

In Chapter 1, the four strategic framework goals were defined as:



The following section details the targets and actions under each of these goals and outlines a phased 5-Year Implementation Plan (see page 44).

The Action Plan defines the actions for growing an urban forest that is beautiful, resilient and sustainable and is supported by the community for the benefits it provides. The 5-Year Implementation Plan outlines how implementation will move forward.

Parks Services will align its annual work plans with the 5-Year Implementation Plan. The Action Plan and Implementation Plan will be regularly reviewed and revised as required to respond to performance reporting and the resources available in the Capital and Operating budgets.

5.1 Conserve and Protect

TARGET: 30% of City trees have a trunk diameter greater than 40 cm by 2045.

Objective A. The urban forest is valued as an integral part of the City's civic asset infrastructure	Time- frame
Action A.1: Implement a Council adopted City Tree Policy to guide City tree protection, removal, replacement and maintenance decisions.	2019
Action A.2: Prepare an analysis of the impact of the shift of public tree management practices on the Operating and Capital Budgets.	2020
Action A.3: Quantify and track the value of the services provided by the public urban forest as it grows including appraised amenity value, carbon sequestration, stormwater capture and water quality improvement and building energy savings.	2022
Action A.4: Review the processes and resources required for tree preservation and protection.	Ongoing
Action A.5: Share the City Tree Inventory on the City's internal mapping system and publicly on the Richmond Interactive Map.	2021
Objective B. City tree conservation and protection is prioritized and implemented on all City and urban development projects	Time- frame
Action B.1: Regularly update the Public Tree Operations Manual to define the process and standards that apply when City trees are affected by City capital and development related activities.	Ongoing
Action B.2: Annually review compensation and replacement rates for public trees impacted by development.	Ongoing
Action B.3: Review the administration of the tree protection process to improve customer service.	2021
Action B.4: Explore options to increase enforcement or inspection capacity for protection of City trees.	2021
Action B.5: Coordinate the review of the Tree Protection Bylaw in relation to public tree protection with other City departments.	2020
Action B.6: Explore the potential to apply conservation covenants in cases where a high value City tree or stand is being protected at the rezoning or subdivision stage so that ongoing protection is tied to the property title.	2021
	Ongoing
	ongoing
Action B.7: Continually review the City Supplementary Specifications and Detail Drawings to reflect best practices for tree planting and tree protection, including critical root zones. Action B.8: Manage trees in the Ecological Network as a key element of the forest ecosystem.	Ongoing

5.2 Manage and Maintain

TARGET: Tree mortality is maintained below 3.5% for City trees less than 10 cm diameter and maintenance practices maximize the healthy life-span of mature trees.

Objective C. All inventoried City trees are managed within a preventative maintenance program	Time- frame
Action C.1: Develop a best practices tree pruning and preventative maintenance program on a 5 year pruning cycle.	2020
Action C.2: Develop a 5-year staffing, equipment and budget plan to enable the transition from demand to preventative maintenance.	2020
Action C.3: Develop parameters and a rating system for evaluating and prioritizing demand maintenance and removal requests.	2020
Action C.4: Quantify data on past tree failures and risk claims and develop a tree maintenance response plan for problem species or locations.	2020

Objective D. City tree care and maintenance operations are based on ISA Best Management Practices, ANSI Standards to ensure continuous improvement	Time- frame
Action D.1: Maintain regular Parks Urban Forestry staff training, participation in industry workshops and conferences, and industry standard certifications.	Ongoing
Action D.2: Regularly update the Public Tree Operations Manual and implement the practices identified.	Ongoing
Action D.3: Continuously review and update urban forestry procedures, practices and standards to ensure they meet current industry standards.	Ongoing
Action D.4: Maintain the City's tree inventory simultaneously with the pruning cycle.	Ongoing

