site is located at a visible corner location incorporating the arbors not only enhances the building design but also promotes a pedestrian orientated streetscape along 14th Street and England Avenue.

The multi-family buildings situated along England Avenue have varying building setbacks in their side yards ranging from 4m to 6 m. The applicant is requesting to reduce the interior side yard (adjacent to the Thrifty's site) setback from 4.5m to 2.0m. The intent of side yard setback is to ensure there is enough distance between buildings to meet BC building code requirements and to ensure privacy between uses on adjacent sites. The southern side yard where the variance is being requested has about 1.5m (5.0ft) of landscaping.

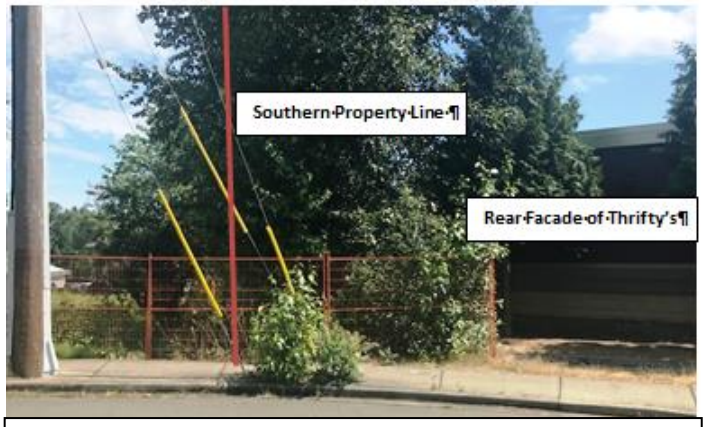


Figure No. 6: Southern Property Line and its Proximity to the Adjacent Commercial Building (Thrifty Foods 1551 Cliffe Avenue)

From a form and character perspective staff is of the opinion that the proposal meets the intent of the development permit guidelines and **supports approval for the development permit including the proposed variances.**

FINANCIAL IMPLICATIONS:

Development Cost Charges are applicable to this project. The total amount of these charges will be finalized at the time of building permit issuance.

The fee for the development permit with variance was $4,000. The property owner is also required to apply for a Building Permit and subsequent inspections. Building permit fees are $7.50 for every $1,000.00 of construction value.

The project is within Downtown Revitalization Area 2 of the City's Downtown Revitalization Tax Exemption Bylaw. Accordingly, the application will be eligible for consideration of a 100% exemption of municipal tax for five years resulting from the increase in assessed value of improvements on the property.

ADMINISTRATIVE IMPLICATIONS:

The processing of development applications is included in the current work plan as a statutory component. Staff has spent 40 hours reviewing the application, conducting a site visit and communicating with the applicant and their architect to request additional information.

If approved, there will be approximately two additional hours of staff time required to prepare the notice of permit and have it registered on title. Additional staff time will be required for processing and issuing permits such as building permit.

ASSET MANAGEMENT IMPLICATIONS:

There will be frontage improvements to 14th Street and to England Avenue including curb and sidewalk improvements. Laneway improvements are also required.

2019 – 2022 STRATEGIC PRIORITIES REFERENCE:

▲■ Identify and support opportunities for lower cost housing and advocate for senior government support

●▲ Encourage and support housing diversity

OFFICIAL COMMUNITY PLAN REFERENCE:

4.4.2 Goals

1) to optimize the use of existing lands in the City with a long-term consideration to expand boundaries and protect adjoining lands from further development to meet the future needs of the City.
6) to encourage multi residential development in the Downtown area of the City, and in areas identified through the Local Area Planning process.
7) to preserve the integrity and character of existing residential areas with any redevelopment proposal.

4.4.3 Policies

5 (a) multi residential development shall be limited in scale and size outside the downtown area

5 (c) priorities for multi-residential development will be:

- high - downtown area including along riverfront
- medium - intensification or redevelopment of existing sites
- low - peripheral expansion subject to Local Area Plan

REGIONAL GROWTH STRATEGY REFERENCE:

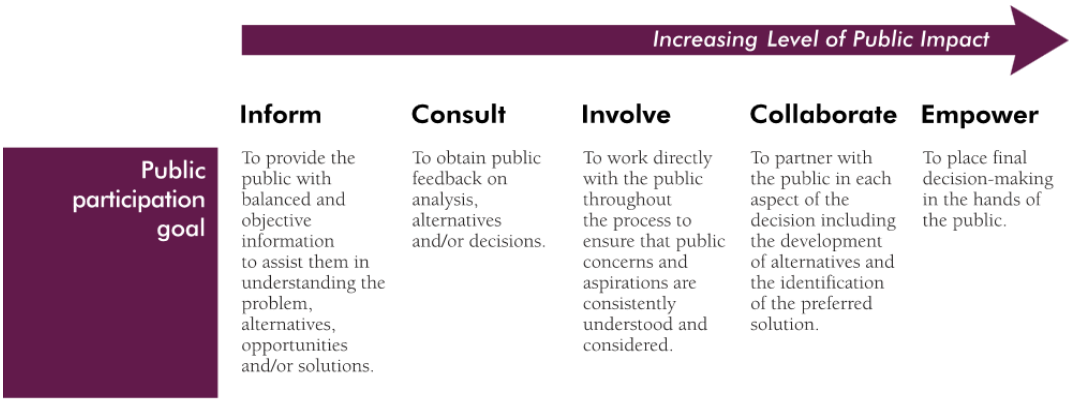
The development proposal is consistent with the RGS Housing Goal to "ensure a diversity of affordable housing options to meet evolving regional demographics and needs" including:

Objective 1-A: Locate housing close to existing services; and

Objective 1-C: Develop and maintain a diverse, flexible housing stock.

CITIZEN/PUBLIC ENGAGEMENT:

Staff will "**Consult**" the public based on the IAP2 Spectrum of Public Participation:



Prior to this application proceeding to Council, the applicant held a public information meeting on January 30th, 2019 at the 1540 McPhee Avenue. According to the information provided by the applicant, nine people attended the meeting with seven of the attendees signing in. None of the attendees provided written comments on the development application and staff have not received any comments from the public since the meeting was held. The public meeting summary and sign in sheet can been seen in ***Attachment No. 3.***

OPTIONS:

OPTION 1: (**Recommended**): Approve Development Permit with Variances No. 1824.

OPTION 2: Defer consideration of Development Permit with Variances No. 1824 pending receipt of further information.

OPTION 3: Not approve Development Permit with Variances No. 1824.

Prepared by:

Dana Beatson, MCIP, RPP
Planner II

Reviewed by:

Ian Buck, MCIP, RPP
Director of Development Services

Attachments:

Attachment No. 1: Draft Development Permit with Variances
Attachment No. 2: Public Information Meeting Summary and Sign in Sheet

Attachment No. 1: Draft Development Permit with Variance

THE CORPORATION OF THE CITY OF COURTENAY

Permit No. 3060-20-1824

DEVELOPMENT PERMIT WITH VARIANCES

To issue a Development Permit with Variances

To: Lotusland Estates Inc., Inc. No. BC 1109682
5167 Raven Road
Courtenay BC
V9J 1L9

Property to which permit refers:

Legal(s): Lots D, G, E, F, Section 41, Comox District, Plan 9677
Lot B, Section 41, Comox District, Plan 15970
Lot 1, Section 41, Comox District, Plan 9478

Civic(s): 344, 356, 370 14th Street and 1450, 1480, 1508 England Avenue

Conditions of Permit:

Permit issued to permit construction of a 16-unit town home development on the above referenced properties with variances granted as described below:

Section 8.14.5 (1) - Front Yard from a minimum of 7.5 m to 5.55m

Section 8.14.5 (3) - Side Yard (south side) from a minimum of 4.5m to 2.0m

Section 8.4.25 (3) - Side Yard (north side) from a minimum of 7.5m to 5.72m

Development Permit with Variances No. 1824 is also subject to the following conditions:

1. The development shall be substantially consistent with the plans as shown in ***Schedule No. 1***, as designed by Carsten Jensen Architect, dated on June 5, 2019;
2. That landscaping shall substantially conform to the plans and specifications contained in ***Schedule No. 2,*** as signed by Harry Haggard Landscape Architect, dated on June 2, 2019;
3. Submission of landscape security in the amount of $129,550.00 ($103,640.00 x 125%), as estimated by Harry Haggard Landscape Architect, dated on June 25, 2019;
4. Landscaping must be completed within one year of the date of issuance of the occupancy permit by the City;
5. The minimum depth of topsoil or amended organic soil on all landscaped areas is to be as follows:
shrubs – 450mm; groundcover and grass – 300 mm; and trees -300 mm.

6. Prior to building permit issuance provide the City with a registered lot consolidation plan for the development site;
7. All new street lighting in the proposed development must use Full Cut Off/Flat Lens (FCO/FL) luminaries to light roads, parking, loading and pedestrian areas. Exterior building lighting must have FCO lighting fixtures;
8. A sign permit shall be obtained prior to any signage being installed on the property;
9. The development shall meet all other applicable requirements, standards and guidelines; and
10. No alterations or amendments shall be made without the City's permission. A formal amendment application is required if the plans change or additional variances are identified after the permit is issued.

