VILLAGE OF KASLO TREE PLANTING PLAN

FINAL REPORT

AUGUST 6, 2021

Prepared by Trish Leier and Kim Molyneaux,

CONSULTING CATHRO

TABLE OF CONTENTS

1.0 INTRODUCTION

The Village of Kaslo has a Tree Policy that includes planting two trees for every one removed. However, there is currently a deficit in replanting trees within the Village. This report establishes a prioritized list of locations within the Village Boundaries, specifically within the Village of Kaslo Tree Inventory & Arborist Report, November 4, 2019 (Mumby Report), that recommends new tree plantings to offset the deficit created due to tree removals. Included in this report are suggested species for specific locations in consideration with preferences of nearby property owners and park users.

Appendices are referenced throughout this report in relevant sections. These documents contain information and guidance that is integral to this report. The full list of material can be found in the Appendices section at the end of this document.

Recommendations in this report are based on information provided by;

- The existing Mumby Arborist Report,
- The Village Tree Policy,
- Public consultation; and
- Trish Leier, a professional arborist.

Recommended activities aim to enhance the natural and built environment within the Village and promote social and ecological benefits associated with urban forests. This document is a framework guided by best management practices set out in the Approved American National Standard (A300) by the International Society of Arboriculture to ensure the long-term success of this program.

2.0 PUBLIC CONSULTATION

A survey was prepared for residents of the Village of Kaslo to generate feedback on the Tree Planting Plan and new planting locations. The outreach was designed to generate interest and dialogue with community members in order to establish general priorities when considering species selection and location for proposed plantings.

Based on this outreach, the areas prioritized by local residents include A Avenue, D Avenue, Third Street and construction sites in the downtown core near Front Street Park and the new Public Library site. Additional park sites recommended include; Murray Pearson Ball Park, Vimy Park including the Skate Park area, Kaslo Campground and Bay Front Park. Figure 1 outlines these areas of prioritization within Village boundaries.

Public preference for species selection favoured climate resistant species and flowering and fragrant varieties. Specific species requested include varieties of sterile flowering fruit

trees, maple (*Acer spp.*), maidenhair tree (*Gingko biloba*) and London plane (*Platanus acerifolia*). In addition to public surveys, consultation involved discussions and meetings with various stakeholders including Village employees, business owners, school representatives, community groups and homeowners. Full public survey results can be found in Appendix A.

Included in the public consultation process was the discussion and promotion of the Adopt-A-Tree program. Feedback from community members ranged from taking on basic watering, observation and reporting duties, to providing financial donations for new tree plantings. Some residents offered to maintain new plantings fronting their properties and others showed interest in providing support for trees in alternate locations such as parks and trails. Financial donations were discussed in support of having trees established in front of homes on Village land with the assistance of the Village Crew, within parks and trail areas that would be identified with associated plaques that include donor names, dates and information about the tree's species. Varying levels of interest were shown by residents and the general consensus was for a program to be further developed. Currently, initial volunteers have been established to assist in tree watering, as well as monitoring and reporting notable deficiencies in tree health to Village staff.

3.0 Planting Plan Details and Maps

3.1 Map Details

A total of 245 planting points were mapped as potential sites for future tree plantings. Green points indicate locations with species specific recommendations and include contact information (name, number, and email) for Adopt-A-Tree participants. Participants referenced in these points are willing to fill tree watering bags on four-to-five-day cycles and to monitor and report tree health to the Village Works Department. There are a total of 50 green points where a resident is willing to provide this support for the next two years, during the 2021 and 2022 planting season. Contact should be established with the potential participants to engage them further and provide a timeline on when they can expect these plantings to take place and the duration of their commitment to watering. It has been discussed with participants that a minimum of two years watering is recommended and that watering bags will be removed prior to freeze up and replaced post winter thaw.

A total of 76 orange points indicate tree deficit locations with species-specific recommendations. 111 red points indicate tree deficit locations that could be used in establishing a mail out program, within the Adopt-A-Tree Program, to generate new tree plantings for potential future Adopt-A-Tree participants. A total of 8 yellow points identify

new tree planting sites that should be considered after the completion of construction. This will allow for the correct recommended species and to ensure all potential construction traffic has ceased in order to prevent any unnecessary damage to new trees and surrounding soil.

It is recommended that future construction projects include a planting plan for approval by Village staff prior to construction proceeding. Consideration should be given to providing adequate space, soil and backfill during the design phase and submitted with the architectural drawings for approval by the Village. All identified tree sites and associated attributes can be referenced in Appendix B.

3.2 Tree Spacing

When finalizing decisions for planting locations, the following series of recommendations should be considered for appropriate and safe tree spacing.

The minimum spacing guidelines for distance between street trees are recommended as:

- 3m- 4.6m (10'-15') spacing for 6m-9m (20'-30') canopy diameter for small trees
- 4.5m- 6m (15'-20') spacing for 9m- 12m (30'-40') canopy diameter for medium trees
- 6m- 7.6m (20'-25') spacing for 12m- 15m (40'-50') canopy diameter for large trees
- 7.6m-10.6m (25'-35') spacing for factors such as the frequency of driveway cuts, underground utilities, signs, light and telephone poles.
- No tree that grows to a mature height taller than 7.6m (25') should be planted under high voltage lines.

The following spacing recommendations are provided to determine appropriate planting locations of street trees:

- For utility and light poles tree spacing should be 1.5m (5') (with no light) up to 6m (20') (with a light). This spacing can be adjusted based on the canopy diameter of mature trees.
- Trees should be spaced 3m (10') from commercial driveways
- Trees should be spaced 1.5m (5') from residential driveways, fire hydrants, water or valve boxes and sewer lines.
- Where essential underground utilities are located including electrical, sewer mains, water mains and basements, trees should be spaced at a minimum distance of 3m (10') laterally.
- Where communication utilities are located underground, including KiN service lines, efforts should be made to contact the service provider and have these lines located

and uncovered where necessary, in an attempt to prevent damage to lines and disruptions to services.

3.3 Tree Planting Plan Maps

Points indicated on the map are based on general location. The recommendations above are based on visual surveys and information provided in the referenced Mumby Reports. Knowledge of existing and proposed infrastructure will need to be considered prior to finalizing any planting locations. It is imperative that each planting location is reviewed in the field to identify potential conflicts. Full-sized georeferenced versions of these maps are provided as attachments in a separate file. An excel spreadsheet containing tree sites and associated attributes is included in Appendix B and should be referenced in conjunction with these maps. All maps included in this report were produced for the Village of Kaslo by Vivid Consulting.

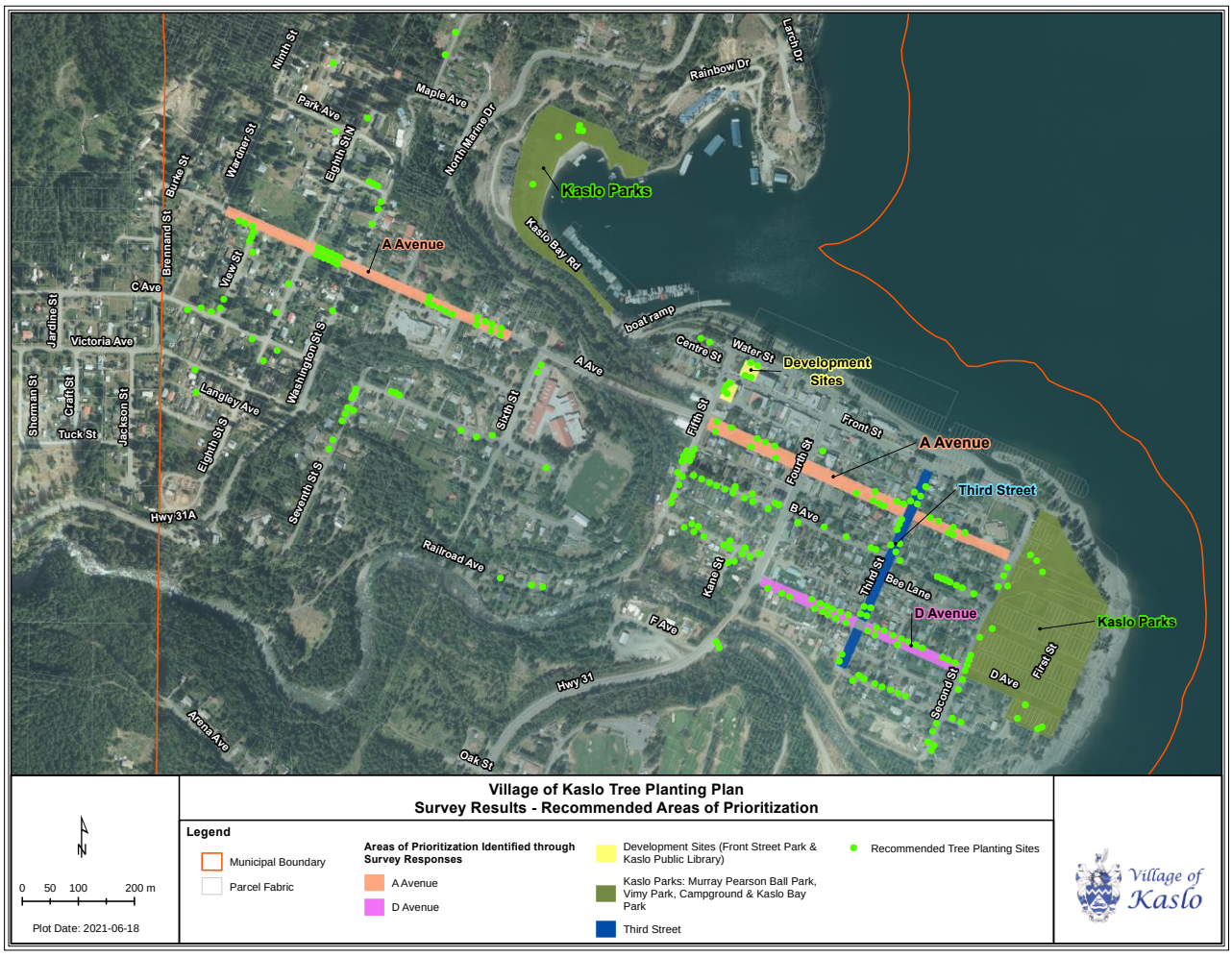


Figure 1. Village of Kaslo Tree Planting Plan Map: Survey Results- Recommended Areas of Prioritization.

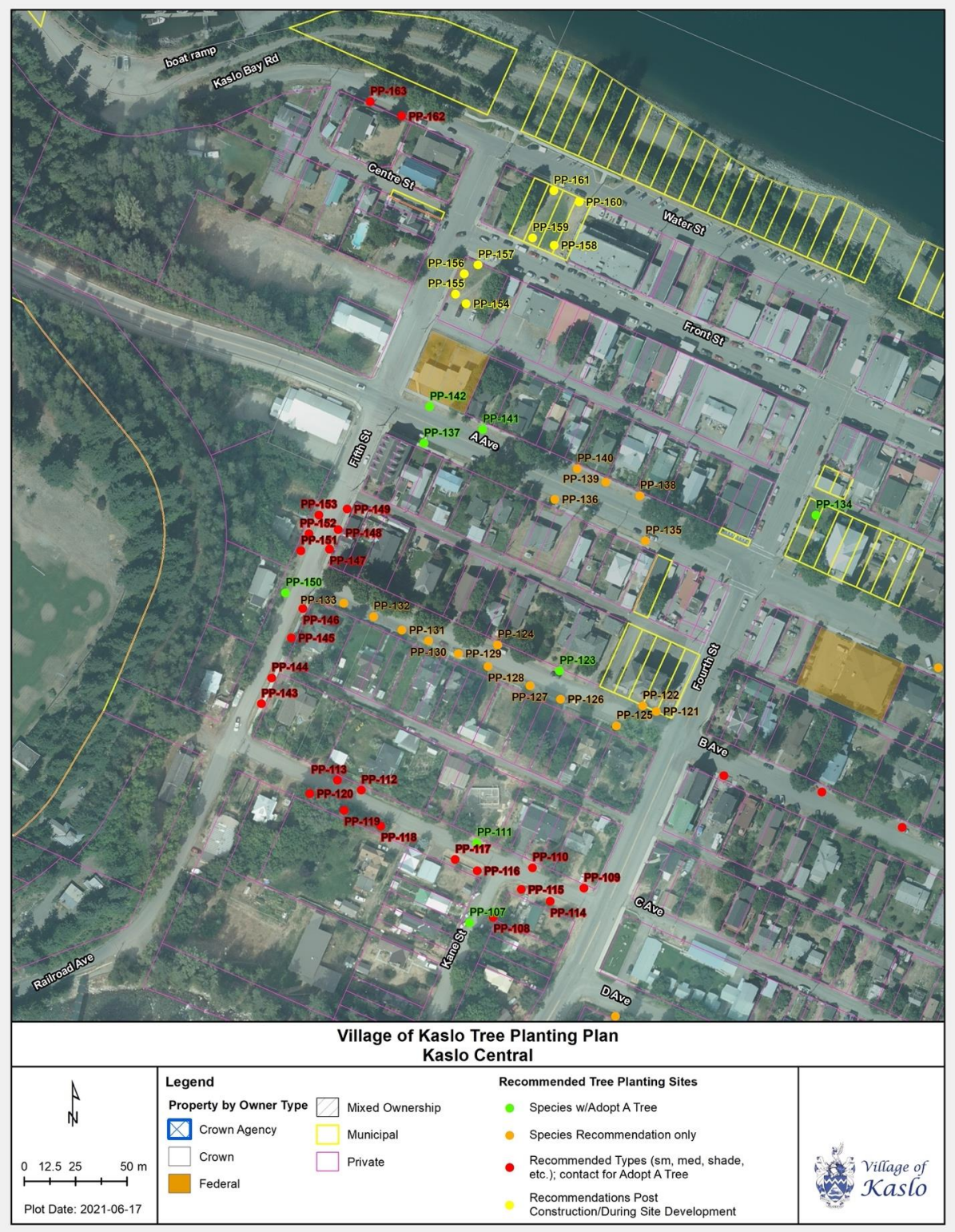


Figure 2. Village of Kaslo Tree Planting Plan Map: Kaslo Central.

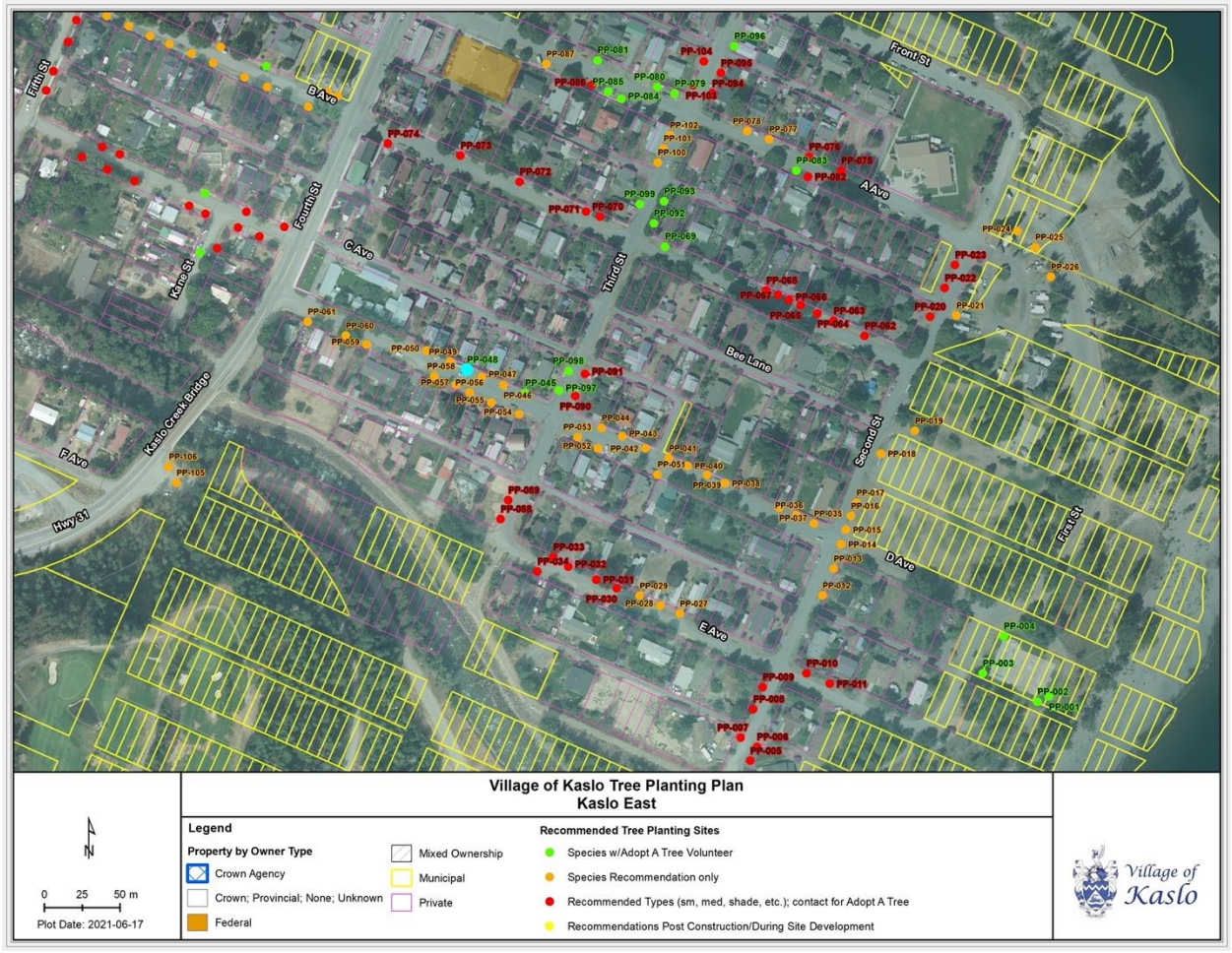


Figure 3. Village of Kaslo Tree Planting Plan Map: Kaslo East.