Objective E. City tree care and maintenance operations are continuously adapted to climate change	Time- frame
Action E.1: Review the City's young tree watering program in response to the impacts of climate change.	2020
Action E.2: Monitor mortality and failure rates to identify problem planting sites, insufficient watering or species prone to failure.	Ongoing
Action E.3: Monitor forested natural areas for vegetation decline and loss of ecosystem functions.	Ongoing
Action E.4: Continuously adjust storm response practices and monitor species prone to breakage and failure	Ongoing
Action E.5: Continuously update integrated pest management practices and monitor pest activity.	Ongoing
Action E.6: Maintain contact with the Canadian Food Inspection Agency's Plant Pest Surveillance Unit to obtain or exchange current information on plant pest threats.	Ongoing

Objective F. City tree risk is managed to maintain public safety	Time- frame
Action F.1: Map and rank locations and risk management factors throughout the City and establish a risk inspection frequency.	Ongoing
Action F.2: Continue to follow ISA Tree Risk Assessment criteria for evaluating and prioritizing tree risk assessment and response.	Ongoing
Action F.3: Work together with Engineering and Public Works to define tree planting standards and develop a standard approach for managing trees growing adjacent to the dike system, in Riparian Management Areas, Environmentally Sensitive Areas, and drainage watercourses.	Ongoing



5.3 Enhance and Expand

TARGET: Increase canopy cover over the public realm from 20% to 30% by 2045.

Objective G. Public urban forest canopy cover increases to enhance community & ecological health benefits	Time-frame
Action G.1: Develop more comprehensive public streetscape/urban realm tree planting standards incorporating municipal best practices and targets for soil volume, tree spacing, permeability and utility conflicts and update these in the City Supplementary Specifications detail drawings.	2021
Action G.2: Develop a Public Realm Planting Master Plan to guide species selection, set local diversity targets, planting character and planting schedules.	2021
Action G.3: Strive to plant 850 new trees per year (in addition to replacement trees and restoration plantings) in parks and streets, focusing on moderate and high priority areas. Target no single genus exceeding 10% of the city-wide population (excluding native trees).	Ongoing
Action G.4: Develop design strategies to allow for and to expand groves of trees and expanding plantable sites in the urban realm through planning and urban design.	2021
Action G.5: Explore options to improve the quality and survival of developer-planted trees through a review of tree planting and maintenance practices.	Ongoing
Action G.6: Review inspection and enforcement process for developer planted trees.	2020
Action G.7: Quantify the public urban forest's stormwater storage capacity to help implement the Integrated Rainwater Resource Management Strategy.	Ongoing
Action G.8: Collect aerial thermal and LiDAR imagery every 5 years to monitor ongoing change of the urban forest canopy.	2023
Objective H. Standards for City tree planting infrastructure and species selection are continuously adapted to climate change and urban development.	Time- frame
Action H.1: Continuously update species lists and selection criteria for future climate resilience and site suitability.	Ongoing
Action H.2: Continuously update practices and standards for tree planting infrastructure (e.g., tree pits, soil trenches, soil cells, structural soil etc.) and soil volumes.	Ongoing
Action H.3: Explore opportunities to work with the nursery industry to source tree species that are expected to be resilient to future climate.	2022

Action H.4: Undertake a review of Gilbert Road nursery operations and optimize its potential as a source for City tree planting projects.

5.4 Educate and Engage

TARGET: Engage 1,000 people per year on the role and value of Richmond's public urban forest.

Objective I. The City regularly updates the public about the urban forest's critical role in community health and wellness	Time- frame
Action I.1: Produce and distribute information illustrating tree benefits and explaining the urban forest's role in improving community health and wellness.	2020
Action I.2: Create an interactive City tree map linked to the City's tree inventory that reports individual tree data and ecosystem services.	2021
Action I.3: Promote greater awareness of the Public Urban Forest Policy and the Tree Protection Bylaw.	Ongoing

Objective J. Activities that are detrimental to City trees are minimized	Time- frame
Action J.1: Produce and distribute information:	2021

- Defining activities that harm trees.
- Explaining alternative practices where relevant to avoid harming trees.
- On how to report vandalism or damage to trees.