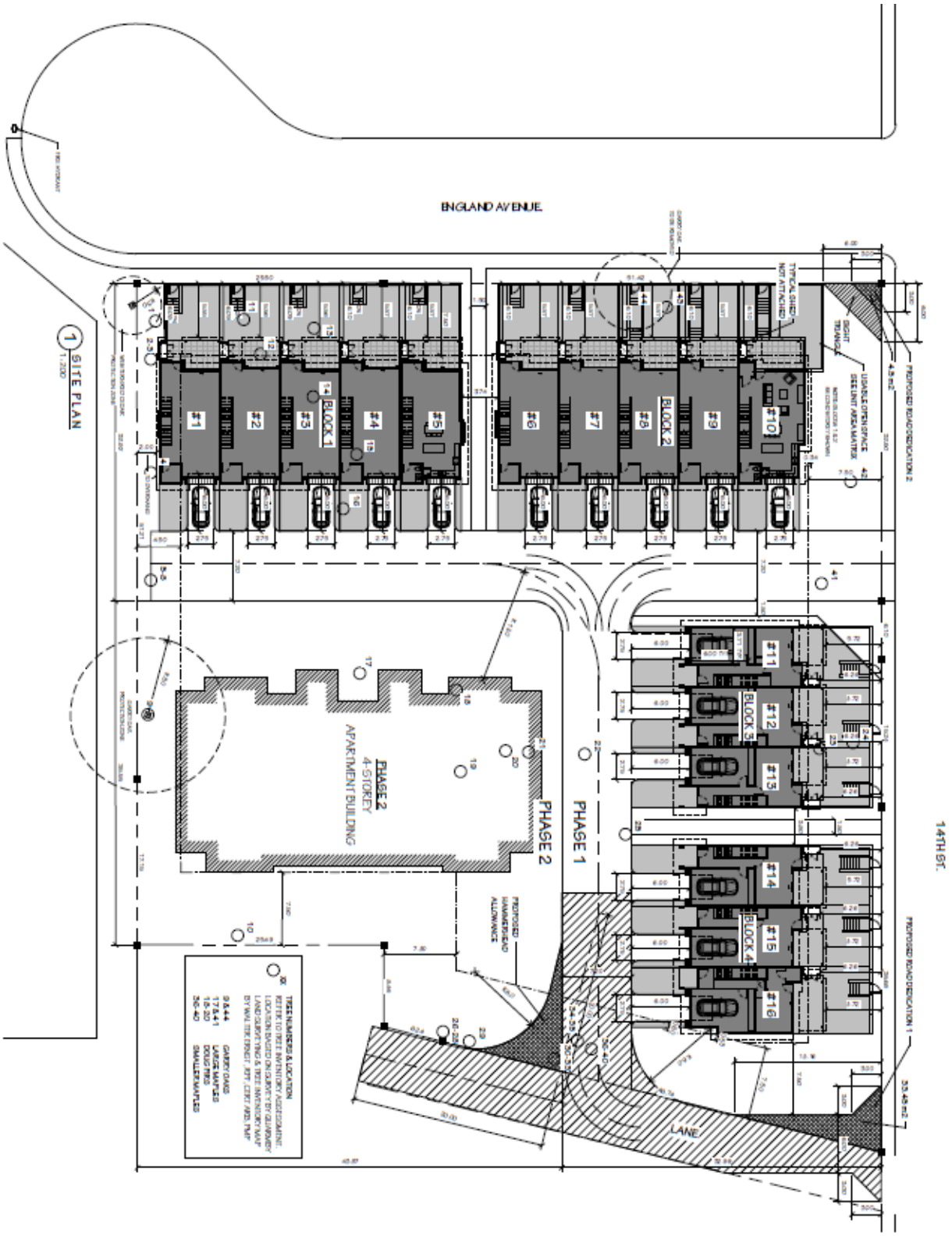
Time Schedule of Development and Lapse of Permit

That if the permit holder has not substantially commenced the construction authorized by this permit within (12) months after the date it was issued, the permit lapses.

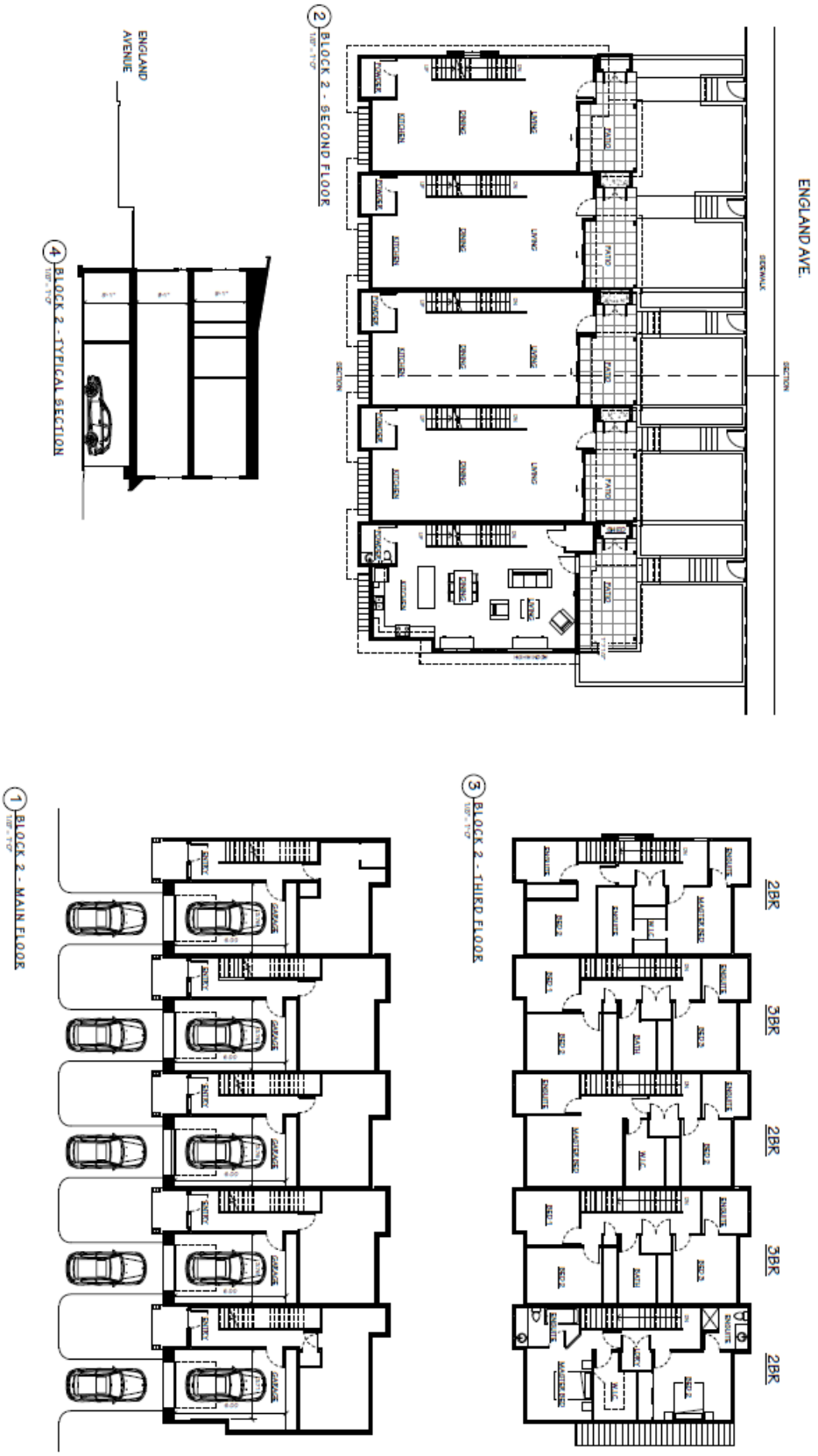
Date

Director of Legislative Services

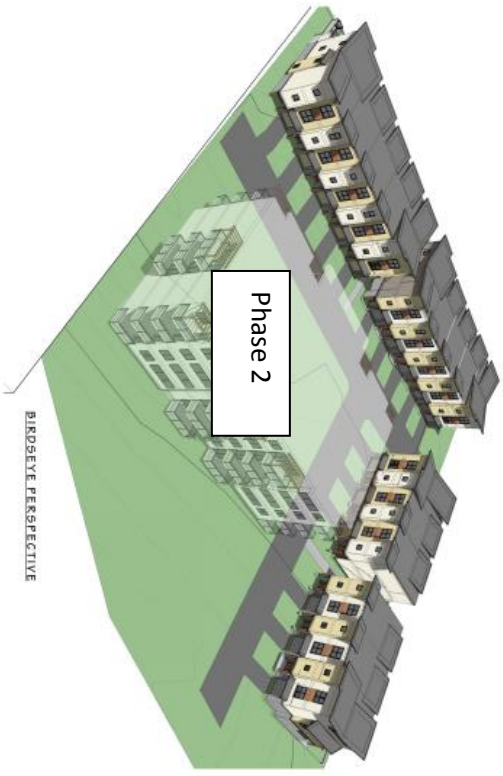
Schedule No 1: Site and Building Plans (1/5)



Schedule No 1: Site and Building Plans (2/5)