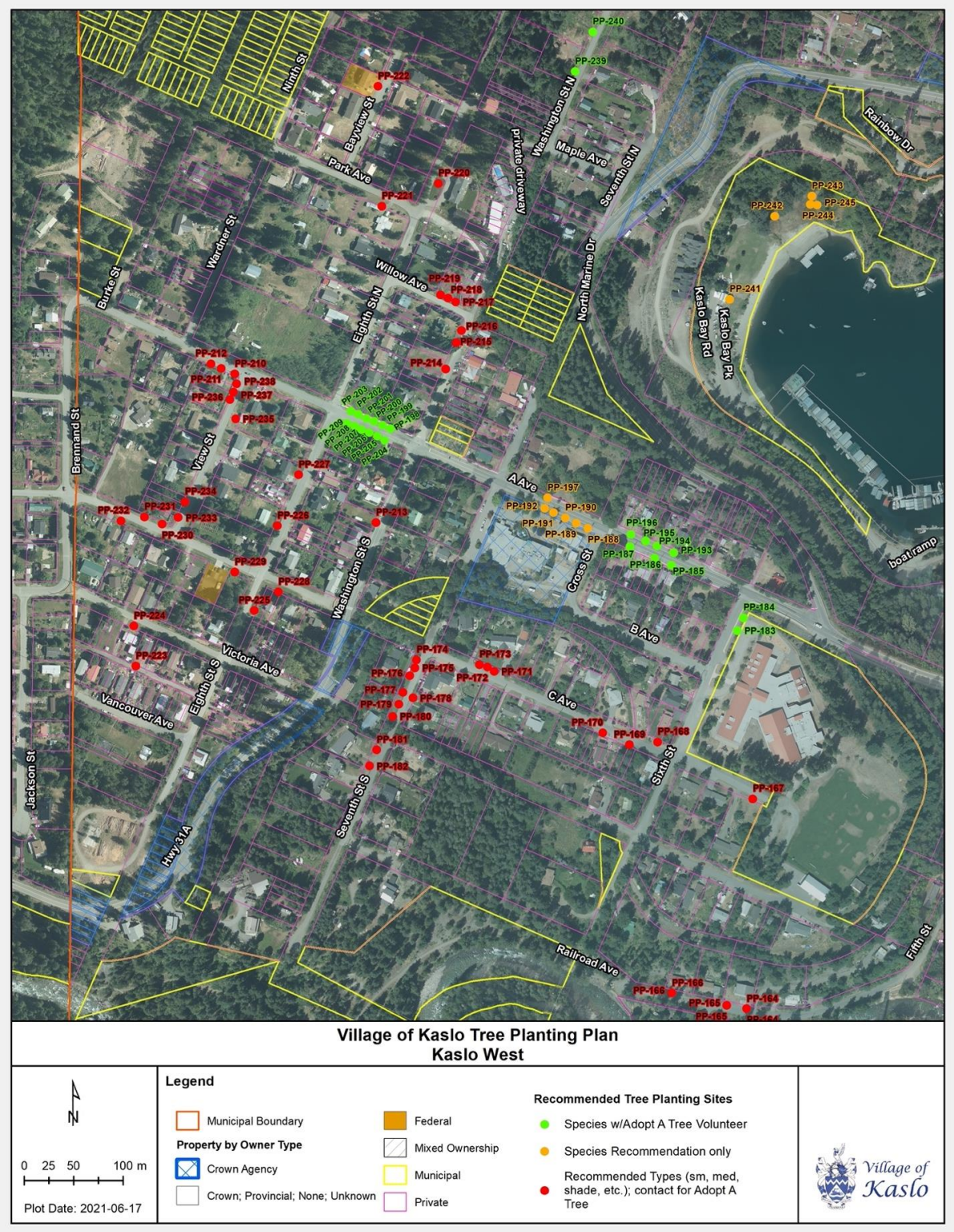


Figure 4. Village of Kaslo Tree Planting Plan Map: Kaslo West.

4.0 Species Selection Chart

4.1 Chart Guidance

The species selection chart was created to provide a list of species to be considered for future plantings. Species are divided into sections by size and include information on approximate mature height, forms and favourable attributes. It should be noted that all species have various cultivars that may offer species specific cultivated variations. Examples of variations between species cultivars include more vibrant fall colour, narrower form for smaller spaces and sterile fruiting varieties to minimize attractants for animals. The full Species Selection Chart and Associated Attributes can be referenced in Appendix C.

When assessing cultivars, it is important to review the various tree terms used. For example, the terms columnar/ fastigiate indicate a tall, thin tree with very narrow, upright shape and upright branches. Pendula is a term that describes a weeping shape, where branches droop down and sweep the ground. This species selection list can be used in conjunction with instructions provided on tree size zones included in the Village Works Crew Manual and onsite surveys regarding infrastructure and specific attribute interests within locations.

4.2 Nursery Stock

When selecting appropriate nursery stock, it is recommended that trees be purchased from nurseries that are grown and harvested in accordance with standards outlined in the *American Standard for Nursery Stock* (*ANSI Z60.1-2004*) or the most current edition. This manual is a communication tool that uses common terminology to facilitate transactions between buyers and sellers.

Trees acquired for planting in the Village of Kaslo right-of-way must exhibit the following characteristics:

- Healthy and vigorous growth with trunk and limbs free of insects, disease, defects, injury and decay.
- A single dominant trunk that is straight with a well-developed leader and good trunk taper
- Well distributed branches that are considerably smaller in diameter than the trunk. These should have wide-angled branch attachments or branch attachments that are appropriate in contrast to the tree's form.
- A healthy, fibrous root system with no sign of defects.

For optimal tree survival in the urban environment, large caliper trees should be considered for stock selection. The caliper is the trunk width measured 15cm above the

ground. Larger caliper trees establish more quickly and typically branch higher, providing necessary clearance sooner than smaller trees. Smaller trees are also more prone to damage and vandalism. Planting larger caliper trees of high-quality nursery stock helps to protect the investment in the urban canopy resource.

It is recommended that minimum tree size measurements are considered for tree stock at the time of planting, rather than at maturity. Deciduous trees should have a minimum caliper of at least six centimeters. Coniferous trees should measure 3.5 meters tall at the time of planting. These measurements exclude the root ball.

For the greatest chance at successful establishment, installation considerations should favour balled and burlapped (B&B) nursery stock. The time of year a tree is planted can greatly affect the tree's ability to establish as trees need ample water in order to survive and grow. Planting during the wet, cool months will help ensure successful tree establishment and survival.

5.0 Planting and Purchasing Trees

5.1 Preparing for Planting

Most tree species cannot tolerate saturated soils during the growing season. Therefore, planting holes must provide adequate drainage. If soil permeability is low, soil can remain saturated for long periods of time. Even short periods of saturation can kill the roots of many species. It is important to ensure the soil on a site is well-drained prior to planting. Instructions on how to test the permeability of a soil can be found in the Planting Seminar Notes provided in Appendix D.

By completing a soil analysis prior to planting, the need for amendments can be determined. Soil amendments can improve physical properties such as water retention, permeability, drainage, aeration and structure, in order to ensure initial establishment of roots. Super soil blends are available for purchase at ACE Hardware. Soil totes are 1200lbs (1.2 m^2) and priced at $200 per tote.

There are nine basic steps to planting a new tree. It is imperative that these steps are carefully followed to ensure successful establishment of newly planted trees within the Village. These instructions can be found in the Planting Seminar Notes section of Appendix D as well as in the attached PowerPoint presentation.

5.2 Recommended Nursery Contacts

Based on best practices and consultation, the following are a list of preferred and recommended nursey contacts.

Nursery	Contact	Email
Purple Springs Nursery	Chris Edwards	info@psnursery.com
Georama	Case Grypma	case@georamagrowers.com

When purchasing stock, it is important to consider trees grown in British Columbia and recognize nurseries with certified arborists on staff using approved best practices. Both nurseries listed above can provide delivery with associated charges based on order sizes. Another option to consider is a truck and operator rental service provided by ACE Hardware. Services through ACE are priced at $125.00 per hour. Nurseries take orders in the fall for spring planting; this provides an opportunity to order preferred species and avoid having to make leftover selections in spring. Quotes for nurseries and supply companies are provided in Appendix E.

The following products are highly recommended to facilitate success of new plantings:

- The *Tree Gator* watering bags allow the Village Works Crew to minimize visits during initial watering, allows community members to re-fill bags and has proven a better survival rate for new plantings.
- Deer, elk and rabbit repellants are available from Plantskydd. Once applied to the tree, the bitter taste discourages animals from returning for more.
- The Forestry Store sells appropriate trunk protection to minimize damage from lawnmowers and line trimmers at the base of the tree.

6.0 Future Planning for Planting Areas with Limited Space

It is my recommendation that specific inclusions should be considered in the Official Community Plan for future planting areas and existing tree assets, particularly in areas with limited space. These include accounting for new construction and requirements clarified in design and backfilling to allow for post construction planting. The proposal phase of new construction projects should include consideration of tree and shrub plantings and ample space should be considered by design architects. Moving forward, attention should be given to implementing new policy in sidewalk construction to allow for tree placement. This is most applicable to sidewalks in the downtown area, particularly Front Street. Currently, planting locations are limited to the Front Street Park area. Tree wells and pits are an example of using underground space to accommodate trees within paved locations.

Well-managed treed environments can play a significant role in creating liveable and sustainable communities. Incorporating policy surrounding municipal tree planting provides an array of long-term community, residential and ecological benefits. A more extensive list of these benefits can be found in the Planting Seminar Notes listed in Appendix D.

7.0 Further Considerations Moving Forward

7.1 Policy Implementation

Moving forward, further policy considerations involving the Official Community Plan should be made for the inclusion of street tree assets and planting specifications including but not limited to the following categories:

- Permits
- Planting Season
- Street Tree Planting Locations
- Tree Species Selection
- Tree Stock Selection
- Transporting and Storing Trees
- Root Barriers
- Excavation
- Preparing Trees for Planting
- Installation
- Backfilling
- Mulching
- Staking
- Tree Grates, Well and Pits
- Tree Establishment and Aftercare
- Long-term Monitoring and Maintenance

When considering the benefits of street trees in the urban landscape, it is also important to account for conflict with sidewalk design and tree roots. This article titled *About Sidewalk and Tree Roots Conflict* can provide guidance on how to plan for prolonged life of both trees and paved infrastructure. Tree pits and well designs are necessary for implementing new plantings in paved downtown areas. More information can be found in *The 7 Fundamentals of Tree Planting in Paved Surroundings*. Many municipalities implement policy for protection zoning around trees in construction sites. This plan for *Tree Protection Policy and Specifications for Construction Near Trees* can help develop a plan for future conflict with trees and new construction. Overall, the inclusion of Construction and Heritage Tree By-Laws will protect urban forest coverage and could assist in generating constructive and creative ways of developing financial supplementations to replanting efforts. With the understanding that the Village of Kaslo currently operates its tree protection program within a policy, I would recommend that further work is done to develop a formal bylaw to protect Village Tree Assets and provide recourse for not doing so. It is recommended that this bylaw work to include significant or heritage trees as well as approved practice for

new and established construction sites including protection measures and replanting plans where necessary.

7.2 Funding and Grants

One way to generate funding for future plantings is through the development of a Construction Permitting process that generates revenue towards new plantings. The City of Vancouver's *Protection of Trees By-Law* and recommendations from Tree Canada's *Compendium of Best Urban Forest Management Practices* can help with the development of this practice. Construction applications should include design for planned tree protection zones and boundaries prior to construction permits being granted and large equipment arriving on site. An example of this is the City of Surrey's guidelines on *Tree Protection Barriers* within the Tree Protection By-Law. Community tree grants are also available through Tree Fund Canada to support green initiatives and infrastructure projects upwards of $10,000.00. These funding applications are accepted in the fall for spring programs.

8.0 In Summary

Many considerations need to be made outside of physically planting when establishing a healthy, resilient and long-lived urban forest. Future proposals for tree planting should consider timing of nursery ordering schedules, appropriate planting seasons and planning consultations. Consultations for spring to late summer would align with nursery fall ordering schedules, allowing on-the-ground planting to commence the following spring. This plan aims to relieve the historical deficit of trees and support the Village's Tree Policy through guidance on prioritized locations, appropriate species selection, care of newly planted trees and policy recommendations to support the success of this program. The goal is for these new plantings to accentuate the natural beauty of the Village of Kaslo while providing both social and ecological benefits associated with urban forests.
Acknowledgement and thanks is given to community members, Village of Kaslo Staff and stakeholders for feedback and support in the development of this plan.

9.0 APPENDICES

VILLAGE OF KASLO TREE PLANTING PLAN: SURVEY RESULTS

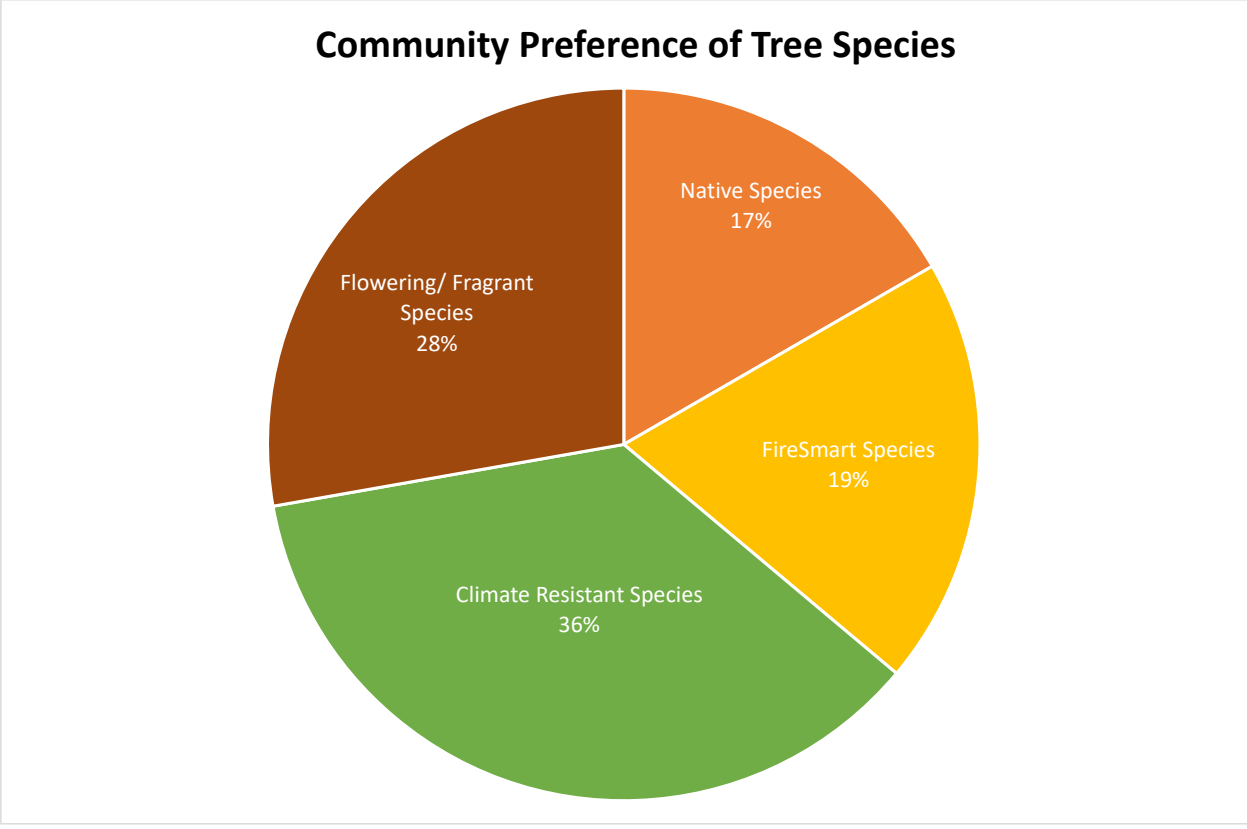
PREPARED BY TRISH LEIER & KIM MOLYNEAUX
CATHRO CONSULTING LTD.

APRIL 28, 2021

On behalf of the Village of Kaslo, we have prepared and delivered a survey through local community board postings, Pennywise media outreach and social media to generate some feedback on the intention of the Village to establish a Tree Planting Plan for new tree planting locations. The outreach was designed to generate interest and feedback on behalf of the community members on what was taking place and what the general priorities were when considering species and location for these proposed plantings. The following is a display of the various questions that were asked, and the results of the information collected from the survey. At the time of collection of these results, there were 36 survey responses. The following were the results.

QUESTION 1: WHAT WOULD YOU CONSIDER THE MOST IMPORTANT CONSIDERATION FOR NEW TREE PLANTINGS WITHIN THE VILLAGE OF KASLO?

(Community feedback points: 36 responses, 7 comments)



Additional recommendations included:

- Avoid planting bear attractants
- Consider planting bushes
- Consideration of size and height, nothing that may damage homes during storms
- Flowering trees for birds and bees
- Planting May trees (Hawthorne) and Maples for the fall
- Broad-leaf shade species, for fire resistance and carbon sequestration

Question 2: Can you describe a specific location within a Village-owned boulevard or property that is currently 'lacking' in sufficient tree plantings?

Community feedback points: (36 comments)

Eight participants responded 'no' to the question. Five agreed that trees should be planted in areas where they were previously cut down and two proposed that more should be cut in certain areas containing hazardous trees.

All other answers indicating specific locations are as follows:

- Ball Diamond (3)
- Kaslo Campground (2)
- Highway entering Kaslo between bridge and traffic lights
- South entrance into Kaslo, Lakeside Trail
- Hwy 31, Husky to the Post Office
- The recently clear-cut and graded industrial parking areas at the entrance to town from the South
- Water Street downtown, C Ave in Upper Kaslo
- D Avenue
- General boulevards in down and uptown
- 416 C Ave would love a flowering Hawthorn
- East half of 300 block A Avenue and almost all of 3rd Street
- A Ave 1st block by the Post Office
- Village Hall, Front Street, Water Street, Hwy 3 coming into town to spruce up the industrial strip
- A Avenue
- The new Library site
- 200 Block and 300 Block of A Avenue
- Front Street Park, next to the Kaslo Hotel
- Side Street area in Upper Kaslo
- Front Street
- Kaslo Bay Park
- Front Street, A Avenue, D Avenue, the Bayfront, Arena Avenue
- A Avenue and the park around the skate bowl for shade
- Water Street, boulevards in lower Kaslo

Question 3: Do you have any suggestions of specific species of trees that you would like to see planted in our Village?