Action J.2: Encourage behavioural change among individuals or groups that have caused harm	Ongoing
to City trees through targeted education or participation in damage restoration.	

Objective K. Stewardship opportunities are provided to connect people with the urban forest	Time- frame
Action K.1: Provide stewardship opportunities such as tree or understory planting, invasive species removal and citizen science projects for the public.	Ongoing
Action K.2: Create new opportunities to partner with residents to water newly planted trees in City boulevards.	2021
Action K.3: Produce and distribute information on:	2020

• tree watering instructions in times of drought.

- how to properly care for private trees.
- how to identify and report City trees in need of care.

Objective L. Increase awareness of best management practices for tree protection and retention across all City departments	Time- frame
Action L.1: Provide City Engineering and Public Works Operations staff on the best management practices for working around trees.	2020
Action L.2: Create a quick reference guide for the requirements and standards for arborist reports, tree protection and construction practices when working near City trees.	2020
Action L.3: Engage with other municipalities and senior levels of government to share effective urban forestry best management practices and tree preservation efforts.	Ongoing

5.5 Measuring Success

Regular monitoring and evaluation will be conducted to ensure that the Public Tree Management Strategy is meeting these goals, objectives and targets. Monitoring will inform updates to the Public Tree Management Strategy and Action Plan.

Beginning in 2020, the Parks Division will collect the appropriate data for performance reporting to:

- Measure progress towards targets.
- Track changes in budgets and resource allocation.
- Evaluate the effectiveness of programs.
- Monitor progress on priority actions.

Performance reporting will be conducted every five years. The benefits of continually measuring results are improved performance, enhanced accountability, greater cost effectiveness and increased innovation.

5.6 Next Steps

Trees managed by the City's Parks Department are located on public land but are part of the larger, city-wide urban forest. A significant portion of the City's forest is located on private land. Management of trees on private land is the responsibility of individual land owners and is regulated through the administration of bylaws and policies. There are numerous opportunities and challenges to ensuring trees located on private property are preserved. Parks is committed to working in concert with relevant City departments to support a systematic implementation of policy and regulatory updates to encourage the overall health of the City's urban forest.

The City will look at broad, City-wide tree management policies and procedures to consider how to better serve the public with more efficient services regarding trees on both the public realm and private property. This would include the following suggested reviews and new initiatives, including:

- Development of a City-wide Urban Forest Management Strategy (to consider trees in the public and private realms).
- Considering updates to the relevant sections of the Official Community Plan (e.g., Development Permit Guidelines and tree canopy targets for public open space).
- Developing city-wide urban forest canopy coverage targets.
- Considering the creation of a customer service focused "one-stop shop" approach to tree related issues.
- Increase community engagement opportunities to instill a stewardship ethic in Richmond residents to protect and expand the public urban forest.



5.7 Five-Year Implementation Plan

Goal	2019 / 2020	2021	2022	2023	2024
CONSERVE AND PROTECT			1	1	
Objective A. The urban forest is valued as an integral part of the City's	A.1				
civic asset infrastructure	A.2		4.2	_	
			A.3 A.4		
		A.5			
Objective B. City tree conservation and protection is prioritized and			B.1		
implemented on all City and urban development projects		B.3	B.2		
		B.4			
	B.5				
		B.6	B.7		
			B.7 B.8		
			B.9		
MANAGE AND MAINTAIN					
Objective C. All inventoried City trees are managed within a preventative	C.1*				
maintenance program	C.2 C.3				
	C.3				
Objective D. City tree care and maintenance operations are based on			D.1		
ISA Best Management Practices, ANSI Standards to ensure continuous			D.2		
improvement			D.3 D.4		
Objective E. City tree care and maintenance operations are continuously	E.1*		D. 1		
adapted to climate change			E.2		
			E.3		
			E.4 E.5		
			E.6		
Objective F. City tree risk is managed to maintain public safety			F.1		
			F.2 F.3		
ENHANCE AND EXPAND					
Objective G. Public urban forest canopy cover increases to enhance		G.1			
community & ecological health benefits		G.2*			
		G.4	G.3*		
		011	G.5		
	G.6				
	-		G.7	G.8*	
Objective H. Standards for City tree planting infrastructure and			H.1	0.0	
species selection are continuously adapted to climate change and			H.2		
urban development.			H.3		
			H.4*		
EDUCATE AND ENGAGE	1.1*				
Objective I. The City regularly updates the public about the urban forest's critical role in community health and wellness	1.1	l.2*			
entreamore in community neutrinitia weiliness			1.3		
		J.1*			
Objective J. Activities that are detrimental to City trees are					
minimized		J.2	L/ 1*		
minimized Objective K. Stewardship opportunities are provided to connect		J.2 К.2	K.1*		
minimized	K.3*		K.1*		
minimized Objective K. Stewardship opportunities are provided to connect	K.3* L.1 L.2		K.1*		