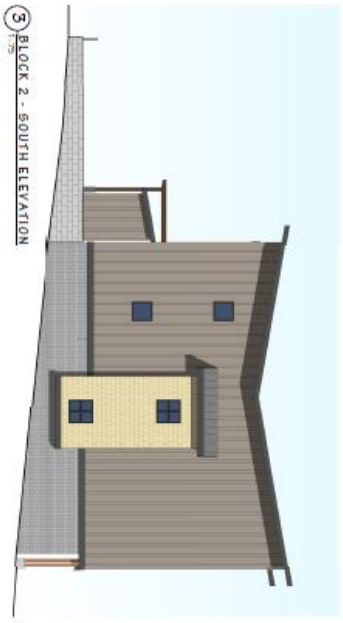


Schedule No 1: Site and Building Plans (3/5)

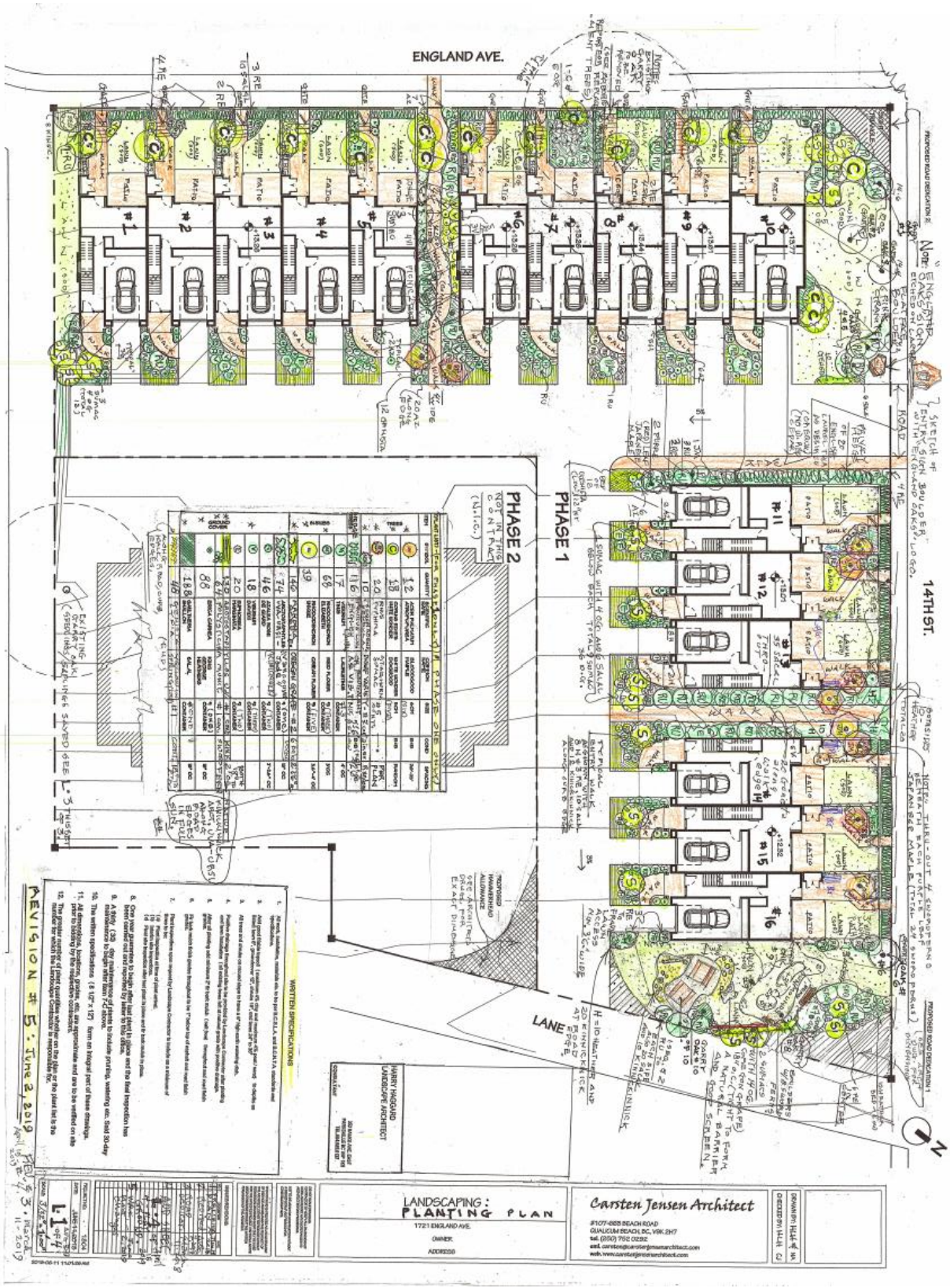


Schedule No 1: Site and Building Plans (4/5)

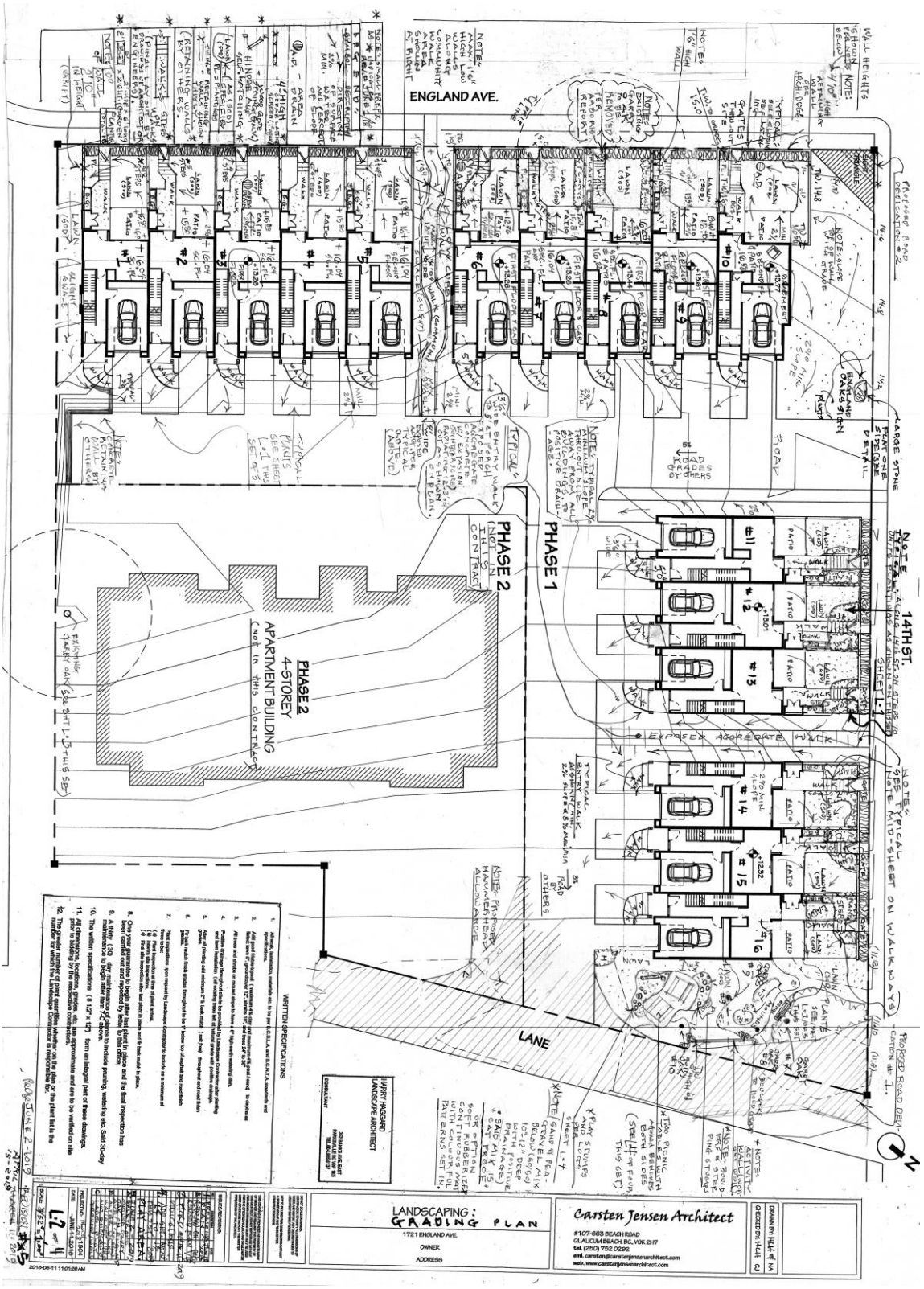
Schedule No 1: Site and Building Plans (5/5)