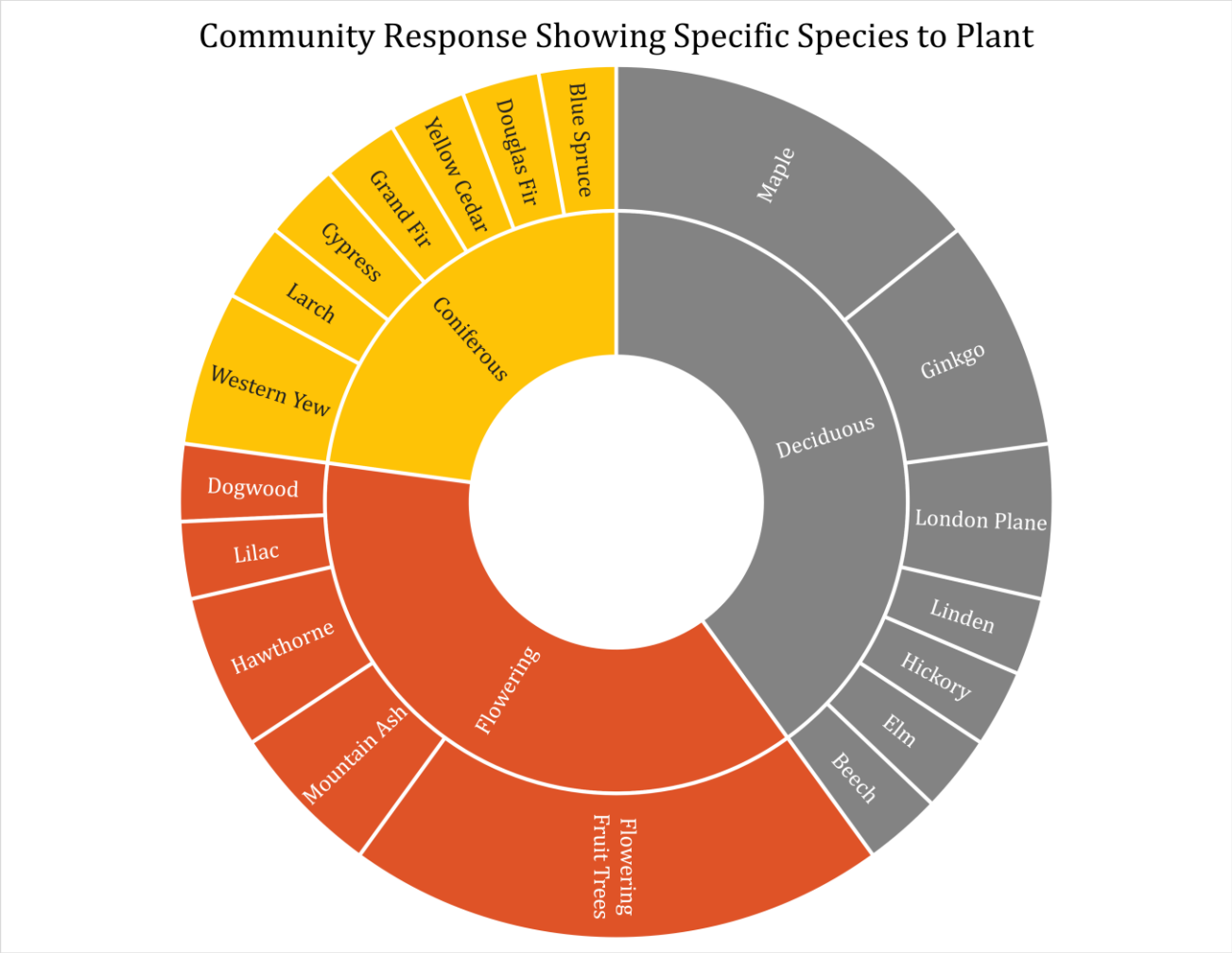
Community feedback points: (36 comments)

Seven participants did not have any preference. Many suggestions included flowering fruit trees or ornamental fruit trees that would add color and beauty without being a bear attractant. These included varieties of cherry (3), particularly purple leaf sand cherry, crab apples (2), and flowering pear. Specific maple species included Japanese maple, red maple, sugar maple and Norway maple.

Other comments that did not indicate specific species are as follows:

- Please do not plant maples by the ball fields as seeds are an issue for the new infield shale

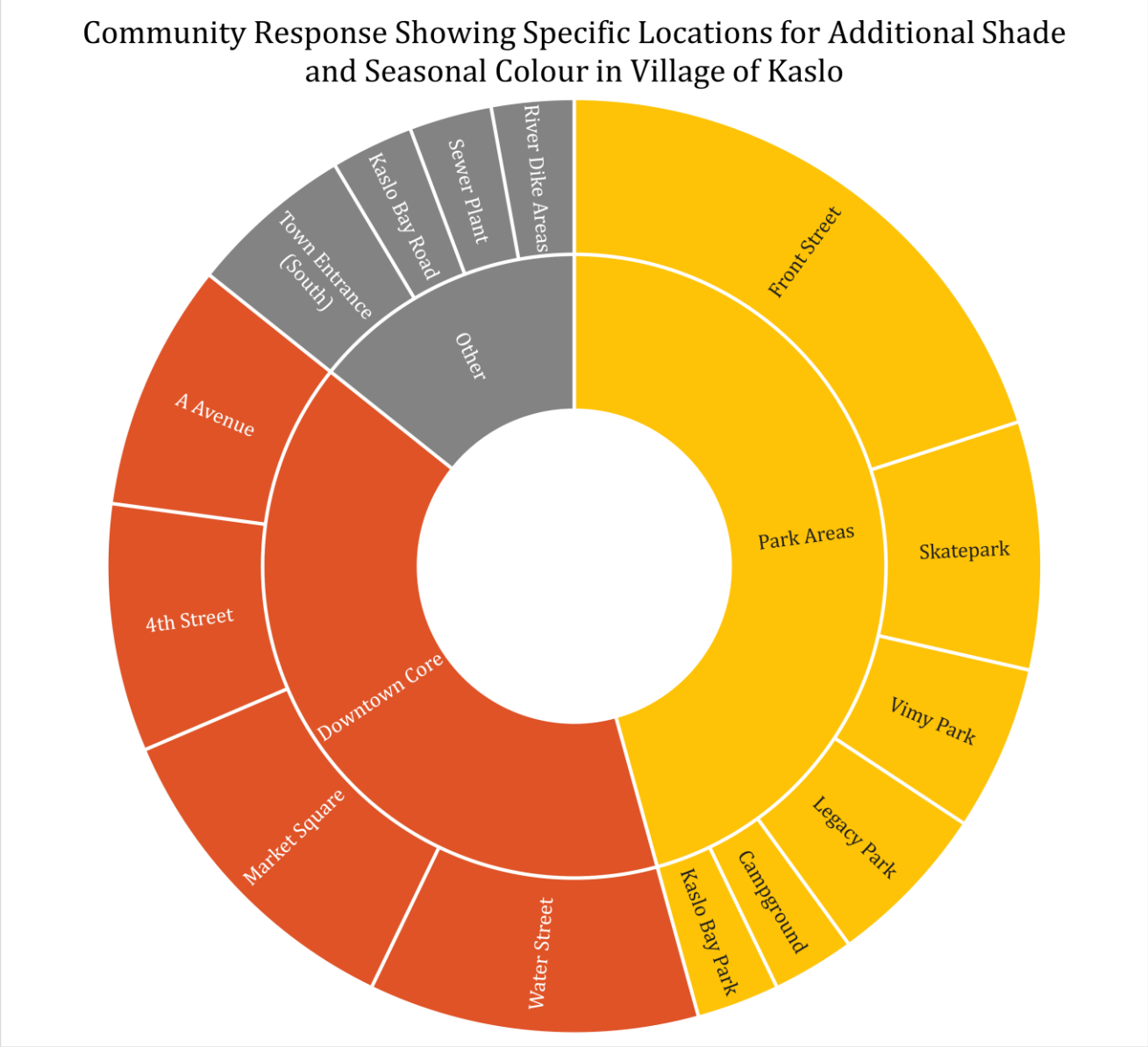
- No fruit or nut trees on public property
- Something flowering but no taller than 15 feet
- Mature height of 30 feet
- Trees that are resilient to road salt, dust and drought, particularly in A avenue area
- Lots, participant requested to consult further
- A mixture of both hardwood and softwood to avoid monocultures
- Climate resilient species
- More deciduous trees in boulevards



Question 4: Are there specific Village owned areas that you would like to see benefit from additional shade or seasonal colour?

Community feedback points: (36 comments)

Five participants indicted 'no' in their comments, one indicated they would need to look at a map outlining city property. Two participants requested the remaining maple trees in Front Street Park not be cut down.



Responses Showing Specific Locations for Additional Shade and Seasonal Colour in Kaslo		
Park areas	All of A Avenue	Market square
Skate park	Front Street park	Water Street
Legacy park	New library property	Entering Kaslo
The Campground	Downtown core	Shade trees along dike area

Sewer plant	Town entrance (South)	Front Street park
A Avenue	Front Street	Water Street
Fourth Street	City streets	Downtown
South entrance into Kaslo	Front Street park	Main roads
Downtown to the Moyie	Kaslo Bay Park	New park beside village hall
Downtown area	Lake area by Abbey Manor	Front Street park
Water Street	Farmers market park	Skate park area
Westside of baseball field	Park by hotel/ across street	Vimy Park
Front Street park	New Library lot	Kaslo Bay road
Skatepark needs shade		

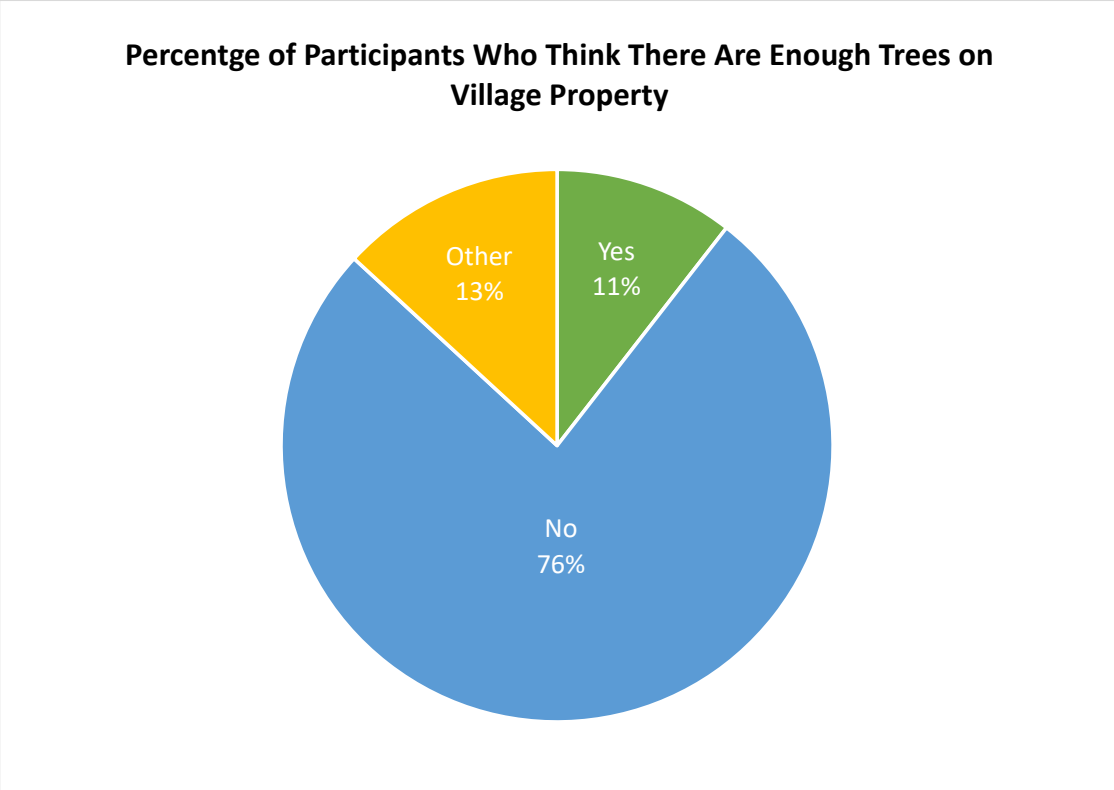
Question 5: Do you think that there are enough trees in Kaslo already and would prefer to not have new trees planted on Village Property?

Community feedback points: (36 responses, 5 comments)

Four people believe there are enough trees on Kaslo Village property, while 29 would like to see more planted.

Comments are as follows:

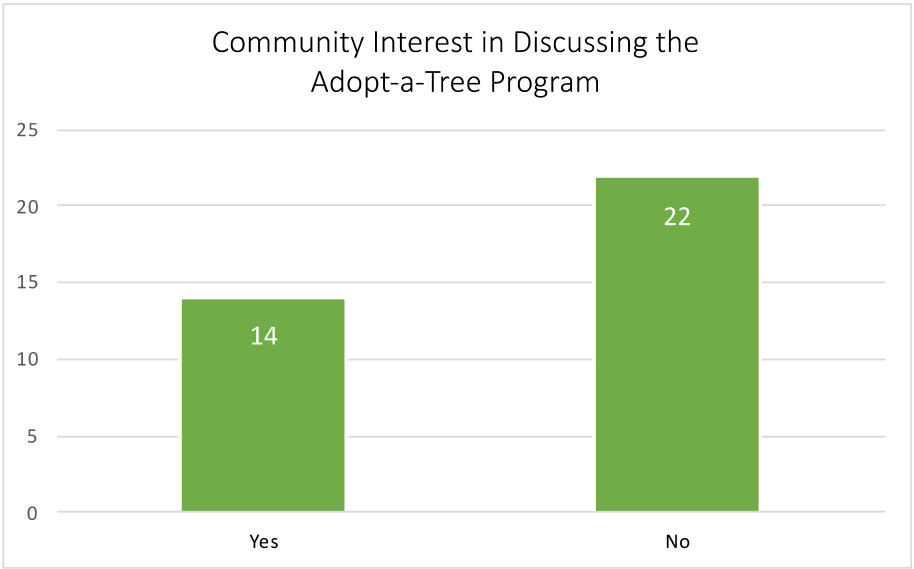
- Plenty around Village, but plenty of unmanaged fruit trees and bear attractants that need to be removed
- Get rid of tall dangerous trees ready to fall on homes and replace with shorter trees, there are a lot of way too big trees around town including in Vimy Park
- We need a succession plan for the trees that will inevitably be removed
- As long as there is a plan so we're not dealing with kneejerk reactions
- Far too many have been cut



Question 6: Would you like to discuss the opportunity to Adopt-A-Tree and have it placed adjacent to your private property on Village owned land?

Community feedback points: (36 responses)

14 participants would like to discuss the opportunity to adopt-a-tree, 22 answered no.



Question 7: Could you please provide your name, street address and contact information to be added to a list of properties interested in having a new tree planted adjacent to your private property?

Community feedback points: (25 comments, 11 skipped)

11 responses were to indicate they didn't want to share their information. All other contact information shared by 11 participants is confidential and recorded in a separate document. Other comments providing reasons for not showing interest include:

- Living just outside of village limits
- Being a renter, otherwise they would be interested
- Having no space adjacent to the property

Question 8: Do you have any feedback or ideas that the Village could work with in building a community Adopt-A-Tree Program?

Community feedback points: (36 comments)

18 participants responded "no" to providing feedback or ideas. The following are all other comments:

- Please do not plant varieties near the ball field that have seeds that travel. Upkeep of the field is ongoing and one of the difficulties is tree seeds taking root in the new infield
- No bear attractant trees - nuts/fruit/Mountain Ash
- See my letters regarding the 300A TAG-TEAM and the Terrace Beautification Society. Signs that say, "Planted By (with date)" or "In Memory Of"
- Consider obtaining or reviewing aerial imagery and creating a "tree dataset" that can be compared to imagery down the road to prove the success of the adopt a tree program. Pre and post imagery are very impactful and can help build/create more community buy-in.
- I don't think we need any more trees
- You could include students to volunteer watering trees
- I did some research on it a while back, I'll dig it up
- Trees have been planted before but in dry years are greatly affected and sometimes don't make it. Perhaps protecting trunks from deer damage, slow irrigation bags around bases and of course planting the right species to begin with.
- Consult with an Arborist
- Conduct a best practice review in other communities.
- Village owned trees should be managed and cared for by the municipality
- Not all planted trees need to be within this program. Kaslo Village should plant and maintain trees in addition to Adopt a Tree sponsors.
- Allow people to sponsor trees near their property or in areas where trees are "lacking" especially in lower income areas of town
- Provide a list of trees & discuss program before starting
- A tree walk - like a walk-a-thon but for trees create a map of future tree planting sites and let people bid on a spot they like. Have preassigned species to the locations
- I think getting buy in from nearby landowners to water the trees during drought is important
- Allow adopt a tree that is not adjacent to my property
- Cost should reflect maintenance for minimum 10 years

Question 9: Any other comments or feedback to compliment this survey?

Community feedback points: (36 comments)

19 participants indicated they had no further comments.

The following is a list of all other comments:

- There are a lot of bear attractant trees in Kaslo that need to be removed as they are left unmanaged.
- It is time for action. The natives (modern day variety) are restless. This survey reached only those residents who follow the community Facebook page. That's maybe half at best. The issue, the project, deserves 100% saturation.
- Any area of Kaslo that is next to an area that once sold the trees will be cut for building would be a great place to put village trees. Not assuming the forest that stands today will always be there.
- Would love to see some flowering trees planted around town.
- Mature height 30ft
- Looking forward to connecting
- I think every time a tree is removed in the Village, a new one should replace it asap
- It's great to see this happening. Kaslo is sitting on a beautiful mature urban forest, the succession of which is becoming increasingly important. I am an Arborist and Urban Forester who would be happy to consult on a wholistic urban forestry plan for the Village.
- Glad there is movement on this.
- Thanks for seeking input from the community.
- Great work
- Do NOT under any circumstances cut down the Douglas fir beside the cenotaph! Please!
- Happy to have new trees in town as long as they are not attractants to bears
- More trees = more picturesque village
- Trees for the future health of our community
- You rock!
- Trees improve the quality of life

FOR FURTHER INFORMATION REGARDING THE PLANTING PLAN OR THE CREATION OF AN ADOPT-A-TREE PROGRAM, PLEASE CONTACT PATRICIA BY PHONE AT 778-205-4929 OR BY EMAIL AT KASLOPLANTSTREES@GMAIL.COM