* Recommendation with budget implication. Resourcing implications are not reflected in this table but staffing increases for planting and maintenance are anticipated.

References

Benedict, M.; McMahon, E. 2006. Green Infrastructure. Island Press

City of Richmond. 2016. *Integrated Rainwater Resource Management Strategy.* Accessed online, October 2018: https://www.richmond.ca/_shared/assets/_1_RainwaterResourceMgmt44315.pdf

City of Richmond. 2015. *Richmond's Ecological Network Management Strategy*. Accessed online, October 2018: https://www.richmond.ca/_shared/assets/Ecological_Network_Management_Strategy42545.pdf

City of Richmond. 2012. *City of Richmond's Parks & Open Space Strategy 2012-2022*. Accessed online, October 2018. https://www.richmond.ca/parks/about/planning/Parks_and_Open_Space_Strategy.htm

City of Richmond. 2005. *Heritage Inventory*. Accessed online, October 2018: https://www.richmond.ca/plandev/planning2/heritage/HeritageInv/HeritageInventory.pdf

Cook, D. 2002. *Richmond's Suburban History.* Consultant report prepared for the Richmond Heritage Commission.

Environment Canada. 2018. *Environment Canada, Canadian Climate Normals 1981-2010 Vancouver International Airport,* Accessed online, November, 2018: http://climate.weather.gc.ca/climate_normals/index_e. html

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.

Leff, M. 2016. The Sustainable Urban Forest: A Step-by-Step Approach. USDA Forest Service and Davey Institute. Accessed online, March 2019: http://www.itreetools.org/resources/content/Sustainable_Urban_Forest_ Guide_14Nov2016.pdf

Metro Vancouver. 2017. Urban Forest Climate Adaptation Framework for Metro Vancouver. Accessed online, October 2018: http://www.metrovancouver.org/services/regional-planning/PlanningPublications/ UrbanForestClimateAdaptationFrameworkTreeSpeciesSelection.pdf

Metro Vancouver. 2016. *Climate Projections for Metro Vancouver*. Accessed online, October 2018: http://www.metrovancouver.org/services/air-quality/AirQualityPublications/ClimateProjectionsForMetroVancouver.pdf

North, M.E.A.; Dunn, M.W.; Teversham, J.M.1979. *Vegetation of the Southwestern Fraser Lowland*, 1858-1880. Lands Directorate, Environment Canada, Vancouver, BC.

Morita, E., S. Fukuda, J. Nagano, et al. 2007. *Psychological Effects of Forest Environments on Healthy Adults: Shinrin-Yoku* (Forest-Air Bathing, Walking) As a Possible Method of Stress Reduction. Public Health 121, 1:54-63.

Ohira, H., S. Takagi, K. Masui, M. Oishi, and A. Obata. 1999. *Effects of Shinrin-Yoku (Forest-Air Bathing and Walking) on Mental and Physical Health.* Bulletin of Tokai Women's University 19:217-232.

Parsons. 2016. *Lulu Island Dike Master Plan Phase 2 Draft Report.* Consultant report submitted to City of Richmond. Accessed online, October 2018: https://www.richmond.ca/__shared/assets/_3_DikeMasterPlan_ Phase246195.pdf

Richards , N. 1983. *Diversity and stability in a street tree population.* Urban Ecology, vol. 7, no. 2, pp. 159-171.