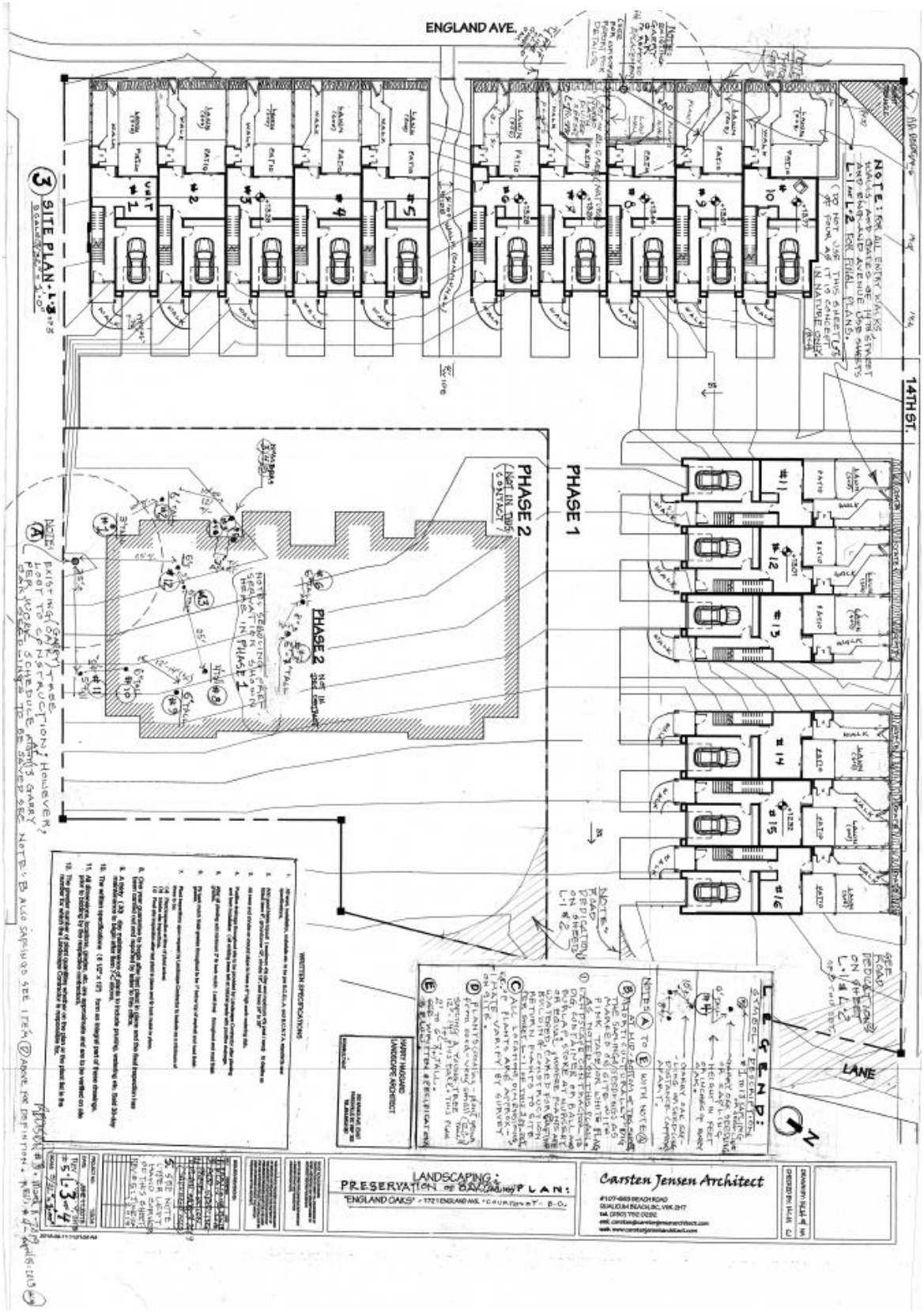
Schedule No 2: Landscape Plans (1/5)



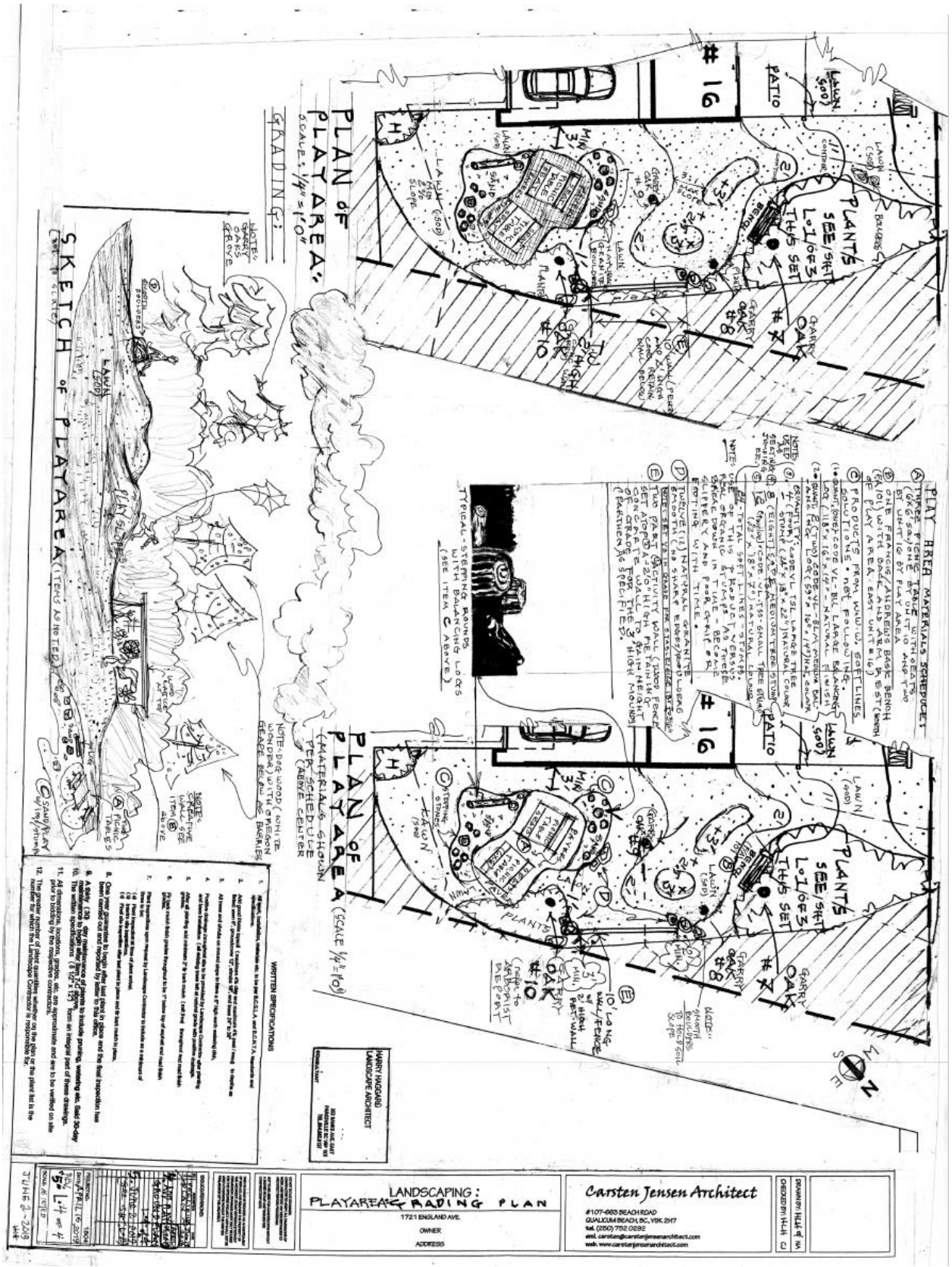
Schedule No 2: Landscape Plans (2/5)



Schedule No 2: Landscape Plans (3/5)



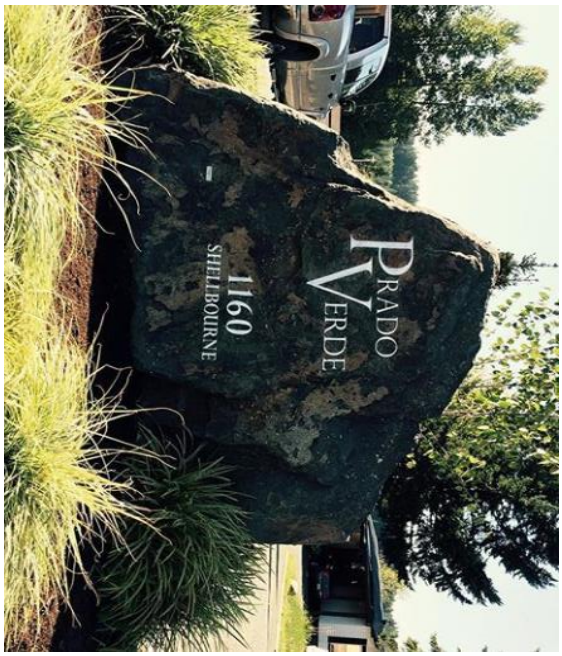
Schedule No 2: Landscape Plans (4/5)



Schedule No 2: Landscape Plans (5/5)

Detail for Shed and Arbors

Detail for Signage



Detail for Gate

Detail for Retaining Wall

Schedule No 3: Landscape Cost Estimate (1/1)

Harry Lee Haggard - Landscape Architect

Cellular Telephone (604) 985-0137
Landline - (250) 951-9943
ADDRESS: 352 BANKS AVE, EAST. PARKSVILLE - B.C.

COST ESTIMATE FOR TOWNHOUSES AND OPEN SPACE AT 1721 ENGLAND AVENUE

Cost includes planting plan, plant list, and notes of plan as prepared by this office.