Appendix B - Tree Sites

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-079	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		300 blk A Ave
PP-080	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		300 blk A Ave
PP-081	Green	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		300 blk A Ave
PP-083	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		200 blk A Ave
PP-084	Green	Prunus 'Kanzan' - Japanese Flowering Cherry	Profuse rich double pink flower blossoms. Upright narrow form,fruitless		300 blk A Ave
PP-085	Green	Prunus 'Kanzan' - Japanese Flowering Cherry	Profuse rich double pink flower blossoms. Upright narrow form,fruitless		300 blk A Ave
PP-137	Green	Gingko biloba - Maidenhair Tree	Uniquely fan shaped leaves emerge green, transitioning to brilliant yellow in fall. Planted as a historical specimen tree. Hardy shade tree, drought and pest tolerant.Avoid female trees as they produce a pungent fruit		400 blk A Ave
PP-141	Green	Ulmus americana 'Brandon'	Fast growing upright vase shape with attractive yellow fall colour		400 blk A Ave
PP-142	Green	Kolreuteria paniculata - Goldenrain Tree	Native to Japan offers historical significance, boasts year round attributes	Tolerates urban stresses; plant to screen Post Office	400 blk A Ave
PP-185	Green	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing	Ideal for under hydrolines	600 blk A Ave
PP-186	Green	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing	Ideal for under hydrolines	600 blk A Ave
PP-187	Green	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing	Ideal for under hydrolines	600 blk A Ave
PP-193	Green	Gleditsia triacanthos var. inermis 'Sunburst' - Sunburst Honey Locust	Medium sized shade tree. A selection of native North American species	Very tolerant of urban pollution and environmental salts	600 blk A Ave
PP-194	Green	Gleditsia triacanthos var. inermis 'Sunburst' - Sunburst Honey Locust	Medium sized shade tree. A selection of native North American species	Very tolerant of urban pollution and environmental salts	600 blk A Ave
PP-195	Green	Gleditsia triacanthos var. inermis 'Sunburst' - Sunburst Honey Locust	Medium sized shade tree. A selection of native North American species	Very tolerant of urban pollution and environmental salts	600 blk A Ave
PP-196	Green	Gleditsia triacanthos var. inermis 'Sunburst' - Sunburst Honey Locust	Medium sized shade tree. A selection of native North American species	Very tolerant of urban pollution and environmental salts	600 blk A Ave
PP-198	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-199	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-200	Green	Syringa reticulata 'Summer Storm' - Summer Storm Lilac	Very hardy trouble free small tree		800 blk A Ave
PP-201	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-202	Green	Syringa reticulata 'Summer Storm' - Summer Storm Lilac	Very hardy trouble free small tree		800 blk A Ave
PP-203	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-204	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-205	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-206	Green	Syringa reticulata 'Summer Storm' - Summer Storm Lilac	Very hardy trouble free small tree		800 blk A Ave
PP-207	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-208	Green	Syringa reticulata 'Summer Storm' - Summer Storm Lilac	Very hardy trouble free small tree		800 blk A Ave
PP-209	Green	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		800 blk A Ave
PP-077	Orange	Gingko biloba - Maidenhair Tree	Uniquely fan shaped leaves emerge green, transitioning to brilliant yellow in fall. Planted as a historical specimen tree. Hardy shade tree, drought and pest tolerant.Avoid female trees as they produce a pungent fruit		200 blk A Ave
PP-078	Orange	Prunus 'Kanzan' - Japanese Flowering Cherry	Profuse rich double pink flower blossoms. Upright narrow form,fruitless		200 blk A Ave
PP-087	Orange	Gleditsia triacanthos 'Sunburst' - Thornless Honey Locust Sunburst	Hardy tree tolerates drought and is deer resistant. Provides filtered shade		300 blk A Ave
PP-135	Orange	Ulmus americana "brandon" - Brandon Elm	60 feet tall, 40 feet wide at maturity. High canopy, very few low growing branches and foliage. Vase shaped profile. Green leaves throughout growing season, turning brilliant yellow in fall	High tolerance for poor soils and air pollution.	400 blk A Ave

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-136	Orange	Ulmus americana "brandon" - Brandon Elm	60 feet tall, 40 feet wide at maturity. High canopy, very few low growing branches and foliage. Vase shaped profile. Green leaves throughout growing season, turning brilliant yellow in fall	High tolerance for poor soils and air pollution.	400 blk A Ave
PP-138	Orange	Carpinus carolinians- American Hornbeam	Slow growing understory tree, smooth grey bark with muscle like fluting. Look for red fall colour varieties		400 blk A Ave
PP-139	Orange	Ulmus americana "brandon" - Brandon Elm	60 feet tall, 40 feet wide at maturity. High canopy, very few low growing branches and foliage. Vase shaped profile. Green leaves throughout growing season, turning brilliant yellow in fall	High tolerance for poor soils and air pollution.	400 blk A Ave
PP-140	Orange	Carpinus caroliniana - American Hornbeam	Slow growing understory tree, smooth grey bark with muscle like fluting. Look for red fall colour varieties		400 blk A Ave
PP-188	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		600 blk A Ave
PP-189	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		600 blk A Ave
PP-190	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		600 blk A Ave
PP-191	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		600 blk A Ave
PP-192	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		600 blk A Ave
PP-197	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		600 blk A Ave
PP-075	Red		Recommend med sized shade tree	Post construction; Multiple removals to facilitate construction, recommend replanting	200 blk A Ave
PP-076	Red		Recommend med sized shade tree		200 blk A Ave
PP-082	Red		Recommend med sized shade tree		200 blk A Ave
PP-086	Red		Recommend med sized shade tree		300 blk A Ave
PP-210	Red		Recommend sm tree	Overhead hydro	900 blk A Ave
PP-211	Red		Recommend sm tree	Overhead hydro	900 blk A Ave
PP-212	Red		Recommend sm tree	Overhead hydro	900 blk A Ave
PP-045	Green	Tilia Mongolia 'Harvest Gold' - Harvest Gold Linden	Medium sized shade tree, fragrant flowers in summer and stunning gold in fall. Considered hardy and adaptable		300 blk D Ave
PP-048	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		300 blk D Ave
PP-035	Orange	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		200 blk D Ave
PP-036	Orange	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		200 blk D Ave
PP-037	Orange	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		200 blk D Ave
PP-038	Orange	Acer x freemanii 'Jeffersred' - Autumn Blaze Red Maple	Fast growing, low maintenance tree. Deer resistant, with superb fall colour		200 blk D Ave
PP-039	Orange	Acer x freemanii 'Jeffersred' - Autumn Blaze Red Maple	Fast growing, low maintenance tree. Deer resistant, with superb fall colour		200 blk D Ave
PP-040	Orange	Platanus occidentalis - Sycamore Tree	Fast growing shade tree, interesting leaf with mottled bark		200 blk D Ave
PP-041	Orange	Platanus occidentalis - Sycamore Tree	Fast growing shade tree, interesting leaf with mottled bark		200 blk D Ave
PP-042	Orange	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		200 blk D Ave
PP-043	Orange	Acer rubrum 'Autumn Glory' - October Glory Red Maple	Offers best Fall colour of all Red Maple varieties		200 blk D Ave
PP-044	Orange	Platanus occidentalis - Sycamore Tree	Fast growing shade tree, interesting leaf with mottled bark		200 blk D Ave
PP-046	Orange	Kolreuteria paniculata - Goldenrain Tree	Native to Japan offers historical significance. Tolerates urban stresses and boasts year round attributes		300 blk D Ave
PP-047	Orange	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		300 blk D Ave
PP-049	Orange	Tilia Mongolia 'Harvest Gold' - Harvest Gold Linden	Medium sized shade tree, fragrant flowers in summer and stunning gold in fall. Considered hardy and adaptable		300 blk D Ave
PP-050	Orange	Prunus nigra 'Princess Kay' - Princess Kay Flowering Plum	Compact ornamental, non fruit bearing		300 blk D Ave
PP-051	Orange	Gingko biloba - Maidenhair Tree	Uniquely fan shaped leaves emerge green, transitioning to brilliant yellow in fall. Planted as a historical specimen tree. Hardy shade tree, drought and pest tolerant.Avoid female trees as they produce a pungent fruit		200 blk D Ave

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-052	Orange	Tilia Mongolia 'Harvest Gold' - Harvest Gold Linden	Medium sized shade tree, fragrant flowers in summer and stunning gold in fall. Considered hardy and adaptable		200 blk D Ave
PP-053	Orange	Acer x freemanii 'Jeffersred' - Autumn Blaze Red Maple	Fast growing, low maintenance tree. Deer resistant, with superb fall colour		200 blk D Ave
PP-054	Orange	Gingko biloba - Maidenhair Tree	Uniquely fan shaped leaves emerge green, transitioning to brilliant yellow in fall. Planted as a historical specimen tree. Hardy shade tree, drought and pest tolerant.Avoid female trees as they produce a pungent fruit		300 blk D Ave
PP-055	Orange	Acer rubrum 'Autumn Glory' - October Glory Red Maple	Offers best Fall colour of all Red Maple varieties		300 blk D Ave
PP-056	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		300 blk D Ave
PP-057	Orange	Platanus occidentalis - Sycamore Tree	Fast growing shade tree, interesting leaf with mottled bark		300 blk D Ave
PP-058	Orange	Gingko biloba - Maidenhair Tree	Uniquely fan shaped leaves emerge green, transitioning to brilliant yellow in fall. Planted as a historical specimen tree. Hardy shade tree, drought and pest tolerant.Avoid female trees as they produce a pungent fruit		300 blk D Ave
PP-059	Orange	Kolreuteria paniculata - Goldenrain Tree	Native to Japan offers historical significance. Tolerates urban stresses and boasts year round attributes		300 blk D Ave
PP-060	Orange	Gingko biloba - Maidenhair Tree	Uniquely fan shaped leaves emerge green, transitioning to brilliant yellow in fall. Planted as a historical specimen tree. Hardy shade tree, drought and pest tolerant.Avoid female trees as they produce a pungent fruit		300 blk D Ave
PP-061	Orange	Acer rubrum 'Autumn Glory' - October Glory Red Maple	Offers best Fall colour of all Red Maple varieties		300 blk D Ave
PP-154	Yellow				200 blk Fifth St
PP-155	Yellow				200 blk Fifth St
PP-156	Yellow				200 blk Fifth St
PP-157	Yellow				200 blk Fifth St
PP-158	Yellow				400 blk Front St
PP-159	Yellow				400 blk Front St
PP-160	Yellow				400 blk Water St
PP-161	Yellow				400 blk Water St
PP-001	Green	Gleditsia triacanthos - Shademaster	Open deciduous with upright spreading habit of growth. Relatively low maintenance, recommended for shade attributes		Kaslo Skatepark; First Street
PP-002	Green	Gleditsia triacanthos - Shademaster	Open deciduous with upright spreading habit of growth. Relatively low maintenance, recommended for shade attributes		Kaslo Skatepark; First Street
PP-003	Green	Gleditsia triacanthos - Shademaster	Open deciduous with upright spreading habit of growth. Relatively low maintenance, recommended for shade attributes		Kaslo Skatepark; First Street
PP-004	Green	Gleditsia triacanthos - Shademaster	Open deciduous with upright spreading habit of growth. Relatively low maintenance, recommended for shade attributes		Kaslo Skatepark; First Street
PP-014	Orange	Fagus sylvatica - Rohan obelisk	30 feet tall, 15 feet wide at maturity. Burgundy leaves in spring, deep purple through the summer, turning burgundy again in the fall. Slow growing "heritage" tree that can live to 120 years or more		500 blk Second St
PP-015	Orange	Fagus sylvatica - Rohan obelisk	30 feet tall, 15 feet wide at maturity. Burgundy leaves in spring, deep purple through the summer, turning burgundy again in the fall. Slow growing "heritage" tree that can live to 120 years or more		500 blk Second St
PP-016	Orange	Fagus sylvatica - Rohan obelisk	30 feet tall, 15 feet wide at maturity. Burgundy leaves in spring, deep purple through the summer, turning burgundy again in the fall. Slow growing "heritage" tree that can live to 120 years or more		500 blk Second St
PP-017	Orange	Fagus sylvatica - Rohan obelisk	30 feet tall, 15 feet wide at maturity. Burgundy leaves in spring, deep purple through the summer, turning burgundy again in the fall. Slow growing "heritage" tree that can live to 120 years or more		500 blk Second St
PP-018	Orange	Gleditsia triacanthos 'Sunburst' - Thornless Honey Locust Sunburst	Hardy tree tolerates drought and is deer resistant. Provides filtered shade		500 blk Second St
PP-019	Orange	Acer x Freemanii 'Autumn Blaze' - Freeman Maple	Fast growing large deciduous tree noted for its ascending branch habits and glorious fall colour. Mature height reaches between 40-50 ft and 40 ft wide. Chosen for its shade and fall colour appeal		500 blk Second St
PP-021	Orange	Celtis occidentalis - Common Hackberry	Hardy and well adapted shade tree tolerant of urban environment, and withstands strong winds, supports a variety of birds and pollinators		400 blk Second St
PP-024	Orange	Celtis occidentalis - Common Hackberry	Hardy and well adapted shade tree tolerant of urban environment, and withstands strong winds, supports a variety of birds and pollinators		VOK Campground; First Street

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-025	Orange	Celtis occidentalis - Common Hackberry	Hardy and well adapted shade tree tolerant of urban environment, and withstands strong winds, supports a variety of birds and pollinators		VOK Campground; First Street
PP-026	Orange	Celtis occidentalis - Common Hackberry	Hardy and well adapted shade tree tolerant of urban environment, and withstands strong winds, supports a variety of birds and pollinators		VOK Campground; First Street
PP-241	Orange	Tilia x flavescens 'Glenleven' - Glenleven Linden	Fast growing when young, however slows as tree matures. Highly tolerant of heat in an urban environment. Excellent shade tree		Kaslo Bay Park Rd
PP-242	Orange	Fagus sylvatica f. purpurea - Copper Beech	Deep purple leaves, transition to copper in fall. Lg shade tree, spreads laterally, up to 35-45 ft		Kaslo Bay Park Rd
PP-243	Orange	Liriodendron tulipifera - Tulip Tree	Boasts distinct four lobed leaves and tulip shaped blooms in Spring.	Large species tree that requires ample space to grow.	Kaslo Bay Park Rd
PP-244	Orange	Liriodendron tulipifera - Tulip Tree	Boasts distinct four lobed leaves and tulip shaped blooms in Spring.	Large species tree that requires ample space to grow.	Kaslo Bay Park Rd
PP-245	Orange	Liriodendron tulipifera - Tulip Tree	Boasts distinct four lobed leaves and tulip shaped blooms in Spring.	Large species tree that requires ample space to grow.	Kaslo Bay Park Rd
PP-092	Green	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk Third St
PP-093	Green	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk Third St
PP-096	Green	Acer x freemanii 'Armsrong Gold' - Columnar Armstrong Gold Maple	Hybrid maple with narrow, upright growth habit, gold to orange fall colour		300 blk Third St
PP-097	Green	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing		500 blk Third St
PP-098	Green	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing		500 blk Third St
PP-099	Green	Cornus kousa - Kousa Dogwood	Full sun, hardy species ideal for under hydrolines		400 blk Third St
PP-100	Orange	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing		400 blk Third St
PP-101	Orange	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing		400 blk Third St
PP-102	Orange	Acer ginnala 'Flame' - Flame Amur Maple	Small tree, ideal for under hydrolines, bright red fall colour, slow growing		400 blk Third St
PP-088	Red	<Null>	Recommend sm tree	Overhead hydro	600 blk Third St
PP-089	Red	<Null>	Recommend sm tree	Overhead hydro	600 blk Third St
PP-090	Red	<Null>	Recommend sm tree	Overhead hydro	500 blk Third St
PP-091	Red	<Null>	Recommend sm tree	Overhead hydro	500 blk Third St
PP-094	Red		Recommend columnar variety tree	Narrow Space	300 blk Third St
PP-095	Red		Recommend columnar variety tree	Narrow Space	300 blk Third St
PP-103	Red		Recommend sm tree	Overhead hydro	300 blk Third St
PP-104	Red		Recommend sm tree	Overhead hydro	300 blk Third St
PP-069	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		200 blk B Ave
PP-107	Green	Magnolia stellata - Star Magnolia	Heigh 20' with 10-15' spread. Blooms at young age, flowering peaks in April	Tree does best in full sun areas	600 blk Kane St
PP-111	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		400 blk C Ave
PP-123	Green	Acer rubrum - Red Maple	Red flowers in dense clusters in late March to early April (before the leaves appear), red fruit (initially reddish, two-winged samara), reddish stems and twigs, red buds, and, in the fall, excellent orange-red foliage color		400 blk B Ave
PP-134	Green	Metasequoia glyptostroboides 'Gold Rush' - Gold Rush Dawn Redwood	Deciduous conifer with a delicate, ferny appearance and a pyramidal form; shaggy, reddish bark; yellow foliage changes to deep gold in fall. Mature height 50', 25' wide		300 blk Fourth St (Kemball Building)
PP-150	Green	Crataegus x mordensis 'Snowbird' - Snowbird Hawthorn	Upright, rounded tree with dark green foliage and double white clusters of flowers in spring		500 blk Fifth St
PP-183	Green	Liquidambar styraciflua - American Sweetgum	Unique star shaped flowers, outstanding fall colour, unique 'spiky' fruit that holds into winter		500 blk Sixth Street
PP-184	Green	Liquidambar styraciflua - American Sweetgum	Unique star shaped flowers, outstanding fall colour, unique 'spiky' fruit that holds into winter		500 blk Sixth Street
PP-239	Green	Prunus serrulata 'Kanzan' - Kwanzan Cherry Tree	Sterile, non fruit-bearing cherry tree. Large pink flowers in early spring.		300 Blk Washington St. N

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-240	Green	Aesculus x carnea - Red Horsechestnut	Medim sized cltivar, boasts spring flower and spiky fall fruit		300 Blk Washington St. N
PP-012	Orange	Acer rubrum 'Autumn Glory' - October Glory Red Maple	Offers best Fall colour of all Red Maple varieties		600 blk Second St
PP-013	Orange	Acer rubrum 'Autumn Glory' - October Glory Red Maple	Offers best Fall colour of all Red Maple varieties		600 blk Second St
PP-027	Orange	Tilia Mongolia 'Harvest Gold' - Harvest Gold Linden	Medium sized shade tree, fragrant flowers in summer and stunning gold in fall. Considered hardy and adaptable		200 blk E Ave
PP-028	Orange	Kolreuteria paniculata - Goldenrain Tree	Native to Japan offers historical significance. Tolerates urban stresses and boasts year round attributes		200 blk E Ave
PP-029	Orange	Tilia Mongolia 'Harvest Gold' - Harvest Gold Linden	Medium sized shade tree, fragrant flowers in summer and stunning gold in fall. Considered hardy and adaptable		200 blk E Ave
PP-105	Orange	Acer palmatum 'Bloodgood' - Bloodgood Japanese Maple	Regarded as one of the best purple leaves Japanese Maple	Plant post bridge construction to border replacement of Japanese Internment sign	Hwy 31/Third St Intersection
PP-106	Orange	Acer palmatum 'Bloodgood' - Bloodgood Japanese Maple	Regarded as one of the best purple leaves Japanese Maple	Plant post bridge construction to border replacement of Japanese Internment sign	Hwy 31/Third St Intersection
PP-121	Orange	Carpinus caroliniana 'J.N. Upright' - Firespire American Hornbean	A narrow, more upright form of this native tree; very interesting gray bark is almost muscular in appearance, makes a strong winter statement; excellent orange-red fall colour. Mature height 25ft and 15ft wide		400 blk B Ave
PP-122	Orange	Carpinus caroliniana 'J.N. Upright' - Firespire American Hornbean	A narrow, more upright form of this native tree; very interesting gray bark is almost muscular in appearance, makes a strong winter statement; excellent orange-red fall colour. Mature height 25ft and 15ft wide		400 blk B Ave
PP-124	Orange	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk B Ave
PP-125	Orange	Crataegus x mordensis 'Toba' - Toba Hawthorn	Hardy ornamental hawthorn, vase shaped, 18 ft tall, 12 ft wide; Upright, rounded tree with dark green foliage and red clusters of flowers in spring		400 blk B Ave
PP-126	Orange	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk B Ave
PP-127	Orange	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk B Ave
PP-128	Orange	Acer rubrum - Red Maple	Red flowers in dense clusters in late March to early April (before the leaves appear), red fruit (initially reddish, two-winged samara), reddish stems and twigs, red buds, and, in the fall, excellent orange-red foliage color		400 blk B Ave
PP-129	Orange	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk B Ave
PP-130	Orange	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk B Ave
PP-131	Orange	Acer rubrum - Red Maple	Red flowers in dense clusters in late March to early April (before the leaves appear), red fruit (initially reddish, two-winged samara), reddish stems and twigs, red buds, and, in the fall, excellent orange-red foliage color		400 blk B Ave
PP-132	Orange	Acer rubrum - Red Maple	Red flowers in dense clusters in late March to early April (before the leaves appear), red fruit (initially reddish, two-winged samara), reddish stems and twigs, red buds, and, in the fall, excellent orange-red foliage color		400 blk B Ave
PP-133	Orange	Platanus x acerifolia 'Bloodgood' - Bloodgood London Planetree	Attractive shade and street tree. Very tolerant of urban pollution. 27 meters tall and 21 metres wide. Interesting leaves and mottled bark		400 blk B Ave
PP-005	Red		Recommend med tree		700 blk Second St
PP-006	Red		Recommend med tree		700 blk Second St
PP-007	Red		Recommend sm tree	Tight space	700 blk Second St
PP-008	Red		Recommend med tree		700 blk Second St
PP-009	Red		Recommend med tree		700 blk Second St
PP-010	Red		Recommend med tree		100 blk E Ave
PP-011	Red		Recommend med tree		100 blk E Ave