Santamour, F. 1990. *Trees for urban planting: diversity, uniformity, and common sense in* 7th Conference of the Metropolitan Tree Improvement Alliance, The Morton Arboretum, Lisle.

Appendix A: Public Survey



City of Richmond Urban Forest Management Strategy Survey

Parks Department 6911 No. 3 Road, Richmond, BC V6Y 2C1

The City of Richmond is developing an Urban Forest Management Strategy (UFMS). Trees and forests provide important benefits for our community's health and well-being. The Strategy will give us the vision for what our urban forest will be and will set out principles and targets to make our vision a reality.

Please complete and return this survey to the City of Richmond by Sunday, November 12, 2017.

What is an Urban Forest Management Strategy?

An Urban Forest Management Strategy guides how we protect and manage trees on public and private land in urban areas. The Strategy will provide the vision for what our future urban forest will be and a framework for how to get there.

Why do we need an Urban Forest Management Strategy?

The strategy will provide City of Richmond public, City Council and staff with a better understanding of the urban forest and what needs to be done to ensure a healthy urban forest legacy for future generations. Recommendations in the strategy will guide staff in decisions on budgeting and prioritization of urban forest work including tree protection, maintenance and inventory programs, street, park and native tree planting and stewardship.

We want to hear from you

This survey will take about 15 minutes to complete. It will be available in paper form and online at LetsTalkRichmond.ca until Sunday, November 12 at 11:59 p.m. The survey results will be used to help guide the vision, objectives and targets for the future management of trees and natural systems that make up the City's urban forest.

DEFINITIONS

Urban Forest: The urban forest includes all of the trees, vegetation, soil and associated natural processes found across our city's landscape - on both public and private lands including parks, schools, streets, parking lots, back yards, and apartment complex grounds.

Canopy Cover: One way to understand the extent of the urban forest is to measure the urban tree canopy; envision the layer of leaves, branches and tree stems when viewed looking down from above.

Urban Forest Management: The art, science and technology of managing trees and natural systems in and around urban areas for the health and well-being of communities.

URBAN FORESTRY SURVEY

1. I am a Richmond resident:

Yes

No – thank you for your interest.

2. I think it is most important for the urban forest to: Tick only one box in each row.

		Least	-		lucu	Most
		Importa 1	ant 2	3	4	ortant 5
Α	Support habitat for native (local) plants and animals				4	
В	Regulate storm water run-off and improve flood protection					
С	Reduce air pollution					
D	Buffer wind					
Ε	Sequester and store carbon					
F	Reduce noise					
G	Regulate temperature by shading and cooling streets and buildings					
Н	Provide a place for heritage trees					
I	Beautify Richmond					
J	Provide pleasant spaces for people to interact and socialize					
К	Attract tourists to improve the local economy					
L	Provide spaces that reflect Richmond's cultural diversity					
Μ	Provide spaces of spiritual or exceptional personal meaning					
Ν	Increase property prices					
0	Provide spaces for people to play sports or do other recreational activities					
Ρ	Contribute to Richmond's identity					
Q	Produce food					

3. I am satisfied with the number, condition and size of: *Tick only one box in each row.*

		Very dissatisf	ied			Very satisfied
		1	2	3	4	5
Α	Trees in my street					
В	Trees in my local park					

Please explain why you selected the ratings above.

For questions 4 and 5, please consider the following photos:



A. Few or no trees



B. Regularly spaced small trees



C. Unevenly spaced, variously sized trees



D. Regularly spaced, medium trees



E. Regularly spaced, large trees

- 4. Looking at the photos above, my street is most similar to: _____
- 5. Looking at the photos above, I would like my street to look like: _____

6. In the last year, I have:

Please check all that apply:

Α	Watered trees	
В	Planted a tree on private property	
С	Pruned a tree on private property	
D	Assisted a family member or neighbour with their tree needs	
E	Applied pesticides to a tree or garden	
F	Participated in a not-for-profit's tree planting activity	
G	Obtained a permit to protect or remove trees on a development site	
Н	None of the above	

7.