ITEM #		
1	Plants in place	$40,250.00 SEE ITEMIZED PLANTS
2	Lawn in place	$12,000.00 (SOD)
3/4	Topsoil and Fir bark in place ($16,850) ($6000 spray on)	$22,850.00
5	IRRIGATION (PER SHOP DRAWINGS BY CONTRACTOR	$15,000.00
	Sub-Total Cost Estimate	$90,100.00 — #A SUB-TOTAL

* ITEMIZED PLANTS (LABOUR IS 50% OF COST.)

Trees	$ 7,850
Shrubs	$ 18,400
Groundcover	$ 14,000
Sub-Total	$40250 *

BRITISH COLUMBIA SOCIETY OF LANDSCAPE ARCHITECTS — REGISTERED MEMBER — HARRY L. HAGGARD — 42

ITEM #6 BELOW CAN BE FOUND ON SHEET L-4 LANDSCAPE DRAWING DATED JUNE 5/6 2019 (MID SHEET - TOP) #6

COST ESTIMATE CONTINUED:

6) DESCRIPTION	UNIT	UNIT PRICE	QUANITY	SUB-TOTAL
PICNIC/PLAYGROUND * ACTIVITY WALL or "WONDER WALL"	PICNIC TABLES WITH SIDE BENCHE	$1,250 (1 TABLE)	2	$2,500.00
F/ANDREW BENCH	FRANCIS/ANDREW BENCH W BACK/2	$1,750	1	$1,750
* "WONDER" WALL & PAINT	WALL ON RET. WALL	$2,500	1	$2,500
BALANCING LOG (LARGE)	'SOFTLINES' CODE VL	$ 350	1	$ 350
BALANCING LOG (MEDIUM)	" " "CODEVLBLM	$ 225	2	$ 445
LARGE TREE STUMPS (NON-SLIP, NATURAL COLOR)	" 'CODE VL TSL	$ 65	4	$ 260
MEDIUM TREE STUMPS	" CODE VL TSM	$ 45	8	$ 360
SMALL TREE STUMPS	" CODE VL TSS	$ 25	12	$ 300
(SUB)				#B - SUB $8,460
(TOTAL) COST (Item #A and #B)		SUBTOTAL		— $95,560.00 (AHH) ($95,560)

ITEM #7 AND 8 (GATES AND RETAINING WALLS (respectively)

#7 (ENTRY GATES AT FRONT OF UNIT ON PROP. LINE)

DESCRIPTION	UNIT	UNIT PRICE	QUANT.	SUB TOTAL
3'6" WIDE x 4' HT. DARK GREEN WOOD GATE GALV. HINGE, SELF LATCH	ENTRY GATE	$200 ea.	16	$3,200
#8 (RETAINING WALLS) ALLAN BLOCK AB COLLECTION COLOUR GREY	HT. VARIES Retaining wall HEIGHT SEE DRAWING	$8.00 per l.ft.	610 linear feet	$4880
				#C SUB $ 8,080
TOTAL LANDSCAPE COST IN PLACE — ITEMS (A) - (B) AND (C)				$103,640 TOTAL

(END)

Attachment No. 2: Public Information Meeting Summary and Sign in Sheet (1/3)

NOTICE

DATE: **Wednesday, January 30th, 2019**

TIME: **4:00 PM to 7:00 PM**

WHERE: **Courtenay Elementary School Library**
1540 McPhee Ave
Courtenay, BC V9N 3A5

APPLICANT INFORMATION: **Simba Investments Ltd.**
712-3030 Kilpatrick Avenue
Courtenay, BC V9N 8P1
Tel: 250-792-3700
Email: office@simbainvestments.ca

Lotusland Estates Inc. & Simba Investments Ltd. is proposing a townhouse development at this location at 34, 356, 370 14th St and 1450, 1480, 1508 England Ave. Please come and view our exciting new project.

Attachment No. 2: Public Information Meeting Summary and Sign in Sheet (2/3)

344, 356, 370 14th St and 1450, 1480, 1508 England Ave.

Location of Public Informational Meeting:

Courtenay Elementary School

@ 1540 McPhee Ave, Courtenay, BC V9N 3A5 in Library Room

Wednesday- January 30th, 2019

Duration was from 4pm to 7pm

Total attendees 9- 2 didn't sign sign in..

Meeting was advertised via sending out invitation letters from a template supplied by the City of Courtenay to the Property owners and others were mailed out to them personally.

Pictures, Full Board Architectural Renderings, Site Plans, Unit Layouts, Comment Sheets, Sign in Sheets, and Business cards were all supplied at the meeting on January 30th, 2019 from 4pm to 7pm.

People raised concerns about / Summation:

1. Attendees asked if units had individual parking for this project.
2. All seemed very happy that something was being built.
3. A few asked about price ranges & styles of apartments.
4. Overall it was a positive Public Open House meeting for this project.

Attachment No. 2: Public Information Meeting Summary and Sign in Sheet (3/3)

Wednesday, January 30TH, 2019
Sign in Sheet
FOR

Lotusland Estates Inc. & Simba Investments Ltd. 712-3030 Kilpatrick Ave.
Courtenay B.C. V9N 8P1
Proposed site is:
344, 356, 370 14th St. and 1450, 1480, 1508 England Ave.

COPY

	Name (Please Print)	ADDRESS
1	[redacted]	1509 CLIFF AVE.
2		1509 Cliffe Ave
3		1455 Cliffe Ave.
4		Medical Associates) 1350 England Ave
5		1350 England Ave. Courtenay
6		via Terra Health) " " "
7		1415 Cliffe Ave. Ctny. CVFSA agency

THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council **File No.:** 5335-20; 5225-20

From: Deputy Chief Administrative Officer **Date:** July 15, 2019

Subject: Sustainable Funding Options for Stormwater Management

PURPOSE:

The purpose of this report is to review the current funding model for stormwater management and infrastructure investments in the City of Courtenay, and to endorse the next steps in evaluating potential funding options based on additional research and analysis, stakeholder consultation, and future consideration by Council.

POLICY ANALYSIS:

Section 194 of the *Community Charter* allows Council to charge a user fee to cover the cost of delivery of a service.

EXECUTIVE SUMMARY:

The impacts of climate change on stormwater (drainage) systems are increasingly being felt by residents, businesses and the community at large. A long-term approach to rainwater management requires consideration of sustainable funding models to support both operational activities and capital investment.

This report and associated presentation introduce the topic of stormwater funding models, in anticipation of further research and analysis, discussion with stakeholders, and presentation of options for Council consideration in 2020 for potential future implementation.

DEPUTY CAO RECOMMENDATIONS:

THAT Council receive the staff report and presentation on "Sustainable Funding Options for Stormwater Management"; and

THAT Council endorse the continued review and analysis into sustainable stormwater funding models, including stakeholder consultation, for future consideration by Council in 2020.

Respectfully submitted,

John Ward, CMC
Deputy Chief Administrative Officer

BACKGROUND:

In recent years, stormwater impacts due to climate change are having real consequences for local residents and business. The City is addressing these challenges with planned investments from both its operating and capital budgets. The current source of revenue for stormwater management in the City of Courtenay is from general taxation (i.e. property taxes). Although this is currently common practice in most communities across the province, increasingly municipalities across BC are looking at new ways to sustainably fund long-term stormwater management activities. To this end, the City has engaged Urban Systems to provide a background presentation for discussion with Council on sustainable funding options for stormwater management.

DISCUSSION:

Stormwater infrastructure and improvements provide both a collective public good and individual benefit in communities, including the following:

- Protects residents and businesses from flooding and associated property damage;
- Protects public areas (e.g. parks) as well as community infrastructure (e.g. sewage treatment plant); and
- Mitigates the potential impact of runoff into watercourses and other environmentally sensitive areas

In order to fund service delivery in British Columbia, local governments have two basic approaches: Universal Pay (i.e. taxation) and User Pay (i.e. user fees). Generally speaking, services that provide for the greater common good are recovered through taxation (e.g. roads) while services that provide direct service to specific users are recovered through user fees. Some services receive revenues from a combination of both sources (e.g. recreation). Finally, some services are funded through a self-funded utility which have separate reporting and accounting measures (e.g. utility billing).

In the City of Courtenay, as with most municipalities in BC, stormwater management is currently funded through general taxation. While this has been reasonably effective in the past, stormwater projects and improvements are having to compete with other important projects funded through general taxation (e.g. roads, parks, community facilities). This has the potential to “under-invest” in vital stormwater capital improvements as well as lifecycle cost investments. These under-investments tend to show up periodically based on “extreme” events (e.g. 1:50 year and 1:100 year storm events). However, due to the impacts of climate change, we are experiencing these extreme events more frequently than ever before. Transitioning to more sustainable methods of stormwater funding will enable the City to better plan for climate events and invest in more resilient stormwater infrastructure for future generations.

In addition to this staff report, Urban Systems has prepared a presentation (attached) which provides an overview of various stormwater funding models, including examples for other municipal jurisdictions, for discussion with Council at the July 15, 2019 meeting.