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-020	Red		Recommend med sized shade tree		400 blk Second St
PP-022	Red		Recommend med sized shade tree		400 blk Second St
PP-023	Red		Recommend med sized shade tree		400 blk Second St
PP-030	Red		Recommend med tree	Post polar removal	200 blk E Ave
PP-031	Red		Recommend med tree	Post polar removal	200 blk E Ave
PP-032	Red		Recommend med tree	Post polar removal	200 blk E Ave
PP-033	Red		Recommend med tree	Post polar removal	200 blk E Ave
PP-034	Red		Recommend med tree		200 blk E Ave
PP-062	Red		Recommend sm tree	Consider private property tree overhead	200 blk B Ave
PP-063	Red		Recommend med sized shade tree		200 blk B Ave
PP-064	Red		Recommend med tree		200 blk B Ave
PP-065	Red		Recommend med tree		200 blk B Ave
PP-066	Red		Recommend med tree		200 blk B Ave
PP-067	Red		Recommend med sized shade tree		200 blk B Ave
PP-068	Red		Recommend med sized shade tree		200 blk B Ave
PP-070	Red		Recommend med tree		300 blk B Ave
PP-071	Red		Recommend med tree		300 blk B Ave
PP-072	Red		Recommend med tree		300 blk B Ave
PP-073	Red		Recommend med tree - post Lombardy Poplar tree removal		300 blk B Ave
PP-074	Red		Recommend med tree	Post construction;	300 blk B Ave
PP-108	Red		Recommend sm tree		600 blk Kane St
PP-109	Red	<Null>	Recommend sm tree	Overhead hydro	400 blk C Ave
PP-110	Red	<Null>	Recommend sm tree	Overhead hydro	400 blk C Ave
PP-112	Red	<Null>	Recommend sm tree	Overhead hydro	400 blk C Ave
PP-113	Red	<Null>	Recommend med tree	Overhead hydro	400 blk C Ave
PP-114	Red	<Null>	Recommend sm tree	Overhead hydro	400 blk C Ave
PP-115	Red	<Null>	Recommend sm tree	Overhead hydro	400 blk C Ave
PP-116	Red		Recommend sm tree	Overhead hydro	400 blk C Ave
PP-117	Red		Recommend sm tree	Overhead hydro	400 blk C Ave
PP-118	Red		Recommend sm tree	Overhead hydro	400 blk C Ave
PP-119	Red		Recommend sm tree	Overhead hydro	400 blk C Ave
PP-120	Red		Recommend sm tree	Overhead hydro	400 blk C Ave
PP-143	Red		Recommend sm tree	Overhead hydro	500 blk Fifth St
PP-144	Red		Recommend sm tree	Overhead hydro	500 blk Fifth St
PP-145	Red		Recommend sm tree	Overhead hydro	500 blk Fifth St
PP-146	Red		Recommend sm tree	Overhead hydro	500 blk Fifth St
PP-147	Red		Recommend sm tree	Overhead hydro	400 blk Fifth St
PP-148	Red		Recommend sm tree	Overhead hydro	400 blk Fifth St
PP-149	Red		Recommend sm tree	Overhead hydro	400 blk Fifth St
PP-151	Red		Recommend med/lg tree		400 blk Fifth St
PP-152	Red		Recommend med/lg tree		400 blk Fifth St
PP-153	Red		Recommend med/lg tree		400 blk Fifth St
PP-162	Red		Recommend sm tree	Overhead hydro	500 blk Water St
PP-163	Red		Recommend sm tree	Overhead hydro	500 blk Water St
PP-164	Red		Recommend med tree		700 blk Railroad Ave
PP-165	Red		Recommend med tree		700 blk Railroad Ave
PP-166	Red		Recommend med tree		700 blk Railroad Ave
PP-167	Red		Recommend med tree		500 blk C Ave
PP-168	Red	<Null>	Recommend lrg upright shade tree		600 blk C Ave
PP-169	Red		Recommend sm tree	Overhead hydro	600 blk C Ave
PP-170	Red		Recommend sm tree	Overhead hydro	600 blk C Ave

Planting Plan ID	Pin Colour	Species Name	Species Description	Site Considerations	Street
PP-171	Red			Open boulevard no obstructions	600 blk C Ave
PP-172	Red			Open boulevard no obstructions	600 blk C Ave
PP-173	Red			Open boulevard no obstructions	600 blk C Ave
PP-174	Red		Recommend med/lg upright tree	Hydro across street	500 blk Seventh St
PP-175	Red		Recommend med/lg upright tree	Hydro across street	500 blk Seventh St
PP-176	Red		Recommend med/lg upright tree	Hydro across street	500 blk Seventh St
PP-177	Red		Recommend med/lg upright tree	Hydro across street	500 blk Seventh St
PP-178	Red		Recommend sm tree	Overhead hydro	500 blk Seventh St
PP-179	Red		Recommend med/lg upright tree	Hydro across street	500 blk Seventh St
PP-180	Red		Recommend med/lg upright tree	Hydro across street	600 blk Seventh St
PP-181	Red		Recommend med/lg upright tree	Hydro across street	600 blk Seventh St
PP-182	Red		Recommend med/lg upright tree	Hydro across street	600 blk Seventh St
PP-213	Red		Recommend sm tree	Overhead hydro	400 blk Washington St. S
PP-214	Red		Recommend sm tree	Overhead hydro	100 blk Washington St. N
PP-215	Red		Recommend lrg/med sugar maples		100 blk Washington St. N
PP-216	Red		Recommend lrg/med sugar maples		100 blk Washington St. N
PP-217	Red		Recommend lrg/med upright screening tree		Willow Ave
PP-218	Red		Recommend lrg/med upright screening tree		Willow Ave
PP-219	Red		Recommend lrg/med upright screening tree		Willow Ave
PP-220	Red		Recommend sm flowering tree	Overhead hydro	200 blk Eighth St N
PP-221	Red		Recommend lg tree	Open canopy no obstructions	900 blk Park Ave
PP-222	Red		Recommend sm tree	Overhead hydro	500 blk Bayview St
PP-223	Red		Recommend lg open canopy tree	No obstructions in area	800 blk Langley Ave
PP-224	Red		Recommend med fall colour/flowering tree		800 blk Victoria Ave
PP-225	Red		Recommend sm flowering tree	House service line	500 blk Eighth St
PP-226	Red		Recommend sm attractive bark/fall colours	Overhead hydro	400 blk Eighth St. S
PP-227	Red		Recommend sm tree	Overhead hydro	400 blk Eighth St. S
PP-228	Red		Recommend sm attractive bark/fall colours	Overhead hydro	700 blk C Ave
PP-229	Red		Recommend sm tree	Overhead hydro; RCMP	800 blk C Ave
PP-230	Red		Recommend lg shade tree		800 blk C Ave
PP-231	Red		Recommend med shade tree		800 blk C Ave
PP-232	Red		Recommend sm flowering tree	Overhead hydro	800 blk C Ave
PP-233	Red		Recommend med shade tree		400 blk View St
PP-234	Red		Recommend med shade tree	Adjacent to hydro	400 blk View St
PP-235	Red		Recommend lrg/med upright or shade fall colour/flowering tree		400 blk View St
PP-236	Red		Recommend sm shrub	Overhead hydro	400 blk View St
PP-237	Red		Recommend sm shrub	Overhead hydro	400 blk View St
PP-238	Red		Recommend sm shrub	Overhead hydro	400 blk View St

Appendix C - Tree Selection and Attributes

Tree Selection Species

	Common Name	Latin Name	Shape	Deciduous/Coniferous	Estimated Mature Height	Sun Requirements	Water Requirements	Recommended FireSmart Selection	Drought Tolerant	Pollution Tolerant	Pest Resistant	Deer Resistant	Seeds/ Cones	Attracts Birds	Flowers/Fruit	Shade	Fall Colour	Attractive Bark	Additional Notes
Columnar Trees	Armstrong Red Maple	Acer rubrum 'Armstrong'	Columnar	Deciduous	15-25M	Full to Part	Moderate	~	~		~				~		~	~	Ideal street tree
	European Hornbeam	Carpinus betulus 'fastigiata'	Columnar	Deciduous	9-15M	Full to Part	Moderate	~	~	~						~			Great for screening, slow growing, highly tolerant of urban pollution
	Fastigiate Beech	Fagus sylvatica 'fastigiata'	Columnar	Deciduous	9-15M	Partial	Moderate	~				~					~	~	Ideal tree where strong vertical element is needed
	Linden	Tilia americana 'fastigiata'	Columnar	Deciduous	15-25M	Full to Part	Moderate	~						~	~				Flowers are supportive of bees, resistant to verticillium wilt
Conifers	White Fir	Abies concolor	Large Tree	Coniferous	60M	Full to Part	Moderate		~		~			~					Not considered FireSmart
	Dawn Redwood*	glyptostroboides	Conical	Coniferous	35-50M	Full	High				~							~	Considered a good specimen tree, critically endangered
	Norway Spruce	Picea abies	Conical	Coniferous	20-40M	Full	Moderate			~		~	~	~					Good tree for windbreaks
	Serbian Spruce	Picea omorika	Narrow, Pyramidal	Coniferous	15-25M	Full to Part	Moderate							~					Ornamental specimen, prefers well drained soil, well adapted to urban environments
	Oriental Spruce	Picea orientalis	Pyramidal	Coniferous	50M	Full to Part	Moderate							~					Intolerant to salt spray, not ideal along heavily trafficed sites
	Blue Spruce	Picea pungens	Pyramidal	Coniferous	15-25M	Full	Moderate		~	~			~						Tolerant to salt spray
	Western White Pine	Pinus monticola	Pyramidal	Coniferous	40M	Full	Moderate						~	~					Extensive food value to wild birds due to oily seeds
	Austrian Pine	Pinus nigra	Conical	Coniferous	15-30M	Full	Moderate	~		~		~							Ideal highway planting due to high pollution and salt spray tolerance
	Ponderosa Pine	Pinus ponderosa	Cyndrical	Coniferous	30-50M	Full	Moderate	~	~			~	~						Fire resistant due to thick bark
	Eastern White Pine	Pinus strobus	Conical	Coniferous	20-30M	Full to Part	Moderate		~			~		~					Older specimens tend to have fire resistance due to thick bark
	Scots Pine	Pinus sylvestris	Conical	Coniferous	20-30M	Full to Part	Moderate		~	~			~						Grows quickly, however susceptible to pests
	Interior Douglas Fir	Pseudotsuga menziesii	Large Tree	Coniferous	35-45M	Full	Moderate		~				~						Interesting cones, important timber trees
	Western Red Cedar	Thuja plicata	Large Tree	Coniferous	35-45M	Full to Part	High												Large, wide spread tree. Arborvitae literally means Tree of Life
Large Trees	Sugar Maple	Acer saccharum	Narrow, Round Canopy	Deciduous	15-25M	Full to Part	Moderate	~								~	~		Frequently used as a shade tree and for its spectacular autumn colour, best use in parks, intolerant of salt spray, drought and pollution
	Horse Chestnut	Aesculus hippocastanum	Round	Deciduous	15-25M	Full	Light	~		~		~	~		~				Preferred and pollinated by bees, best suited to park areas, can tollerate string winds, smaller colourful cultivars exist eg. Aesculus x carnea
	Paper Birch	Betula papyrifera	Narrowly Oval and Open	Deciduous	15-25M	Part Shade	High to Moderate	~						~	~		~	~	This tree is noted for its white bark, which exfoliates in papery strips to reveal an orange-brown inner bark. Prefers consistently wet soils
	Common Hackberry	Celtis occidentalis	Oval, Vase Shaped	Deciduous	15-25M	Full to Part	High to Moderate	~	~	~				~	~			~	Very tolerant of many soil and weather conditions
	Katsura Tree	Cercidiphyllum japonicum	Oval, Pyramidal, Round	Deciduous	15-25M	Full to Part	Moderate				~				~		~		Specimen tree for street planting or parks. Spring flower, leaf colours emerge reddish, changing to blue-green yellow in autumn, intolerant of drought conditions
	Kentucky Yellow-wood*	Cladrastis kentukea	Round	Deciduous	15-25M	Full	Moderate				~		~		~		~	~	Showy fragrant flowers, may be difficult to find in nursury, susceptible to ice damage
	Western Flowering Dogwood	Cornus nuttallii	Round	Deciduous	15-25M	Part Shade	Moderate	~						~	~		~		Showy Spring flower, this attractive tree is often one of the most sought after native for gardens
	Hardy Rubber Tree	Eucommia ulmoides	Broad, Round	Deciduous	15-25M	Full to Part	Moderate		~		~	~				~			Often used as a shade tree, has attractive thick glossy green leaves
	European Beech	Fagus sylvatica	Oval with Low Sweeping Branches	Deciduous	15-25M	Full to Part	Moderate	~	~			~		~	~		~	~	Large tree, typically used in parks. Silvery gray bark, short trunk and low branching habit. Columnar varities are available for narrow spaces.
	White Ash	Fraxinus Americana	Pyramidal	Deciduous	15-25M	Full	Moderate	~							~		~		Large upright tree. Has many varieties that can offer showy fall colours. Susceptible to Emerald Ash Borer.
	Green Ash	Fraxinus pennsylvanica	Oval, Round Upright	Deciduous	15-25M	Full	Moderate	~	~	~		~							Highly adaptable tree although susceptible to Emerald Ash Borer
	Maidenhair Tree	Gingko biloba	Oval, Tapering to Top	Deciduous	15-25M	Full	Moderate	~	~	~	~								Attractive form and interesting leaves, high pest and pollution tolerance, ensure male trees are selected due to offensive odour of female fruits
	Kentucky Coffee Tree	Gymnocladus dioica	Irregular, Oval	Deciduous	15-25M	Full	Moderate	~	~	~	~		~		~				Tolerant to pollution and wide range of soils. Large seed pods provide winter interest.
	European Larch	Larix decidua	Pyramidal	Deciduous	15-25M	Full	Moderate			~		~	~	~			~		Best noted for its soft green foliage that turns golden yellow in fall before dropping
	Japanese Larch	Larix kaempferi	Pyramidal	Deciduous	15-25M	Full	High			~		~	~	~			~		Frequently planted as an ornamental because it tends to grow faster than Laris decidua
	American Sweetgum	Liquidamber styraciflua	Oval, Pyramidal, Round	Deciduous	15-25M	Full	Moderate	~	~			~	~		~		~		Unique star-shaped leaves, outstanding fall colour, spiky "gumball" fruit.
	Tulip Tree	Liriodendron tulipifera	Oval, Pyramidal, Round	Deciduous	15-25M	Full	Moderate	~				~		~	~		~		Distinct tulip-shaped leaves, showy goblet-shaped, orange-yellow-green flowers, late Spring, intolerant of drought
	London Plane	Platanus acerifolia	Broad, Pyramidal	Deciduous	15-25M	Full	Moderate	~	~	~			~		~			~	Large tree with distinct peeling bark.
	White Oak	Quercus alba	Broad, Irregular, Round	Deciduous	15-25M	Full	Moderate	~	~				~						Massive wide spreading horizontal branches and red-wine fall colour. Ideal open space tree.
	Scarlet Oak	Quercus coccinea	Oval, Pyramidal	Deciduous	15-25M	Full	Moderate to Light		~		~		~				~		Most noted for its fall colour, not an ideal street tree.
	Garry Oak	Quercus garryana	Broad, Round	Deciduous	15-25M	Full	High to Moderate	~						~	~				Only native Oak to BC, ideal forest edge with deep moist soil. Intolerant of shade and competition.
	Bur Oak	Quercus macrocarpa	Irregular, Round	Deciduous	15-25M	Full	Moderate to Light	~	~	~			~			~			Ideal open space specimen, large trunk with deeply furrowed bark, lustrous dark green leaves, not noteworthy for fall colour