On my own property, I plan to do the following in the next year: Please indicate how likely you are to undertake the following actions. Tick only one box in each row:

		Very unlikely		Neither likely or unlikely		Very likely
		1	2	3	4	5
Α	Plant one or more <u>large</u> tree (e.g. > 15 m tall at maturity)					
В	Plant one or more <u>medium</u> tree (e.g. 10 – 15 m tall at maturity)					
С	Plant one or more <u>small</u> tree (e.g. < 10 m tall at maturity)					

8.

I feel the following: Tick only one box in each row.

		Strongly disagree		Neither agree or disagree		Strongly agree
		1	2	3	4	5
Α	Public street trees are well cared for by the City					
В	Trees in parks are well cared for by the City					
С	Natural areas are well cared for by the City					

9. I think it is most important for the City to: *Tick only one box in each row.*

		Least Import	tant		Imp	Most oortant
		1	2	3	4	5
Α	Plant more trees in streets					
В	Plant more trees in parks					
С	Plant more trees in natural areas					
D	Protect trees on private land					

10. I feel the following about each of these statements. The City should: Please indicate how much you agree with each of the following statements. Tick only one box in each row.

		Strongly disagree		Neither agree or disagree		Strongly agree
		1	2	3	4	5
Α	Plant more trees and increase urban forest canopy cover					
В	Strengthen the tree bylaw so that more trees are retained during development					
С	Require replacement trees that are medium or large at maturity, rather than small at maturity if there is enough space					
D	Require replacement trees for every tree removed					
E	Require replacement trees for every tree removed unless the tree was hazardous					
F	Increase the tree permit fee (\$50) to fund more enforcement of the City's tree bylaw					
G	Set a minimum requirement for permeable surface on private land in new developments					
Н	Encourage people to plant trees on private property by selling trees at a low cost					
I	Encourage people to plant trees on private property by educating them about how to select, plant and care for trees					

11. I would like to learn:

Select up to three choices.

How and when to water trees
How and when to prune tree branches
How to choose the right tree for my yard
How to keep trees healthy during construction
How to manage tree pests and diseases
How to protect mature trees during development
I am not interested in learning about trees

Other:

12. The things I MOST VALUE about Richmond's urban forest are:

A	
В	
C	

13. The things I LEAST VALUE about Richmond's urban forest are:

A	
В	
C	

14. It is the year 2050, 33 years from now. My ideal image of Richmond's urban forest is: Optional question, please complete if your time allows.

15.	I would like to be contacted about Check all that apply
	Future consultation for Richmond's Urban Forest Management Strategy
	Urban forest events and volunteer opportunities
	Please provide email:
16.	I heard about this public engagement through: Check all that apply
	Newspaper ad (Richmond News)
	News story written by reported in local newspaper
	LetsTalkRichmond.ca email sent to me
	LetsTalkRichmond.ca website (not an email from this site)
	City of Richmond website (Richmond.ca)
	Facebook
	Poster in a City facility
	Poster in a retail store in my community
	Word of mouth

Some information about me:

It's important that we hear from a diverse group of people and perspectives. The following questions help us determine how the feedback we received represents the community.

17. My home postal code is: _____

18. I fall into the following age group:

Less than 18

18-34

35-54

55+

Prefer not to answer

19. I have lived in Richmond

Choose one option

My whole life

A long time (6 or more years)

I have moved here in the past 5 years

Prefer not to answer

20. I was born in Canada

Choose one option

Yes

__ No

Prefer not to answer

21. My first language is

Choose one option

English	
French	
Cantonese	
German	
☐ Japanese	
Mandarin	
🗌 Persian (Farsi)	
🗌 Punjabi	
🗌 Russian	
Spanish	
Tagalog	
Prefer not to answer	
Other (please specify):	