FINANCIAL IMPLICATIONS:

The funding for this current report and presentation by Urban Systems has been accounted for in the 2019 budget. If Council chooses to proceed further, a scope of work and requested budget will be prepared for Council's consideration as part of the 2020 budget process. This will be determined based on the level of research, analysis, and stakeholder consultation as part of consideration of the various stormwater funding models. Finally, should Council decide to modify the current method of stormwater funding in the future, a full analysis of financial implications will be presented to Council in order to make an informed decision as part of future budget deliberations.

ADMINISTRATIVE IMPLICATIONS:

Undertaking the next steps in the process (e.g. further review and analysis, stakeholder consultation, discussion with Council) will have relatively minor impacts to current staff workload. If Council chooses to proceed with a different stormwater funding model, there could be significant staff and resource implications, particularly to the Finance group, depending on the model chosen. If Council elects to proceed with a new stormwater funding model, the administrative implications for each option will be clearly outlined so that Council can make an informed decision prior to implementation.

ASSET MANAGEMENT IMPLICATIONS:

The sustainable funding of stormwater infrastructure is directly in alignment with the principles of Asset Management and Sustainable Service Delivery.

STRATEGIC PRIORITIES REFERENCE:

We focus on organizational and governance excellence

- Support and encourage initiatives to improve efficiencies
- Responsibly provide services at levels which the people we serve are willing to pay

We proactively plan and invest in our natural and built environment

- Focus on asset management for sustainable service delivery
- Support actions to address Climate Change mitigation and adaption

● **AREA OF CONTROL:** The policy, works and programming matters that fall within Council's jurisdictional authority to act

▲ **AREA OF INFLUENCE:** Matters that fall within shared or agreed jurisdiction between Council and another government or party

■ AREA OF CONCERN: Matters of interest that are outside Council's jurisdictional authority to act

OFFICIAL COMMUNITY PLAN REFERENCE:

Although the OCP does not contain specific policy reference to sustainable funding of stormwater infrastructure, enhancing stormwater management does appear throughout various OCP policies and objectives, including the following:

"The City will continue to work towards reducing or mitigating the impacts of development on the drainage system to protect the quality of the river systems."

"Enact performance-based bylaws to protect watersheds and riparian habitat areas, and to consider alternative stormwater management practises."

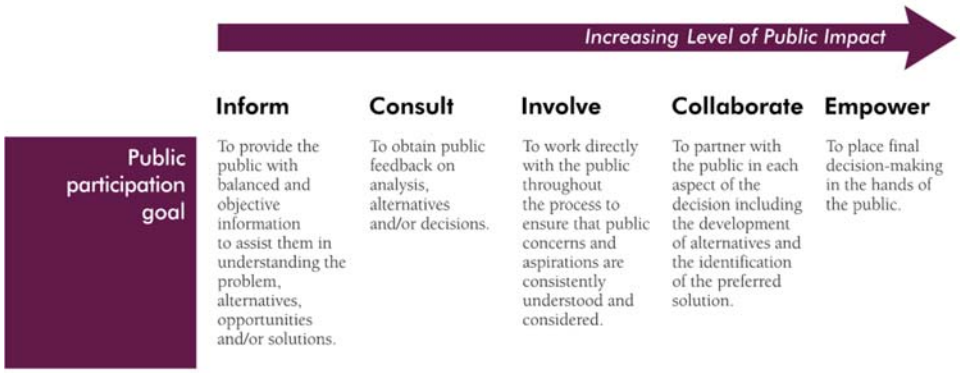
"Green infrastructure provisions such as renewable energy, green roofs and/or innovations in stormwater management that could contribute to both GHG reductions, piloting of technological innovations and community education."

REGIONAL GROWTH STRATEGY REFERENCE:

Objective 5-C: Stormwater is managed to preserve ecosystem and watershed health.

CITIZEN/PUBLIC ENGAGEMENT:

Staff would **inform** the public based on the IAP2 Spectrum of Public Participation:



OPTIONS:

OPTION 1: THAT Council receive the staff report and presentation on "Sustainable Funding Options for Stormwater Management"; and

That Council endorse the continued review and analysis into sustainable stormwater funding models, including stakeholder consultation, for future consideration by Council in 2020.

OPTION 2: That Council maintain the current method of stormwater funding through general taxation.

Prepared by:

Ryan O'Grady, P.Ag, P.Eng.
Director of Engineering Services

Attachments:

#1: Presentation by Urban Systems, "A Discussion of Sustainable Funding Options for Stormwater Management"

THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council **File No.:** 5335-20; 5400-20

From: Deputy Chief Administrative Officer **Date:** July 15, 2019

Subject: Ryan Road at Cowichan Avenue Crossing Update

PURPOSE:

The purpose of this staff report is to review the analysis undertaken to date on the Ryan Road and Cowichan Avenue intersection, and to get direction from Council on the next steps in evaluating traffic control treatments and cost sharing for the project. The Ministry of Transportation and Infrastructure will also be providing a verbal update on recent project work in the Courtenay area.

DEPUTY CAO RECOMMENDATIONS:

That based on the July 15th, 2019 staff report "Ryan Road at Cowichan Avenue Crossing Update," Council approve Option 1 and direct staff to work together with the Ministry of Transportation and Infrastructure to complete further analysis of the most appropriate traffic control treatment and cost sharing agreement for the Ryan Road and Cowichan Avenue intersection.

Respectfully submitted,

John Ward, CMC
Deputy Chief Administrative Officer

BACKGROUND:

At the September 5th, 2017 Courtenay City Council meeting, the following resolution was passed:

"WHEREAS there is significant public concern regarding pedestrian access to North Island College from City of Courtenay neighbourhoods across Ryan Road, and the safe access of pedestrians, scooters and cyclists along Ryan Road;

AND WHEREAS Ryan Road is a provincial Ministry of Transportation & Infrastructure responsibility;

THEREFORE BE IT RESOLVED that the City engage with the Ministry of Transportation & Infrastructure to engineer a safe crossing of Ryan Road between North Island College and Cowichan Avenue, and to enhance pedestrian, scooter and cycling safe access along Ryan Road between the North Island Highway and Lerwick Road."

On February 8th, 2018 the City of Courtenay sent a letter to the Ministry of Transportation and Infrastructure (MoTI) regarding the safety issues along Ryan Road and at the intersection of Ryan Road and Cowichan Avenue, and the desire to investigate possible traffic control options. In response to the letter, MoTI called a meeting with Courtenay City Council and staff on March 27th, 2018.

Discussions at the March 27th, 2018 meeting included a summary of the ongoing work on the City of Courtenay's Transportation Master Plan (TMP), and how MoTI and the City could work together to support the objectives of the TMP. In response to the City's February 8th, 2018 letter request, MoTI committed to investigating a safe crossing at the Ryan Road and Cowichan Avenue intersection as well as improved pedestrian accommodations along Ryan Road between the North Island Highway and Lerwick Road, in partnership with the City's TMP process.

Following the March 27th, 2018 meeting, MoTI engaged Urban Systems Ltd. to investigate the following issues related to Ryan Road:

- Assess the current traffic conditions at the Ryan Road and Cowichan Avenue intersection;
- Evaluate nine MoTI signal warrant criteria and the Transportation Association of Canada crossing control device warrant at the Ryan Road and Cowichan Avenue intersection;
- Provide options and a high-level estimate for the widening of Ryan Road hill to better accommodate pedestrians, scooters, and cyclists.

The results and analysis of the Urban Systems Ltd. investigation as it relates to the Ryan Road and Cowichan Avenue intersection is presented in the Discussion section of the report below.

DISCUSSION:

Ryan Road at Cowichan Avenue is currently a four-legged non-signalized intersection. The east and west approaches on Ryan Road both have three lanes, with a left-turn storage bay, a through lane, and a through-right lane on the west approach, and a left-turn storage bay, a through lane, and a channelized right-turn storage lane on the east approach. The north and south approaches each consist of one lane, with the north approach also having a channelized right turn. The current posted speed limit on Ryan Road is 60 kilometres per hour, while on Cowichan Avenue the posted speed limit is 50 kilometres per hour.

To understand the current traffic condition at the Ryan Road and Cowichan Avenue location, MoTI had intersection turning movement counts collected. The results of the counts are as follows:

- The signal warrant results show that the intersection of Ryan Road and Cowichan Avenue / College Campus Road satisfies three of the nine warrant criteria. The signal analysis shows that although the average daily volumes at this intersection are not significant enough to warrant a signal installation, the current peak hour conditions at this intersection do meet the threshold to be considered for signal control treatment.
- The pedestrian warrant results demonstrate that there is an insignificant number of pedestrians at this location to necessitate a pedestrian crossing control device. However, the City of Courtenay's TMP highlights that this crossing is on a pedestrian desired line of travel, and would support system connectivity.

Although the intersection movement counts collected indicate that the Ryan Road and Cowichan Avenue intersection does not meet warrant criteria, it is understood that this crossing is located on a pedestrian desired line of travel, and creates important connectivity within the City's pedestrian network. As such, MoTI, in partnership with the City, is willing to complete further analysis of the most appropriate traffic control treatment for this location.

However, it is important to note that there are operational concerns with establishing a crossing at the Ryan Road and Cowichan Avenue intersection. Stopping vehicles on Ryan Road hill, especially commercial traffic, is not desirable in winter months, and will lead to traction issues and increased hill closures during the winter months. In addition, there may be future capacity issues given the nature of the corridor and

the capacity of the adjacent intersections (future land use plans). Neither of these two concerns have viable solutions and they would need to be accepted as trade-offs if a crossing was implemented at this location.