	English Oak	Quercus robur	Broad, Round	Deciduous	15-25M	Full	Moderate			~	~	~		~				Long lived oak valued primarily as a food source for birds and mammals. (Columnar varities are available. ie. Streetspire Oak)
	Red Oak	Quercus rubra	Round	Deciduous	15-25M	Full	Moderate to Light	~	~	~			~				~	One of the faster growing Oaks, attractive leaves throughout the seasons, tolerant of salt and air pollution, ideal for more exposed areas.
	Japanese Pagoda Tree*	Sophora japonica	Round to Fan Shaped	Deciduous	15-20M	Full to Shade	Moderate	~	~	~			~		~			covered. Flowers mid summer and produces better in warmer climates. Valuable for bees and butterflys, tolerates paving.
	American Linden	Tilia americana	Oval, Pyramidal, Round	Deciduous	15-25M	Full to Part	Moderate	~	~					~	~			Heart shaped leaves and showy fragrant flowers. Attracts songbirds. 'Boulevard' varities have narrow pyramidal habit.
	Littleleaf Linden	Tilia cordata	Oval Pyramidal	Deciduous	15-25M	Full to Part	Moderate	~	~	~					~			Great shade tree for parks or lawns. Tolerant to pollution. Fragrant flowers in mid summer.
	American Elm	Ulmus americana	Vase Shaped	Deciduous	15-25M	Full	Moderate		~	~								Attractive large street tree for canopying. Dutch Elm resistant varities must be considered. Avoid monocultures.
	Japanese Zelkova	Zelkova serrata	Vase Shaped	Deciduous	15-25M	Full	Moderate		~	~						~	~	Dutch Elm resistant, tolerates urban conditions. Interesting bark, clean serrated foilage and good fall colour.
Medium Trees	Sycamore Maple	Acer pseudoplatanus	Round	Deciduous	9-15M	Full to Part	High			~							~	Attractive bark, commonly planted as a shade tree. Susceptible to verticillium wilt.
	Red Maple	Acer rubrum	Irregular, Oval Round	Deciduous	9-15M	Full	Moderate	~				~			~	~		Needs plenty of room for its large root system, most notable for fall colour, select a cultivar bred for red fall colour.
	American Hornbeam	Carpinus caroliniana	Oval, Round	Deciduous	9-15M	Full to Part	Moderate	~				~		~			~	Small slow growing tree with distinctive smooth, gray trunk with larger branches of a mature tree exhibiting muscle-like fluting. 'Firespire' is noteworthy for fall colour.
	White Wonder Dogwood	Cornus ' White Wonder'	Asymentrical	Deciduous	9-15M	Part Shade	Moderate							~			~	True flowers, which are sterile, form a small, spherical cluster which is surrounded by 4-6 large, rounded, and overlapping white bracts
	Thornless Honey Locust	Gleditsia triacanthos	Oval, Round	Deciduous	9-15M	Full	Light	~	~	~					~	~		Fast growing and long lived, ideal tree for filtered shade. Cultivars can be selected for fall colour
	Carolina Silverbell*	Halesia carolina	Compact Round	Deciduous	9-15M	Part	Moderate				~		~		~		~	Not drought tolerant, protect from wind, Spring flower
	Japanese Silverbell	Styrax japonicus	Compact Round	Deciduous	9-15M	Full to Part	Moderate								~		~	Not drought tolerant, protect from wind, Spring flower
	Goldenrain Tree*	Kolreuteria paniculata	Irregular	Deciduous	9-15M	Full	Moderate to Light	~	~	~					~			Leaves emerge purplish in Spring, turn to bright green in summer and yellow in fall. Early Summer flower.
	Black Gum	Nyssa sylvatica	Pyramidal	Deciduous	9-15M	Full to Part	High	~				~		~		~	~	Very particular about its growing conditions, needs organic, acidic soils, intolerant of urban pollution
	American Hop-Hornbeam	Ostrya virginiana	Round	Deciduous	9-15M	Full to Part	Moderate		~		~	~	~					Very graceful small tree with horizontal, drooping branches and a slow growth rate.
	Persian Ironwood*	Parrotia persica	Oval, Round	Deciduous	9-15M	Full	Moderate			~						~	~	Oblong green leaves turn various shades of red, orange and yellow in the fall, often persisting into the winter months. The mature bark exfoliates to patches of green, tan, and white.
	Amur Cork Tree*	Phellodendron amurense	Broad, Round Crown	Deciduous	9-15M	Full	Moderate	~	~		~		~				~	Broad shade tree, 'Macho' or 'Shademaster' Cultivars recommended due to lack of fruit.
Small Trees	Trident Maple*	Acer buergerianum	Round	Deciduous	6-9M	Full to Part	Moderate		~	~	~		~			~	~	Very attractive small maple, effective as a lawn specimen, patio or shade tree.
	Amur Maple	Acer ginnala	Round, Variable, Open	Deciduous	6-9M	Full to Part	Moderate	~	~				~			~		Leaves are more lustrous, distinctively three-lobed with a long central lobe and better red fall color. 'Flame' turns a brilliant, fiery red in autumn.
	Paperbark Maple*	Acer grieum	Oval, Round	Deciduous	6-9M	Full to Part	Moderate				~		~					Provides unique beauty to the landscape, thanks to its fall color and its peeling copper-orange to reddish-brown bark (quite unusual for maples).
	Japanese Maple	Acer japonicum	Irregular, Round	Deciduous	2-9M	Part Shade	Moderate	~			~					~		Prefers locations protected from strong winds and spring frosts. Prefers Fall planting prior to frost concern.
	Eastern Redbud	Cercis canadensis	Round	Deciduous	6-9M	Full to Part	Moderate	~				~			~			Broad heart shaped leave, with showy pea-like flowers, rosy pink with a purplish tinge. Flowers develop before the leaves in spring, emerging in clusters along the branches.
	Kousa Dogwood	Cornus kousa	Irregular	Deciduous	6-9M	Full to Part	Moderte to Light	~						~	~			Large, showy white flowers in spring and a strongly horizontal habit of growth; very particular as to siting, requires rich, well-drained acidic soil and adequate precipitation
	Hawthorn	Crataegus x mordenensis	Low, Wide Spreading	Deciduous	9-15M	Full	Light	~	~					~	~			Thorn bearing, with significant late Spring flower
	Amur Maackia	Maackia amurensis	Round	Deciduous	6-15M	Full to Part	Moderate	~	~						~			The species is becoming more popular as a street tree due to its ability to tolerate dry, poor soils and harsh cold. Has a showy Summer flower.
	Saucer Magnolia	Magnolia soulangiana	Round	Deciduous	6-9M	Full to Part	Moderate		~						~			Huge early spring blooms appear before the leaves
	Star Magnolia*	Magnolia stellata	Round	Deciduous	6-9M	Full to Part	Moderate								~			Mostly used as foundation plantings, or around patios. Early Spring flower.
	Japanese Flowering Cherry	Prunus serrulata	Round	Deciduous	4-9M	Full	Moderate		~	~				~	~	~		Primarily grown for its profuse flowers in early to mid Spring. This is a sterile fruit tree.
	Japanese Stewartia	Stewartia pseudocamillia	Round Columnar Form	Deciduous	6-15M	Full to Part	Moderate				~				~	~	~	Due to slow growing nature, may require staking to assist roots in establishing. Avoid locations with hot afternoon sun.
	Japanese Tree Lilac	Syringa reticulata	Oval, Round	Deciduous	6-15M	Full	Moderate to Light	~		~	~	~			~			Hundreds of varities available ranging from small shrubs to upright trees. Showy and fragrant flowering.

VILLAGE OF KASLO TREE PLANTING PLAN PROJECT: INFORMATION FOR VILLAGE WORKS CREW

Prepared by Trish Leier and Kim Molyneaux, Cathro Consulting Ltd.
April 28, 2021

BACKGROUND

The purpose of this document is to provide the Village of Kaslo works crew the information required to select, plant, and maintain trees within municipal boundaries. This guide includes:

- Benefits and challenges of municipal planting;
- Considerations before planting;
- Selecting planting stock from nurseries;
- 9 simple steps to plant a tree;
- Soil amendments and fertilizer;
- Proper mulching techniques;
- Watering;
- Care and maintenance;
- Tree protection strategies; and
- Firesmart landscaping

This information in drawn from a variety of sources listed in the References section.

BENEFITS AND CHALLENGES OF MUNICIPAL PLANTING

Planting trees beautifies and rejuvenates backyards, municipal streets, and parks. They absorb carbon dioxide, produce oxygen, and help combat climate change.[10] There are however some key benefits and challenges unique to municipal tree planting.

BENEFITS OF MUNICIPAL TREE PLANTING

- Provides public benefits for all to enjoy
- Naturally cool cities during summer months and provide shade
- Promote physical activity, creating space for outdoor activity
- Promote well-being and reduce stress
- Tree lined streets can increase road safety by slowing traffic
- Promote social interaction and a sense of community
- Municipal trees can improve water filtration, storage and reduce stormwater runoff

- Provide bird habitat and attract pollinators
- Encourage people to visit and promote tourism
- Trees are good for business, shoppers will visit more often, linger longer and spend more money on streets with trees
- Prolong the life of pavement by reducing surface temperatures
- Promote safer, more sociable neighborhoods
- Increase property values
- Support biodiversity and ecosystem function
- Help to control erosion and sedimentation
- Promote soil productivity
- Improve air and water quality[11]

Challenges Associated with Municipal Tree Planting

- Setting realistic goals, this requires input from municipal staff and members of the community
- Advocating policy to fund tree planting and long-term maintenance
- Public engagement and consultation with community members
- Monitoring the health of many trees over a large area
- Providing education for proper tree planting methods and after-care to municipal workers
- Conflict with underground and overhead utilities
- Fruit and berry-bearing trees can attract wildlife
- Leaf clearing from storm drains
- Differing values and interests among community members
- Damage from snow removal and grass maintenance
- Protecting newly planted trees from deer, pests, and construction
- Damage from windstorms to trees and infrastructure[11]
- Theft and vandalism

Considerations Before Planting

When to Plant

- Trees should ideally be planted in the dormant season, either in the fall after trees lose their leaves or in early spring before budbreak. Planting when weather conditions are cool allow plants to put their energy into root establishment before spring rains and summer heat stimulate new top growth.[1]
- Choice of transplanting season can either minimize or increase water stress. [2]
- Deciduous trees can be planted as soon as the frost is out of the ground in the spring, or in the fall, from leaf-fall until freeze-up.[3]

- Conifers can be planted early in the spring until four weeks after deciduous trees have opened their leaves. In the fall, from about the first week of August to the end of October.[3]

Drainage

Most tree species cannot tolerate saturated soils during the growing season. Therefore, planting holes must provide adequate drainage. If soil permeability is low, soil can remain saturated for long periods of time. Even short periods of saturation can kill the roots of many species.[2]

Assessing Potential Soil Drainage Issues

A simple percolation test can be done before planting.

- Auger a hole 4 inches (10cm) in diameter and as deep as you expect the root to be.
- Fill the hole with water to pre-saturate the soil
- For one hour, refill as needed to maintain the water level, then stop adding water.
- After 24 hours, refill with water to 12 inches (30cm) from the bottom of the hole and measure the rate of fall of the water surface.
- A drainage rate of less than ¼ inch (0.6cm) per hour indicates that it might be necessary to provide drainage from the planting hole.

If excess water cannot be drained away to a lower area or a deeper soil layer, tree species that tolerate poor drainage may be needed, or the site may not be suitable for planting trees. Small sized-nursery stock may be able to establish better on poorly drained sites rather than larger trees because their roots are not as deep.[2]

Tree Placement and Utility Conflicts

Overhead Lines

Although overhead utility lines are easy to spot, they are often overlooked. Planting tall-growing trees under or near these lines eventually requires the utility provider to prune in order to avoid conflict with wires. Periodic pruning can lead to a shortened lifespan of the tree, unnatural appearance, and make the tree susceptible to insects and disease. Trees in contact with power lines can lead to service interruptions, initiate a fire and can pose a hazard to anyone climbing the tree.[4]

Underground Lines

Before digging, ensure there are no underground utility lines in the area, digging into utility lines could cause serious injury. Think about how the tree will grow, many times the tree's root area below ground is larger than the branch spread. Tree roots and utility lines often

co-exist without issue. However, tree roots could be damaged in the future if lines are dug up for repair. Never assume utility lines are buried deeper than you plan to dig.[4]

Tree Size Zones

Tall Zones

Trees that grow 20 meters (60 ft) or taller at maturity can be planted in "tall zones". These trees should be planted at least 11 meters (35ft) away from houses or buildings for proper root development and to minimize damage to structures. Large growing trees can be planted on streets without overhead restrictions if planting space is sufficient. These sites should be greater than 3 meters (8 ft) to allow for a large root system, trunk diameter and trunk flare. Parks and meadows are a great place for large tree placement.[4]

Medium Zones

Trees that grow up to 12 meters (40ft) can be used to frame the appearance of buildings or to create park-like settings. Appropriate soil spaces are 1-3 meters (4-8ft), large planting squares, and other open areas of similar size or larger.[4]

Low Zones

Trees with a mature height of less than 6 meters (20 ft) can be planted in most places including along streets and under utility lines. Trees of this size are also recommended where soil volumes are too limited to support tall or medium sized trees.[4]

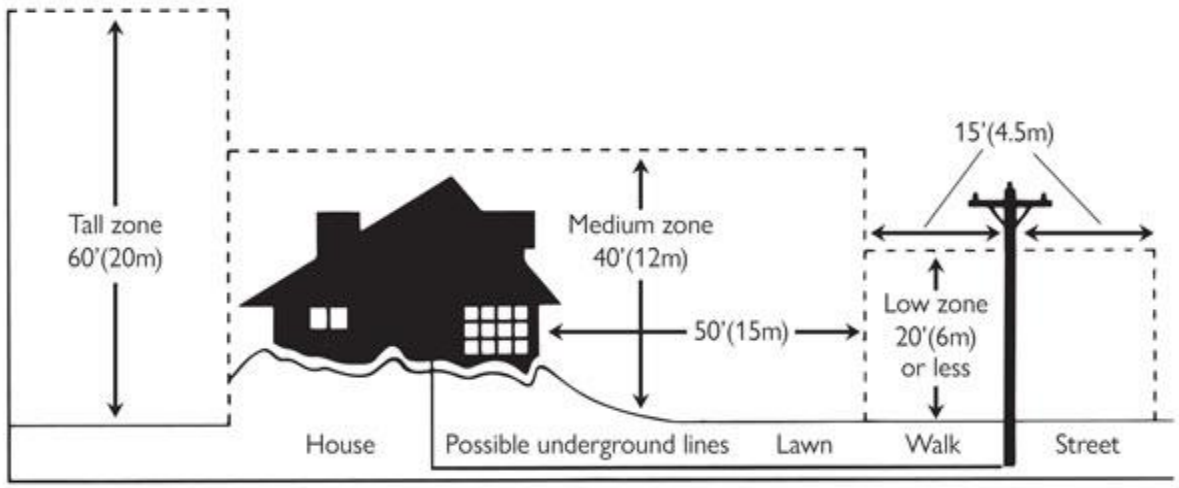


Figure 1: Approximate tree placement in relation to utility lines[4]

Selecting Planting Stock from the Nursery

Suitable nursery stock should be selected based on the conditions of the planting site and ability to provide sufficient after-care. Good quality trees have a higher likelihood of successful establishment and create a foundation for long-term tree health. Particular

attention should be paid to root ball defects, tree shape and structure, nursery planting depth, pruning cuts, presence of pests and disease, top die-back and leaf color[14].

Production Methods

The three main types of nursery production methods include:

Container: These trees are grown above ground in plastic, metal, wood or fabric; pot-in-pot in the ground; or in fabric containers in the ground.

Field-Grown (Balled-in-burlap or B&B): Grown in field soil, then dug with a tree spade and secured in wire and burlap.

Bare Root: Usually deciduous trees, they are dug from field soil and contain no covering on the roots. Bare root trees are usually only available for purchase when dormant and in a limited size range[14].

Healthy Root Systems

Root balls should be inspected for defects prior to purchasing nursery stock. Defects can occur on any tree, regardless of the production method. Root defects close to the trunk can be time consuming or impossible to correct and can reduce survival of newly planted trees. Types of root defects include circling roots, kinked roots, stem girding roots, and root-bound trees.

Circling Roots: Roots circling close to the trunk can eventually slow growth and girdle the trunk. Circling roots at the top of the root ball are especially troublesome and should not be planted. Few roots grow from the outside edges of circling roots creating instability and increasing likelihood of blow-down in high winds.

Kinked Roots: These are roots that have been deflected and turned back on themselves almost 180 degrees. This defect makes it difficult for water and sugars to pass through and decreases mechanical support. Kinks in small roots are much less of a concern than in large roots.

Stem-Girdling Roots: These are formed when new roots grow perpendicular to a cut root, or when the tree is grown in a container for too long. As the trunk increases in diameter, these roots may meet the trunk and begin to strangle it. This can lead to trunk indentation and cause root decay.

Root-Bound Trees: This is when there are many roots circling around the outside of the root ball, causing a physical barrier and often preventing roots from establishing in new soil after planting. If these roots are present, they can be cut prior to planting on the

landscape. About six slices can be made with a sharp blade from the top of the root ball to the bottom, several inches deep, cutting through the roots circling the outer edge[14].

Trunk Form and Branch Structure

Choosing a nursery tree with good structure can postpone future pruning and maintenance. The best quality shade trees should have one dominant trunk (apical dominance). Multiple leaders can represent weakness and cause the tree to split apart as it grows. Major branches should not touch and should be less than $^2/_3$ trunk diameter. Some tree species naturally have multiple trunks, are perfectly healthy and should not have to be corrected[14].

Canopy Structure

Canopy uniformity is less important than trunk form and branch arrangement, however an even canopy can represent attentive growers. Overall, trees with an irregular canopy but one dominant trunk and good branch arrangement are better than a uniform canopy and a double trunk with included bark (stems growing closely together). The canopy will fill in as the tree grows and its fullness is often dependent on species[14].

Visual Damage

Other concerns to look out for are foliage color and staking. Leaf discoloration can be caused by a number of reasons including nutrient deficiencies. Prior to purchasing, stakes should be removed from trees to ensure trees can stand on its own if caliper is more than 1.5 inches (3.8cm). Any pruning cuts can also be evaluated to ensure the cut has not damaged the branch collar. Cuts should not be flush with the tree as they can eventually lead to decay[14].

9 Simple Steps to Plant a Tree

1. Identify the trunk flare
    - The trunk flare is the point at the base of the tree where the trunk expands. The goal is for this point to be partially visible after the tree has been planted.
    - If the root flare is not visible, remove excess soil from the top of the root ball prior to planting.[1]

2. Dig a broad, shallow planting hole
    - Shave and discard grass and weeds from the planting site.
    - Holes should be 3 times wider than the root ball, but only as deep as the root ball. The broader hole breaks up surrounding soil, allowing emerging tree roots room to expand.[1]

- To minimize settling, do not disturb the soil under the root ball. Recompact the soil if it has been disturbed.[2]

3. PREPARE THE ROOT BALL
    - If wrapped, remove any cover from around the root ball and trunk. Remove or cut away containers or wire basket. For balled and burlapped trees, it is best to leave covering on until the root ball is in place to minimize damage.[2]
    - Inspect container tree root balls for circling roots. Straighten, cut, or remove them.[1]
    - If necessary, expose the trunk flare.
    - Ensure the roots are kept moist during this process.[2]

4. PLACE THE TREE AT THE PROPER HEIGHT
    - Take care to ensure the hole is dug no more than to the ideal depth.
    - The majority of a tree's roots develop in the top 30cm (12 inches) of soil. Planting a tree too deep will deprive roots of oxygen and stunt development.[1]
    - If soils are heavily clayed or poorly drained, trees can be planted with the base of the trunk flare 5- 7.5cm (2-3 inches) above recommended depth.[1]
    - When placing the tree in the hole, be sure to lift by the root ball, not the trunk. If trees are large and require special equipment, ensure the trunk is protected with padding.[2]

5. ENSURE THE TREE IS STRAIGHT IN THE HOLE
    - Have someone view the tree from several directions to confirm before backfilling. Once the tree is planted it is difficult to reposition.[1]

6. BACKFILL THE HOLE
    - Gently but firmly fill in the hole, packing soil around the base of the root ball to stabilize.
    - When planting a wrapped root ball, carefully remove any fabric, plastic, string or wire to prevent girdling and facilitate root growth.
    - Fill the remainder of the hole, firmly packing soil to eliminate air pockets that may dry out roots.[1]
    - Avoid fertilization at the time of planting and periodically water while backfilling to further reduce air pockets.[1]

7. STAKE ONLY IF NECESSARY
    - Remove the nursery stake (the thin stake attached to the trunk) tied to the tree.[2]
    - If necessary, one or two stakes used in conjunction with a wide, flexible tie material on the lower half of the tree will hold the tree upright and minimize injury to the trunk yet still allow movement.[1]

- Ensure the stakes are set at least 2 feet (0.6m) into the native soil outside the root ball.[2]
- Check the stakes and ties periodically, removing them when the tree is able to stand on its own.
- Staking should only be required when planting bare root stock, on windy sites or if protection is needed from lawnmower damage and vandalism.[1]
- Studies have shown that trees establish more quickly and develop stronger trunk and root systems if they are not staked at the time of planting.[1]

8. MULCH THE BASE OF THE TREE.
    - Apply a 5-10cm (2-4 inch) layer of wood chips or other organic mulch over the planting hole.[1]
    - More than 10cm (4 inches) of mulch may cause problems with oxygen and moisture levels.[1]
    - Use the "doughnut method" by leaving a mulch-free area 10cm (4 inches) wide at the base of the tree, reducing moist bark conditions and preventing decay.[2]

9. PROVIDE FOLLOW-UP CARE
    - Ensure the soil stays moist, but not waterlogged and apply water using a low-pressure application.[2]
    - Depending on rain, water trees at least once a week, and more frequently during hot, dry, or windy weather. [1]
    - A good way to tell when it's time to water is when the soil is dry below the surface of the mulch. Continue this until mid-fall, tapering off as lower temperatures require less-frequent watering.[1]
    - Prune any broken or dead branches.[2]
    - Prune sparingly after planting as the tree's energy should be put into its roots initially, rather than repairing damage above ground.[1]

SOIL AMENDMENTS AND FERTILIZER

SOIL AMENDMENTS

A soil amendment is any material added to a soil to improve its physical properties, such as water retention, permeability, water infiltration, drainage, aeration, and structure. The overall goal is to provide a better growing environment for roots.[8]

- An amendment must be mixed thoroughly into the soil. If the amendment is just buried it will interfere with water intake, air movement and root growth.
- Amending soil is different than mulching, although sometimes mulches are used as soil amendments.

- Organic amendments include sphagnum peat, wood chips, grass clippings, straw, compost, manure, biosolids, and sawdust.
- Inorganic amendments include vermiculate, perlite, tire chunks, pea gravel, and sand.
- Wood products can tie up nitrogen in the soil and cause nitrogen deficiency. As it is decomposed, the nitrogen is re-released and again becomes available to plants. Wood products, particularly sawdust should be composted before being used as a soil amendment.
- Sphagnum peat helps sandy soils to retain more water but creates a more acidic soil
- Mountain peat should be avoided as it is mined from high-altitude wetlands and is extremely disruptive to hydrologic cycles and mountain ecosystems.
- Fresh manure can harm plants due to elevated ammonia levels and should therefore be aged or composted.
- Factors to consider when choosing an amendment include how long it will last in the soil, soil texture, soil salinity, and salt content and pH of the amendment.[8]
- The type of amendment to choose depends entirely on how or if the soil needs to be changed.

Some studies argue that soil amendments are not beneficial for long-term root establishment as it can restrict roots to the immediate planting vicinity, resulting in roots circling back when they encounter the interface of the native soil.[9]

FERTILIZER

Drought stress is the leading factor of growth limitation in newly planted trees, until the root system can establish and absorb more water. Adding fertilizer at planting is not usually effective in speeding this process. However, there may be special circumstances when adding slow-release fertilizer at the time of planting may be beneficial, including:

- For small trees that quickly overcome post-planting stress, especially those that have the potential to produce multiple flushes of growth.
- Trees that are less stressed with a constant and ample supply of soil moisture. These trees will develop roots more quickly and benefit from fertilization earlier than infrequently watered trees.
- Root balls with low nutrient-holding capacity such as soilless substrate in containers or sandy balled and burlapped trees, may require earlier and more frequent fertilization to avoid nutrient deficiency until roots establish in surrounding soil.[2]

In most cases it's best to analyze the soil before planting to determine if fertilizer is necessary to correct any soil deficiencies. There is no evidence that phosphorus increases

root growth unless the soil is phosphorous deficient. Nitrogen has been shown to increase localized root growth, but other parts of the root system may be unaffected.[2]

Benefits of Proper Mulching

Mulch can improve growth and establishment of newly planted trees. Mulches are applied to the soil surface to maintain moisture and improve soil conditions. If misapplied mulch may have little, or negative, impact on trees.[6]

Trees growing in natural soil forest environments are rooted in rich, well aerated soils full of essential nutrients and microorganisms. Fallen leaves and other organic materials break down, continually releasing nutrients into the soil. These conditions are optimal for mineral uptake and root growth. Often urban and municipal landscapes are prone to lower quality soil, reduced organic matter, and greater fluctuations in soil temperature and moisture. The use of organic mulch in these areas can replicate natural conditions.[6]

Benefits of Proper Mulching

- Reduces soil moisture loss from evaporation
- Helps control weed germination and growth
- Insulates soil, protecting roots from extreme heat and cold
- Over time, mulch improves soil biology, aeration, structure, and drainage
- As certain mulch types decompose, it increases soil fertility
- Inhibits certain plant diseases
- Reduces the likelihood of damage from lawn mowers
- Gives planting beds a uniform aesthetic[6]

Types of Mulch: Organic vs Inorganic

- Organic mulch decomposes in the landscape at different rates depending on the material, climate, and soil microorganisms present. Types of mulch include wood chips, pine needles, hardwood and softwood bark, cocoa hulls, leaves, and compost mixes. Depending on how fast the organic mulch decomposes, it can require more frequent replenishing.
- Inorganic mulch does not decompose and doesn't need to be replenished often. Examples include various types of stone, lava rock, shredded rubber, and other materials. Inorganic mulch does not improve soil structure or provide nutrients.[6]

Problems Stemming from Improper Mulching

- Applying mulch against the trunk or stems of plants can soften the tissues, making them more susceptible to insects and diseases.

- Mulch against a tree's trunk can lead to the development of stem girdling roots. This type of growth can stunt tree growth or eventually kill the tree.
- Over-layering fine mulch can reduce the penetration of water and air.
- On wet soils, applying more than 5cm (2 inches) can prevent soil drying, this can lead to access moisture in the root zone, stressing the plant and potentially causing root rot. For areas with wetter soils, it may be best to leave bare ground exposed or to use a thin layer of inorganic mulch.
- Some mulches can affect soil pH, such as those that contain fresh grass clippings. This can eventually lead to nutrient deficiencies or toxic buildups. Anaerobic "sour" mulch may give off pungent odors, and the alcohols and organic acids that build up may be toxic to young plants.[6]

Guidelines for Applying Mulch

- For well-drained sites, apply a 5-10 cm (2-4 inch) layer of mulch. If using fine mulch, such as composted materials, apply in a 5-8 cm (2-3 inch) layer. Coarse mulches such as arborist wood chips, should be applied in an 8-10cm (3-4 inch) layer.
- Leave a 10cm (4 inch) mulch-free area around the trunk. Extend mulched area to the drip line, if practical. Generally, a 1-meter (3 ft) radius ring of mulch is the minimum requirement for most trees.
- If the species you are mulching has symptoms related to a pH problem, select a mulch that can aid in correcting.
- If mulch is already present, check the depth. If sufficient mulch is present, break up any matted layers and refresh the appearance with a rake.[6]

Watering

- For the first year or two after planting, it is important to keep the root ball moist but not overwatered. Root ball soil is the major source of water for the tree until the root system develops outside if it.
- Newly planted trees require frequent watering to keep the root ball from excessive drying. Summer showers are usually not adequate to keep the root ball moist.
- Even in cool climates, throughout the first summer, newly planted trees will likely need water about twice a week, possibly more for container-grown trees.
- Recently transplanted container-grown trees in warm climates will often require more frequent irrigation- sometimes daily- depending on soil type, substrate composition, and size of the transplant.
- Weekly watering estimates depend largely on weather conditions. In very hot summer weather, up to 40L (10 gallons) of water per caliper inch per week may be needed. In cooler weather, that can be reduced by 50 percent.

- To avoid over-watering or under-watering, monitor the moisture of the root ball. Probe the root ball and the backfill with a pointed metal rod or stiff wire for a good estimate of soil moisture Very dry soil will resist the rod and indicate need for watering. If suction develops when removing the rod and the surface is muddy when removed, the soil is too wet.
- Irrigation may also need to be adjusted based on the requirements of specific species. [2]

Tree Watering Bag

- Tree watering bags use a slow-release system to bring water straight to the roots of the tree, decreasing waste.[2]
- Products such as the *Treegator* watering bag are designed to drip out slowly at the base of the tree and soak into the root ball
- This reduces the necessity of daily watering and will allow the Village Crew to re-visit the trees on a five-day cycle
- It also provides an opportunity for property owners to assist in the care and maintenance of the trees by periodically filling the bags

Care and Maintenance of Young Trees

Transplant Shock

Balled and burlapped trees often lose a significant portion of their roots when dug at the nursery. As a result, trees can exhibit "transplant shock", which is a state of slowed growth and reduced vitality following transplanting. Container trees often have circling or kinked roots that must be cut to avoid transplant shock. Proper site preparation, careful handing to prevent root damage, and good follow-up care reduces risk of transplant shock and promotes faster recovery.[5]

Crown Pruning

Pruning is necessary for strong structure. However, at the time of planting, pruning should primarily be for removal of broken, dead, or diseased branches, and unnecessary sprouts from the root system.[2]

- Over-pruning reduces photosynthesis and production of root-stimulating auxins to such an extent that all growth could be reduced. Excessive pruning can also destroy the tree's structure and introduce decay.[2]
- Additional pruning may be required to develop a central leader to the very top of excurrent trees, if this was not accomplished in the nursery, or if the leader has been accidentally broken. [2]

- Transplanting stress can reduce apical dominance in the years following planting. To prevent development of co-dominant stems, remove or reduce the length of upright oriented stems throughout the crown, including those in the top half. [2]
- Trees should be pruned when dormant in late fall or early spring.[3]
- The branch collar is the area of swelling at the union between a parent stem and smaller branch. When removing a dead or broken branch, the cut should be made just outside the collar of living tissue, without leaving a dead stub. The collar contains live tissue and should not be removed.[7]

Establishment After Planting

- Until the root system is established on a new site, it is common for newly planted trees to experience water stress.
- Bare-root trees may lose much of their fine root system during transplanting but often retain much of their woody roots.
- Container trees do not suffer such a major root loss during the planting process, but the roots only have access to very limited moisture in the small volume of container substrate. Unless they are irrigated frequently, all trees experience high levels of post-planting stress from lack of water until the roots can grow into surrounding soil and access adequate moisture.
- The rate of new root initiation and growth out of the root ball is influenced by species, as well as soil temperature, oxygen, moisture, and other physical and chemical characteristics of the site soil. For most species in warm soils, roots will initiate in one week to two months.
- The most reliable way to increase root development is to manage soil moisture and aeration to provide high quality soils for roots to grow in.[2]

Tree Protection Strategies

Pest Management

Wood-boring insects often attack newly planted trees. Insecticide treatments can be applied on susceptible species such as cherry (*Prunus* spp.) and maple (*Acer* spp.) to help prevent issues.[2] Fungal canker sores are another common problem with new transplants, these are fungi that usually infect wounds. Wounds created during the transplanting process can be treated with a registered fungicide or fungicide enhanced wound treatment to reduce likelihood of infection. Avoiding water deficiency and waterlogged soils can also prevent canker sores on trees.[2]

Repellents

Repellents can discourage rabbits, mice and deer from feeding on trees. Most repellants contain thiram, a distasteful but harmless fungicide. Once applied to the tree, its bitter taste discourages animals from taking a second bite.[12]

TREE GUARDS

Tree guards can be most affective where rabbit damage is concerned. These can be made from 10-20mm square wire screen, set 7.5-10cm into the ground and braced away from the tree. It should reach a height of 50cm above the expected snowline. [12] Deer netting can be used to protect small trees from browsing. Metal or wooden stakes can be placed around the tree and wrapped with netting to provide protection. Trunks can be wrapped with burlap, sisal kraft paper, or PVC pipe to prevent girdling, although these methods will not protect main branches from browsing.[12]

FIRESMART LANDSCAPING

Wildfires are a natural part of British Columbia's ecosystems and a reality for residents living in wildland-urban interface areas. Part of being FireSmart is managing our landscapes with fire in mind. Making informed choices about which species to plant and where can create a more fire resilient community.[13] Keep these tips in mind when making decisions about tree species selection and placement:

- Keep trees and shrubs away from buildings ensuring branches don't touch or hang over roofs, consider mature tree height during placement and how trees will need to be maintained over time.
- Keep all trees healthy, unhealthy or dead trees pose a greater fire risk.
- Choose deciduous trees over coniferous species. Deciduous trees contain a high moisture content in their leaves and don't often contain flammable oils. Healthy deciduous trees can act as a fire barrier.
- Most conifers are not considered FireSmart due to their natural make up and flammability. Lower risk conifers include larch (*Larix* spp.), due to its high-water content, and ponderosa pine (*Pinus Ponderosa)* because of its think, fire-resistant bark.[13]

REFERENCES

[1.] International Society of Arboriculture. 2011. New Tree Planting. https://www.treesaregood.org/portals/0/docs/treecare/New_TreePlanting.pdf

[2.] Watson, G. 2014. International Society of Arboriculture. Best Management Practices: Tree Planting. Second Edition.

[3.] Tree Canada. 2021. Tree Planting Guide. https://treecanada.ca/resources/tree-planting-guide/

[4.] International Society of Arboriculture. 2011. Avoiding Tree and Utility Conflicts. https://www.treesaregood.org/portals/0/docs/treecare/Avoiding_Conflicts.pdf

[5.] International Society of Arboriculture. 2021. Planting a Tree. https://www.treesaregood.org/treeowner/plantingatree

[6.] International Society of Arboriculture. 2021. Proper Mulching Techniques. https://www.treesaregood.org/Portals/0/TreesAreGood_Proper%20Mulch%20Tech_0321.pdf

[7.] Gilman, E.F., Lilly, S.J., and Smiley, E.T. 2019. International Society of Arboriculture. Best Management Practices: Pruning. Second Edition.

[8.] Davis, J.G. and Whiting, D. 2013. Colorado State University Extension. Choosing a Soil Amendment. Fact Sheet No. 7.235. https://extension.colostate.edu/docs/pubs/garden/07235.pdf

[9.] Chalker-Scott, L. (n.d.). Puyallup Research and Extension Center, Washington State University. The Myth of Soil Amendments. https://s3.wp.wsu.edu/uploads/sites/403/2015/03/soil-amendments.pdf

[10.] Federation of Canadian Municipalities. 2021. Tree Canada. https://fcm.ca/en/about-fcm/fcm-partners/tree-canada

[11.] Cullington, J., Gye, J. and Tyler, S. 2008. Union of British Columbia Municipalities. Planting Our Future: A Tree Toolkit for Communities. http://www.toolkit.bc.ca/sites/default/files/Plantingourfuture.pdf

[12.] Government of Canada. 2020. Protecting Trees from Animal Damage. https://www.agr.gc.ca/eng/agriculture-and-the-environment/agricultural-pest-management/diseases-and-pests/protecting-trees-from-animal-damage/?id=1198877618448

[13.] British Columbia FireSmart. 2021. FireSmart BC Landscaping Guide. https://firesmartbc.ca/wp-content/uploads/2021/04/FireSmartBC_LandscapingGuide_Web_v2.pdf

[14.] Gilman, E.F. and Sadowski, L. 2007. Chapter 10: Selecting Quality Trees from the Nursery. Publication No. ENH 1060. University of Florida IFAS Extension. https://edis.ifas.ufl.edu/pdf%5CEP%5CEP31300.pdf

APPENDIX E- QUOTES FROM NURSERIES AND SUPPLIERS

801 VAN-KEL WW BURNABY
6 - 3751 NORTH FRASER WAY
BURNABY, BC V5J 5G4

GST/HST Reg#: R101626026
QST Reg#: 1015301364

QUOTATION

Quotation number	Quote date	Date
2001009736	2021-05-21	2021-05-21
Your order no	**Salesperson**	**Valid to**
VILLAGE OF KASLO	Dan Tofte DTofte@emcoltd.com	2021-06-20

Invoice address

CASH SALE - VAN-KEL BURNABY
#6 - 3751 NORTH FRASER WAY
BURNABY, BC V5J 5G4
6043745827
8390000002

Your reference	Our Reference
TRISH L.	

Delivery Address

CASH SALE - VAN-KEL BURNABY
#6 - 3751 NORTH FRASER WAY
BURNABY, BC V5J 5G4
6043745827
8390000002

Delivery terms	Delivery method
000 UNSPECIFIED	000 UNSPECIFIED
PST License	

Line	Item number	Name	Quantity	U/M	Sales price	U/M	Discount %	Amount
1	0565710	98183 TREEGATOR ORIG GRN	30	EA	22.50	EA	NET	675.00
2	DELVERY	DELIVERY CHARGE-FREIGHT OUT	1	EA	24.99	EA	NET	24.99

Terms and conditions

Prices are subject to change without notice. Payment net 30 days unless otherwise stated. Orders may require a deposit and may not be cancelled without prior written approval. All deposits and down payments are non-refundable. A cancellation charge may apply on cancelled orders. No returns without prior written approval. A minimum handling charge of 25% will apply to goods returned. All goods quoted are subject to prior sale. Any warranty solely as per terms of applicable manufacturer warranty, vendor makes no warranties, express or implied, regarding any goods sold. Only vendor's terms and conditions of sale apply to this order, regardless of any customer terms. See https://emco.ca/terms-and-conditions-of-sale/ for full terms and conditions of sale.

Accepted by: ______________________ Date: ______________

Net order value		$699.99
GST/HST		$35.00
PST/QST		$49.00
Order total		$783.99
Total	**CAD**	**$783.99**

QPS601PF398845883071657544V25 ACUTTELL May 21, 2021 10:41:06 AM PST **Page 1 / 1**

4516 Hullcar Road Armstrong, BC
V0E 1B4 Canada
Phone: 250 546 8156
Fax: 250 546 9155

Email: info@psnursery.com
Toll Free: 1 877 289 3813

Quotation

Date	05/21/2021
Number	13114
Terms	Net due on receipt
Request Ship	05/21/21
PO Number	
Ship Method	
Sales Rep	

Sold To
Village of Kaslo
Kaslo, BC

Ship To
Village of Kaslo
Kaslo, BC

Contact Trish Leier
Email kasloplantstrees@gmail.co

Contact Trish Leier
Email kasloplantstrees@gmail.co

Ordered	Description	Size	Net Price	Extension
1	Aesculus x carnea 'Ft McNair' - Ft McNair Red Horse Chestnut	50mm	$300.50	$300.50
2	Crataegus x mordenensis 'Snowbird' - Snowbird Hawthorn	50mm	$277.00	$554.00
2	Malus x 'Spring Snow' - Spring Snow Flowering Crabapple	50mm	$277.00	$554.00
5			**Subtotal**	$1,408.50
			Tax (12%)	$169.02
			Total	**$1,577.52**

Gmail **Cathro Consulting <cathroconsulting@gmail.com>**

Quote

2 messages

True Blue Hardware <trueblue.hware@gmail.com> Thu, May 27, 2021 at 11:56 AM
To: cathroconsulting@gmail.com

Hello Trish!!