FINANCIAL IMPLICATIONS:

$100k has been allocated in the 2019 Financial Plan to support the further analysis of the most appropriate traffic control treatment for the Ryan Road and Cowichan Avenue intersection. Possibilities for project cost sharing between the City of Courtenay, MoTI, and other partners (e.g. BC Transit, ICBC) are proposed to be explored.

ADMINISTRATIVE IMPLICATIONS:

MoTI has been leading the work completed to date on the Ryan Road and Cowichan Avenue crossing analysis, with support from the City's Engineering Services Department. Undertaking the next steps in the process (i.e. further analysis into the most appropriate traffic control treatment and associated cost sharing agreement) should have relatively minor, and anticipated impacts to current staff workload.

ASSET MANAGEMENT IMPLICATIONS:

The analysis of a traffic control treatment at the Ryan Road and Cowichan Avenue intersection is in alignment with the City of Courtenay's TMP, and thereby works towards the overall goal of asset management – achieving sustainable service delivery.

In addition, the Ryan Road and Cowichan Avenue crossing project has been vetted through the Asset Management Working Group and as part of the ongoing annual budget process.

STRATEGIC PRIORITIES REFERENCE:

The City of Courtenay's 2019 – 2022 Strategic Priorities include six themes and 28 priorities. The analysis of the Ryan Road and Cowichan Avenue crossing aligns with seven of these priorities as outlined below.

● Responsibly provide services at levels which the people we serve are willing to pay

●▲ Value community safety and support our protective services

▲ Look for regional infrastructure solutions for shared services

● Move forward with implementing the City's Transportation Master Plan

▲■ Collaborate with regional and senior government partners to provide cost-effective transportation solutions

●■ Consider effective ways to engage with and partner for the health and safety of the community

●▲ Support improving accessibility to all City services

● **AREA OF CONTROL:** The policy, works and programming matters that fall within Council's jurisdictional authority to act

▲ **AREA OF INFLUENCE:** Matters that fall within shared or agreed jurisdiction between Council and another government or party

AREA OF CONCERN: Matters of interest that are outside Council's jurisdictional authority to act

OFFICIAL COMMUNITY PLAN REFERENCE:

The analysis of the Ryan Road at Cowichan Avenue crossing is aligned with the second goal in Section 5.2 of the Official Community Plan:

"Development of a transportation system that provides choices for different modes of travel including vehicle, transit, pedestrian, cycling and people with mobility impairments."

REGIONAL GROWTH STRATEGY REFERENCE:

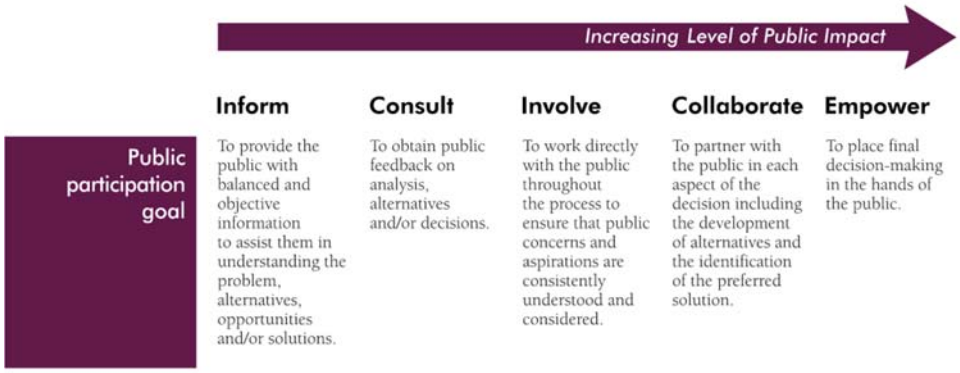
The development of the TMP is aligned with the transportation goal from the Regional Growth Strategy.

Goal 4: Transportation:

Develop an accessible, efficient and affordable multi-modal transportation network that connects Core Settlement Areas and designated Town Centres, and links the Comox Valley to neighbouring communities and regions.

CITIZEN/PUBLIC ENGAGEMENT:

Staff would **inform** the public based on the IAP2 Spectrum of Public Participation:



OPTIONS:

Option 1: That Council direct City staff to work together with the Ministry of Transportation and Infrastructure to complete further analysis of the most appropriate traffic control treatment and cost sharing agreement for the Ryan Road and Cowichan Avenue intersection.

Option 2: That Council not move forward with further analysis of traffic control for the Ryan Road and Cowichan Avenue intersection.

Prepared by:

Ryan O'Grady, P.Ag, P.Eng.
Director of Engineering Services

June 26, 2019

City of Courtenay
Heritage Advisory Commission

Re: 5th Street Complete Street Project

Dear Mayor Wells and members of the City Council:

At the June 26th meeting of the Heritage Commission, the members passed the motion to commend the City Council and Staff for the work recently completed on 5th Street, "the Complete Streets project".

In 2014, the Commission had endorsed the Complete Streets project because it fit so well with the official Heritage Register Statement that 5th Street, which begins at the Bridge and ends at Lake Trail Middle School, has been identified for the following concepts.

- Important connection to the historic business of the city
- Visual connection to the Comox Glacier connecting the citizens to natural heritage
- Important social role as a ceremonial route

Thank you for the continuing support of enriching the Heritage of the City of Courtenay.

Sincerely,

Judy Hagen

Chair, City of Courtenay Heritage Advisory Commission

June 10th, 2019

The City Of Courtenay
Councillor Will Cole-Hamilton
Courtenay City Hall, 830 Cliffe Avenue, Courtenay, B.C

Dear City Of Courtenay Bursary Committee

Thank you for selecting me for your bursary donation, and allowing me to extend my future goals. Your generous bursary has allowed me to take my first step into my career path I wish to pursue. I have enrolled myself at North Island College for the fall to get my two year diploma in criminology and then transfer afterwards to BCIT for my four year degree in forensic science. I have selected this field because I have a true passion for the law, crime and research. I selected courses throughout highschool that has led me in the direction to my decision, and I could not be more excited to further my knowledge in this field.

Because of you, most of my first year costs will be covered and that has allowed me to begin my journey. It gives me the opportunity to work and save up more to continue my education and pursue my dreams. After school is over I would like to seize the opportunity to extend my career path to somewhere around the world where I can utilize my skills, while experiencing new opportunities.

Thanks sincerely,

Mikhaila Handyside

JUL 10 2019

To The City of Courtenay,

I would like to thank you from the bottom of my heart for your generous donation that will be put towards furthering my education. Because of your generosity I will be able to pursue my dream of becoming a registered nurse and this will help to elevate the stress of the financial barriers I will face achieving this dream. This money will greatly reduce the cost of books and supplies I will need throughout the next 4 years.

Thank you again for your generosity, your donation is greatly appreciated.

Best regards,

Reilly Douglas

Minutes of a Parks & Recreation Advisory Commission Meeting
Held at Salish Building, Lewis Park - Thursday, April 4, 2019 at 6:30 p.m.

Attending:	Sébastien Braconnier Allan Douglas Bill Green Carolyn Janes Michael Lynch Dave Snider (Ex Officio) Nicole Devonshire
Regrets:	Iris Churchill Mary Crowley Tom Demeo Manno Theos (Council Representative)

Call to Order

The meeting was called to order at 6:30 p.m.

Adoption of Previous Meeting Minutes

MINUTES	Motion: Moved by Michael Lynch that the minutes of the February 7th, 2019 meeting be adopted as read, seconded by Carolyn Janes. All in favour. **CARRIED**
PARKS AND RECREATION MASTER PLAN UPDATE	Dave Snider gave an update on the final stages in completing the Draft Master Plan. Discussion of multiple master plans currently being completed. Discussion of budget implications and impact on taxpayers. Anticipating that the Draft Master Plan will be presented in final form to council late May or early June.
UNIFIED RECREATION PASS UPDATE	Regional CAO's have confirmed they are in support in principle, and are open to their staff's involvement. Next step is to have regional recreation directors meet and consult with greater Victoria municipalities who have created a unified recreation pass. Discussion was held around what the pass would entail.
MEMORIAL PROGRAM UPDATE	Dave Snider gave an update on the status of the memorial program. Discussion on possibilities for the current plaques, and what a renewed program may involve.
OPIOID DISPLAY	Display for opioid awareness is coming to Courtenay, and will be located on a fence along Mansfield Drive.

HOMELESSNESS AND CITY FACILITIES	Commission was informed of recent overdose incident at Lewis Centre, and discussion on prevention and staff implications. Concern around full needle boxes in Lewis Centre/Lewis Park bathrooms was raised. Updates were given for the Coalition to End Homelessness regarding their staff hiring and initiatives.

Next Meeting

Thursday, June 6th, 2019 at 6:30 p.m., Tarling Park

Adjournment

The meeting was adjourned at 8:00 p.m.

CITY OF COURTENAY HERITAGE ADVISORY COMMISSION
MINUTES

Meeting of the City of Courtenay Heritage Advisory Commission meeting held on May 22, 2019 at 10:00 a.m. in the Council Chamber of City Hall.