The item, 5038-731-20 Gallon Tree Watering Bag, you have inquired about is $32.99 each. I can give you 10% off, which will bring it down to $29.69 each. So that brings the total of 30 bags before tax to $890.70 and $997.57 after tax.

At the moment there is stock in the warehouse. If ordered by Saturday, they could be here the following Wednesday or Thursday.

Thank you!

Fawn
--
Kaslo Home Hardware
PO Box 400
433 Front Street
Kaslo, BC V0G.1M0
tel. 250.353.2432
fax. 866.912.2432
trueblue.hware@gmail.com

Cathro Consulting <cathroconsulting@gmail.com> Thu, May 27, 2021 at 12:10 PM
To: True Blue Hardware <trueblue.hware@gmail.com>

Thank you for providing this so quickly Fawn.
I am sending a report to the Village today and will include your quote.
I hope to have a response ASAP from them.

Trish
[Quoted text hidden]
--
Trish Leier
Office Manager
Cathro Consulting Ltd.

T: 1 (778) 205-4929
E: cathroconsulting@gmail.com

Gmail **Trish Leier <kasloplantstrees@gmail.com>**

Tree Selections - Village of Kaslo

8 messages

Trish Leier <kasloplantstrees@gmail.com> Fri, May 21, 2021 at 11:09 AM
To: info@psnursery.com

Good Morning ,

I have some interest in a few species and would like to know what you have in stock and in what sizes, as well as any recommendations for alternates if these are not available.

My initial interests are as follow;

Malus 'Jarmin' - Marilee Crabapple, I would two of these ideally, large potted or B&B

- My interest is in a sterile, Spring flowering tree. I like the upright nature of these as I have a sidewalk which would run under these. Something with a red summer leaf and good fall colour is also a consideration.

'Venus' Flowering Dogwood, two please. Large potted or B&B

- White flower is a must and these are street side, tolerant of full sun and again upright growth habits. Open to a white flowering Hawthorn or Japanese Snowbell, Styra japonicus.

Aesculus x carnea - Red Horsechestnut, large, preferably caliper sized B&B

Quercus rubra - Northern Red Oak, also caliper sized B&B

If you could, again, let me know if you have these in stock and in what sizes, it would be greatly appreciated. Also, any other recommendations with the considerations I have noted are also welcome. We are looking to support local businesses and have some flexibility on what we plant.

Thank you for your time,

Trish

****

Trish Leier
Project Manager
Cathro Consulting Ltd.

T: 1 (778) 205-4929
E: cathroconsulting@gmail.com

The best time to plant a tree was twenty years ago.
The second best time is now.
~ Chinese Proverb

---

chris edwards from Purple Springs Nursery <info@psnursery.com> Fri, May 21, 2021 at 11:57 AM
Reply-To: chris edwards from Purple Springs Nursery <info@psnursery.com>
To: kasloplantstrees@gmail.com

My suggestions would be a sub for Jarmin of either Spring Snow crabapple in 15 gallon or a 50 mm they are fruitless or Pink spire in 50 mm (small cherry sized fruit)

Sub for dogwood to a Snowbird Hawthorn in a 50 or 60mm

We do have 1 fort McNair red horse chestnut in 15 gallon or black walnut in 50 mm

APPENDIX F- UPDATE REPORT TO PARKS, TRAILS AND PUBLIC ART COMMITTEE

VILLAGE OF KASLO TREE PLANTING PLAN PROJECT: UPDATE TO PARKS AND CULTURE COMMITTEE

Prepared by Trish Leier, Cathro Consulting Ltd.
May 27, 2021

WORK COMPLETED TO DATE

A Tree Planting Survey has been posted on social media within the Kaslo Web and on the Village Site, the Pennywise ran an advertisement for two consecutive publishing runs throughout March. Postings were also placed on the various community boards throughout March and April in town to generate awareness of the Plan to Plant Boulevards and Municipal Park Spaces which resulted in a total of 36 respondents reaching out via the survey, email or a direct phone call. The full report has been submitted to the Village and a copy has been circulated to the Committee. The main points taken from this survey include the following;

- Preference towards new tree plantings were for climate resistant species, and then flowering and fragrant species of trees
- Preferred locations were for A and D Avenue, New construction sites at the Front Street Park and new Library Site, as well as the South entrance to the Village. There were also mentions of the baseball field and skate park to bring additional shade for users.
- The majority of respondents felt more trees are needed in the Village with only 11% feeling we already have enough trees.
- The Adopt-A-Tree Program got little interest, although respondents want to see more details on what the program looks like and how it will run. Lots of good ideas were shared and are included in the full survey.
- The majority of general comments support the Plan to add trees to Urban Landscape and a good number would prefer to see trees planted in conjunction or shortly following removals to show support for replanting efforts.
- A number of participants left their contact information and all of these have been followed up on. Some are interested in the Adopt-A-Tree Program and would be willing to water a tree for the year following planting and others wanted more information on the program and to explore the possibility of donating money to have a tree planted in dedication but may or may not want to provide the care needed.

Following the Survey and Advertising, on site visits commenced for those community members interested in the Adopt-A-Tree Program. Currently there are 12 interested participants in the Adopt-A-Tree Program, and these participants are willing to water new plantings for the year or two following initial planting by the Village and to report any necessary maintenance or signs of decline as noted. Stephanie Patience has noted that an idea of offering a letter of recognition to these participants from the Mayor has been recommended to Ian

Dunlop. It would be ideal if this was accompanied by a short insert regarding the Adoptee's tree and its needs following planting.

An initial planting area has been discussed with the Village Foreman Geoff and all adjacent properties are interested in the Adopt-A-Tree Program and are also willing to provide the care noted above for the initial year or two to ensure a good strong start. These homeowners have all been consulted on the species and location for their boulevard trees and consideration has been made by the Village to note future infrastructure development, i.e. Sidewalks and curbsides. These properties are as follows; 302, 306, 314 and 311 A Avenue.

The Village Crew has received the initial instructional portion of the Tree Planting Guidelines via a zoom conference on May 21, 2021. Public Works Crew members including Stephanie Patience and John Cathro were in attendance and Kim Molyneaux and myself delivered the information. The Crew has been provided with reference material which speaks directly to the presentation. A copy of this Reference Material is included below. Timing for planting was discussed with Geoff and a request of a single week's notice to tree arrival was requested to organize the crew to plant.

Ian Dunlop has provided information on a working budget for purchasing trees of $3000.00, and Stephanie Patience has noted there is currently an additional credit at Georama Nurseries for $504.00 remaining from the Legacy Garden Plantings. Initial conversations regarding the Spring Plantings were planning for 10 new trees however, those have been revised and we are currently quoting 4-5 new tree plantings. I have contacted three local nurseries within the Kootenay Boundary and one nursery in Armstrong, BC. I have had responses from three of the four with two noting that their stock orders are typically placed in the Fall previous to the planned Spring planting and they currently have limited stock in house as far as large species balled and bur lapped trees are considered. Also, only one nursery provided information on growing tree stock on site while the other two are purchasing from wholesale growers outside of our region and bringing their stock in for retail.

The four nurseries that have been contacted are as follows;

- Georama Growers, 2870 Georama Rd, Nelson, BC
    - No current stock of requested species, limited stock available, would show preference to a Fall order placed for the following year
- Dig Garden Center, 2811 Popoff Rd, South Slocan, BC
    - Have yet to hear a response to email and follow up phone call
- Mountain Edge Nursery, 8965 Hwy 6, Salmo, BC
    - No current stock of requested species, limited stock available, would show preference to a Fall order placed for the following year
- Purple Springs Nursery, 4516 Hullcar Rd, Armstrong, BC
    - Has 5 of the 6 requested species in stock in 50 mm Balled and Bur lapped preparations, however there is a delivery cost associated.

MOVING FORWARD

It is known that there is a local purchasing preference in place and given that our local nurseries are purchasing outside of our local district and do not currently have stock that suits the current planting needs, my recommendation would be to order from the nursery in Armstrong. This nursery has Certified Horticulturalists on staff and follow 'Best Pruning Practices under the COE specified pruning guidelines. Their staff have been keen to respond to my emails and questions in a reasonable time frame and offer recommendations on trees that suit the particular planting conditions that I describe to them. I have been communicating with Chris, and

they suggest that if we purchase 10 trees that they can offer delivery to Kaslo for $850.00 at this time. Given the current workload of the Village, as communicated by staff, and the timing needed to prepare and plant 10 trees, I am aware that a Spring Planting of 10 trees is not feasible. Purple Springs Nursery is prepared to accept payment on these trees however and care for them until Fall, when they would deliver them for a Fall Planting Schedule. At which time we can prepare our order and plans for the following years planting cycle, both Spring and Fall 2022. It is important to also note, other avenues have been explored for obtaining the tree stock from Purple Springs Nursery; ACE Hardware rents their one tonne with a driver for $125.00/hr (this requires some notice and planning, approx. 1-2 weeks advance preferred) and the Village may be able to facilitate a pick up if the planting is moved to Fall as their dump truck is quite busy this Spring with other ongoing projects.

An idea, I have considered and discussed with two volunteers and the Village Foreman, would include a single planting this Spring, to acknowledge the Planting Plan and its Schedule to commence plantings this Fall. It could serve as a 'ribbon cutting' of sorts and present the continued idea and work towards maintaining our urban park like environment. This time could be used to acknowledge the By-Law and the Village's support of it by recognizing tree deficits and constructing a three-year plan to remediate past removals, with an effort to track and replant future tree removals in a more efficient manner. Considering there is a credit sitting at Georama currently, and they do have a large specimen tree on site 'Gold Rush' Metasequoia glyptostroboides, this would be my initial recommendation of planting a specimen piece that will bring awe and acknowledgement to all that come to the four way stop at the Hwy 31 intersection in town. I have discussed, with Adopt-A-Tree Volunteers and the Village Foreman, the idea of placing this tree in the municipal gardens of the Kembell Building to the North Side of the Entrance. The small square garden has a team of volunteers that are ready to relocated those perennials and ensure that the tree is watered during it's first year or two under the Adopt-A-Tree Program. Here is a link to the tree I mention, https://www.gardenia.net/plant/metasequoia-glyptostroboides-gold-rush. It is noted that this initial tree planting is not within a boulevard, but a municipal park space and it would serve a special purpose in acknowledging the Village Plan to correct the current tree deficit and the intention to make necessary moves to correct this for the past and to prepare a plan that will prevent it in the future. Also, it will be a tree of note, all that stop at the four way stop entering town will not help but notice this beautiful golden spectacle.

In addition to planting trees, the recommendation is that every new planting be equipped with a slow-release watering bag to minimize the necessity of watering by hand. These bags are placed temporarily around the base of a newly planted tree and are typically filled on a 4-5 day rotation. They would be affixed to the tree at the time of planting, removed before freeze up and replaced the following Spring for a two-year growing season period of which the associated Adoptee will ensure that this bag remains full by visiting it every 4 days. The bag ensures that water percolation is focused at the root ball and minimizes runoff and dry spells between watering. A link to this product is here, https://www.treegator.com/products/original/index.html and a quote is included at the end of this update from two companies, one local, based on a 30-bag purchase. The local Home Hardware has acknowledged that their purchasing price per bag is $24.70 and a 10% discount is the best they can offer with their purchasing power.

Street surveys continue to develop with a total of 39 species specific plots mapped in the downtown areas, which were considered priorities by the survey consultation results. Also, over 70 additional plots have been mapped for potential new tree planting under the Adopt-A-Tree Program, Village wide, to initiate mail out requests once the program is in place and ready to move forward. We are creating a Species Selection Chart which shows the attributes to the various species listed on it and includes those specifically recommended under the Fire Smart Program, as well as showy attributes and specific urban tolerances. This list will enable the Village Staff and Committee to review locations and make recommendations based on size and characteristics of various tree species with minimal additional research.

In Conclusion

I look forward to feedback on the ideas I have presented for moving forward, specifically;

- The idea of a single Spring Planting of note, to introduce the plan for a Planting Program publicly by the Village
- the preference on ordering and planning for delivery of the 5 quoted trees under the Adopt-A-Tree Program for either Spring or Fall and the consideration for addition of 5 more trees if we do wait to Fall (for a total of 10 new planting this Fall),
- and finally, the preferred vendor for the purchase of watering bags in order to have that placed to have them in house for when the trees arrive.

It would be helpful to know that the direction that we are moving in is supported and fully understood by the Committee. If you have any questions, comments or recommendations to support this update and moving the project forward, please connect with me directly at KasloPlantsTrees@gmail.com or by phone at 778-205-4929.

Thank you,

Trish Leier

Project Manager

Cathro Consulting Ltd.

Reference to Attached

- Public Survey Results submitted to the Village of Kaslo
- 'Reference Material Provide to Village Works Crew' at initial Tree Planting Zoom Conference
- Quote from Purple Springs Nursery for Initial 5 trees to be planted under Adopt-A-Tree Program
- Email Communication with Purple Springs Nursery and delivery option
- Quote from Van-Kel in Burnaby, BC on TreeGator Watering Bags
- Email Quote from Local Home Hardware on TreeGator Watering Bags and shipping timeline

APPENDIX G- GEOREFERENCED MAPS

Village of Kaslo

Tree Planting Plan

Legend

Administrative Data

- Civic Address Points
- Municipal Boundary

Property by Owner Type

- Crown Agency
- Crown
- Municipal
- Federal
- Private

Planting Plan Information:

Recommended Tree Planting Sites

- Species w/Adopt A Tree Volunteer
- Species Recommendation only
- Recommended Types (sm, med, shade, etc.); contact for Adopt A Tree
- Recommendations Post Construction/During Site Development

Areas of Prioritization Identified through Survey Responses

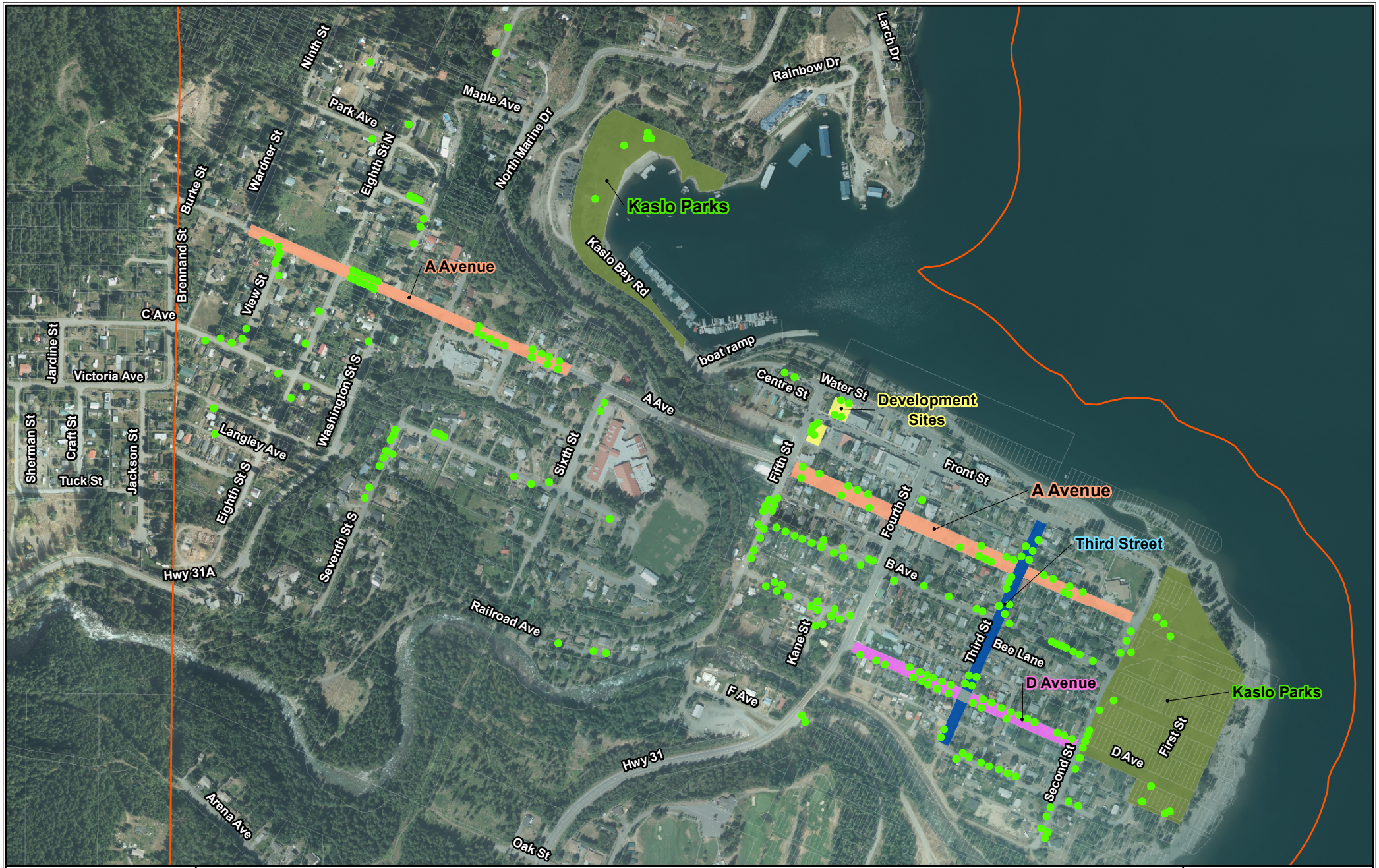
- A Avenue
- D Avenue
- Development Sites (Front Street Park & Kaslo Public Library)
- Kaslo Parks: Murray Pearson Ball Park, Vimy Park, Campground & Kaslo Bay Park
- Third Street

1:2,500

0 50 100 200
m

Plot Date: 2021-06-18 By M. Fournier-Beck

Village of Kaslo



Village of Kaslo Tree Planting Plan
Survey Results - Recommended Areas of Prioritization

Legend

- Municipal Boundary
- Parcel Fabric

Areas of Prioritization Identified through Survey Responses

- A Avenue
- D Avenue

- Development Sites (Front Street Park & Kaslo Public Library)
- Kaslo Parks: Murray Pearson Ball Park, Vimy Park, Campground & Kaslo Bay Park
- Third Street

- Recommended Tree Planting Sites

N

0 50 100 200 m

Plot Date: 2021-06-18

Village of Kaslo