Present:

L. Burns	R. Dingwall	L. Grant	J. Hagen (Chair)
J. Fortin	W. Cole-Hamilton (Councillor)	C. Piercy	G. Greenhill

Absent:

D. Griffiths T. Setta (staff)

1. Introduction and Opening Remarks

- Welcome to Glen Greenhill as new member.
- Our condolences to Linda.

2. Delegations

- Nancy Gothard, policy planner, spoke about the Urban Forest Initiative on the part of the City, in which Heritage can play a part. The draft Urban Forest Strategy document is on the City's website. Deadline for input is delayed till the middle of June. Does the Commission want to pursue heritage trees?
- Eric Jernslet, manager of City Assets, spoke on the condition of the 6 feet of cedar shake façade at the top of the exterior of the Native Sons Hall which is starting to deteriorate. Discussion of stain/not stain. Suggested that next month the Commission see images of different alternatives. The roof needs replacement; cold adhesive will be used.

3. Review and Adoption of Minutes of the April 24, 2019 Meeting

4. Old Business

OLD CITY CLOCKS
- Discussion of repairs.
- Moved by L. Grant, seconded by G. Greenhill, that the clock face design should be as the attached image. **Carried**

40 HOUSES
- L. Burns reported on the installation of the information board at the 17th |Street entrance to the 40 Houses on McPhee Avenue.

MUSEUM REPORT
- 6-9 June Historical Conference

HERITAGE FAIR PANELS
- Heritage Fair panels to be retrieved from the Lewis Centre (L. Grant and J. Fortin will pick up).
- Appreciation letter sent by J. Hagen to ABC Printers for Panels.

IN-KIND HOURS
- A total of 17 hours are spent:
  - J. Hagen provided 6 hours
  - L. Burns provided 1/2 hour
  - L. Grant provided 2 hours
  - R. Dingwall provided 2 hours
  - 40 Houses Celebration?

5. **New Business**

- W. Cole-Hamilton reported on hid attendance at the 2019 Heritage BC annual conference. The focus was on interpreting heritage.
- Photograph locations in heritage photos; link to signage on a walk; teaching young people about heritage; before and after photos; people who experienced different times; maps. School tours to museum could include a "living history" element.
- Commission pin for G. Greenhill

6. **Next meeting** June 26, 2019

7. **Meeting Adjournment** Moved by L. Grant at 11.55 a.m.

Chair

THE CORPORATION OF THE CITY OF COURTENAY

BYLAW NO. 2955

A bylaw to amend Zoning Bylaw No. 2500, 2007

The Council of the Corporation of the City of Courtenay in open meeting assembled enacts as follows:

1. This bylaw may be cited for all purposes as **"Zoning Amendment Bylaw No. 2955, 2019"**.

2. That "Zoning Bylaw No. 2500, 2007" be hereby amended as follows:

   (a) Amending Section 8.18.1 by adding "notwithstanding any provision of this bylaw, a storefront cannabis retailer is a permitted use on Strata Lot B, Section 69, Comox District, Strata Plan VIS3647 Together with an interest in the Common Property in Proportion to the Unit Entitlement of the Strata Lot as Shown on Form 1 (Unit #103-1025 Cliffe Avenue)."

3. This bylaw shall come into effect upon final adoption hereof.

Read a first time this 10th day of June, 2019

Read a second time this 10th day of June, 2019

Considered at a Public Hearing this 2nd day of July, 2019

Read a third time this day of , 2019

Finally passed and adopted this day of , 2019

Mayor

Corporate Officer

Approved under S.52 (3)(a) of the *Transportation Act*

Brendan Kelly, Development Technician
Ministry of Transportation and Infrastructure

THE CORPORATION OF THE CITY OF COURTENAY

BYLAW NO. 2959

A bylaw to amend Zoning Bylaw No. 2500, 2007

The Council of the Corporation of the City of Courtenay in open meeting assembled enacts as follows:

1. This bylaw may be cited for all purposes as **"Zoning Amendment Bylaw No. 2959, 2019"**.

2. That "Zoning Bylaw No. 2500, 2007" be hereby amended by adding to Division 6 - General Regulations, Part 17 Prohibited Uses in All Zones Section 6.17.1 a new subsection (d) as follows:

   "The bottling of water except where the source of the water is the municipal water supply, supplied directly to the property on which the bottling is taking place."

3. This bylaw shall come into effect upon final adoption hereof.

Read a first time this 18th day of March, 2019

Read a second time this 18th day of March, 2019

Considered at a Public Hearing this 19th day of June, 2019

Read a third time this day of , 2019

Finally passed and adopted this day of , 2019

Mayor

Corporate Officer

THE CORPORATION OF THE CITY OF COURTENAY

BYLAW NO. 2969

A bylaw to amend Zoning Bylaw No. 2500, 2007

The Council of the Corporation of the City of Courtenay in open meeting assembled enacts as follows:

1. This bylaw may be cited for all purposes as **"Zoning Amendment Bylaw No. 2969, 2019"**.

2. That "Zoning Bylaw No. 2500, 2007" be hereby amended as follows:

   (a) by rezoning Lot 3, Section 12, Comox District, Plan VIP73809 (1573 Hurford Avenue), as shown in bold outline on **Attachment A** which is attached hereto and forms part of this bylaw, from Residential One Zone (R-1) to Residential One S Zone (R-1S); and

   (b) That Schedule No. 8, Zoning Map be amended accordingly.

3. This bylaw shall come into effect upon final adoption hereof.

Read a first time this 10th day of June, 2019

Read a second time this 10th day of June, 2019

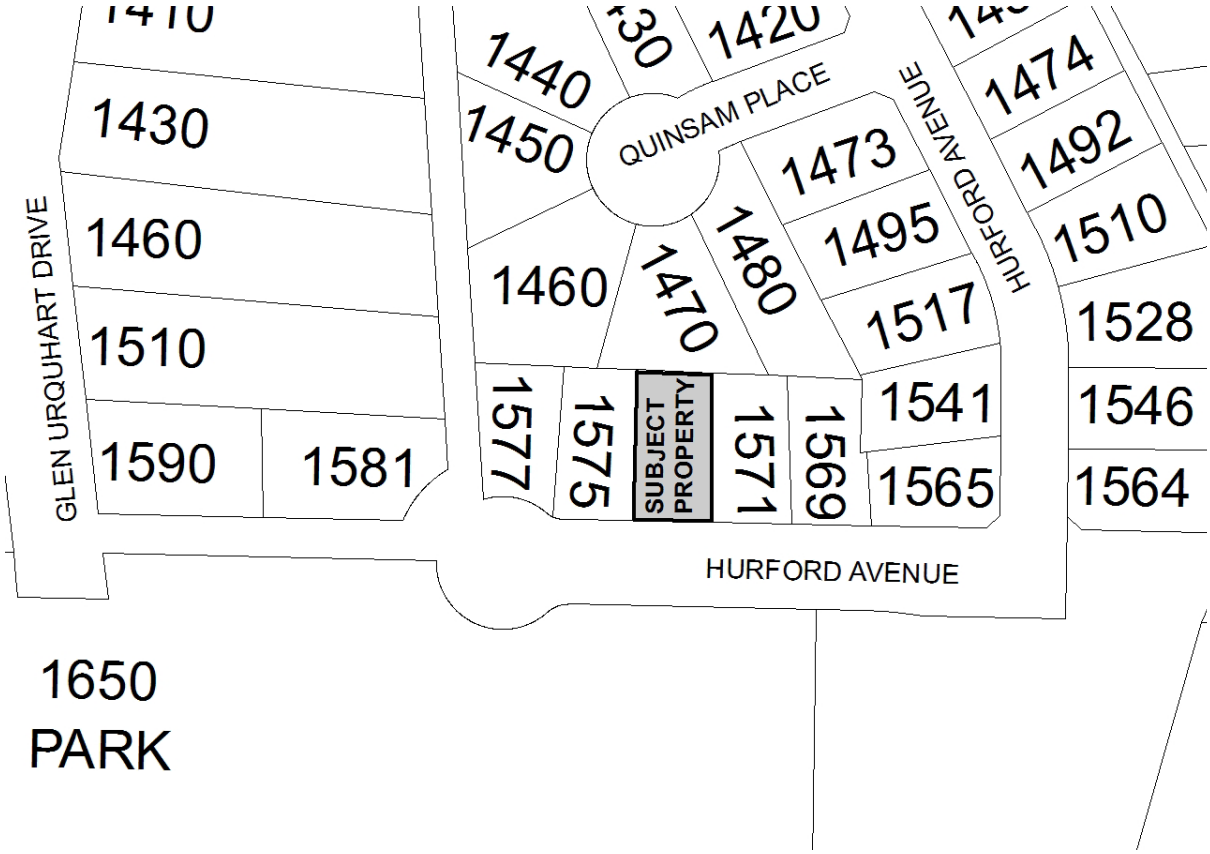
Considered at a Public Hearing this 2nd day of July, 2019

Read a third time this day of , 2019

Finally passed and adopted this day of , 2019

Mayor

Corporate Officer



THE CITY OF COURTENAY
ATTACHMENT "A"
Part of Bylaw No. 2969, 2019
Amendment to the
Zoning Bylaw No. 2500, 2007