



Cascadia Regional Network

Urban Forestry Tree Procurement Issue Paper

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Acknowledgments

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The Urban Sustainability Directors Network is member led and member driven, meaning that members collectively determine what priorities they have each year and lead the work to carry them out. USDN's ultimate goal is to build and strengthen the connections between members in order to quickly access each other's knowledge and expertise to achieve better, more effective outcomes at scale. Since its founding in 2008, the network has evolved and added new collaborative activities, while continuing to focus first and foremost on peer-to-peer exchange. USDN's programs mobilize members to pursue collaborative projects that address urgent challenges and timely opportunities facing multiple cities. The project's members work together to allow us to assess which innovation areas are the most strategically important and yield the most effective outcomes.

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Project Overview & Issue Statement

The purpose of this study is to research and explore barriers affecting the identification of climate-appropriate trees, specifications for tree procurement and potential restrictions in contracting for local and state government agencies in the Cascadia region. The aim of the project is to find ways for local governments to secure different species of trees than those that may be typically available from regional and large-scale nurseries.

Three specific barriers affecting tree selection and procurement will be reviewed:

- purchasing & contracting
- specifications on tree stock/purchases
- approved street tree lists

With regard to municipal tree lists, the assumption is that lists with a larger number of approved trees will enable a wider diversity of tree species for that locale and increase the potential for urban forest resiliency related to climate change. This project will explore an assortment of municipal street tree lists and identify lists that may be candidate, representative lists that other jurisdictions may use as reference. For example, the City of Eugene updated their street tree list, which was expanded from 80 to 180 approved trees. The amendments to the list were science-based and aimed toward species that are broadly adaptable.

Additionally, the procurement policies of local governments may prevent or limit the upfront payment for goods. Regarding the purchase of unique or not readily available trees, some Cascadia cities have interest in finding ways to enable contract purchasing arrangements with tree nurseries to support the development of regionally-grown tree stock that can be used to aid cities prepare for climate changes. Cascadia tree nurseries have voiced some willingness to explore contract growing arrangements with cities, but they typically desire a purchase agreement at the time of planting (often 5 years or more before the trees are available) that enables upfront payment if they are asked to grow a commercially uncommon or risky species. This project aims to explore contracting options that would be acceptable to both parties and facilitate local sourcing of tree stock.

Process

The research and discovery for the project included a series of stakeholder discussions with regional tree growers and government agency staff to explore common concerns and barriers related to the procurement of trees. The project also included the compilation and review of numerous street tree lists to compare them for commonalities and differences. More specifically, the tasks for this project included the following:

- Conducting 11 interviews with government agency professionals (or affiliates).
- Coordinating with municipal procurement specialists to explore viable procurement options consistent with an outcome toward permissible contract arrangements for contract growing.
- Conducting six interviews with nursery industry professionals.
- Reviewing sections of the Oregon and Washington administrative codes pertaining to public contracts.
- Reviewing the sections of local government municipal codes from several cities in Cascadia to explore limitations and requirements for procurement and contracts for goods.
- Reviewing and comparing a sample of municipal street tree lists from jurisdictions in Washington and Oregon with the goal of identifying street tree lists that are broad and inclusive of trees that are broadly adaptable to the region or selected for resistance to summer drought.

Stakeholder Discussions

Summaries from the interviews with government agency staff are provided in Appendix A, and summaries from discussions with growers are provided in Appendix B. The following themes and comments surfaced from these discussions that bridge the issues and interests of both agency staff and growers.

Common Themes

For some city staff, the near-term needs related to project management, tree issue response, planting programs and community outreach have been more pressing than making time to act on arrangements for long-term growing contracts. This is not to say that there is no interest on the part of municipalities to engage in longer-term contracts, but rather an acknowledgement of the difficulties of setting aside time due to staffing demands (especially with uptick in economy), internal priorities, access to capital funding and clear planning for specific trees needs five or more years down the road.

Technical contracting hurdles do not appear to be significant, based on conversations with procurement professionals and the acknowledging the limited range of contract terms of interest to the growing community. However, planning for the use and implementation of long-term growing contracts may require additional attention from agency staff. For example, growing or securing trees for projects requires forward thinking (in many cases, 5-10 years into the future) to know what plants are desired and what characteristics and specifications are important (i.e., caliper). Within city departments or

across city agencies, consideration should be given to organizing working groups to collaborate on tree lists and tree planting timing to facilitate more clear discussions about the approach to contracting.

Cooperative purchasing arrangements were suggested and recommended by both agency staff and growers. A multi-city, collaborative purchasing program could increase the benefits to the growing community and improve the quantities of trees needed. Again, this would require planning ahead on the part of the cities. Additionally, such interagency collaboration could result in developing a short list of higher priority trees or having the desired trees grouped in terms of segmented priorities to enable the growers to more directly focus on finding seeds, root stock or liners to provide the highest priority trees.

Flexibility exists on the part of municipal staff to use smaller caliper stock. As a result of the recent recession and the upturn in the economy, it is especially difficult to find and secure larger caliper stock (over 2"). Additionally, national demand is high right now with cities across the nation trying to replace trees from diseases like Emerald Ash Borer.

According to some growers, city staff may need to learn more about the practical aspects of the trees on their respective street tree lists, such as root needs and structural habits. This is especially true with newer or test varieties that are not common to the region. Also, a trial period for new or uncommon varieties would be advisable to allow the growers more time to learn the characteristics of the trees in the event that cultural techniques are required to obtain the desired structural character. For example, Burr Oak has a lot of variation in branching structure and might be hard to develop a full planting row meeting specifications for a terminal leader.

Bank loans were not noted as an issue. Growers are able to capitalize the cost of the initial tree starts, and it is a simple cost of business to grow out the trees to term. In the event a loan were required, a long-term contract with a municipality would serve as an asset to the grower's business and can be used to solicit bank loans in support of the costs of production.

Contracting Considerations

A variety of considerations need to be taken into account when contemplating long-term (5 to 10 year) contracts for the procurement of trees for urban forestry programs.

State & Municipal Code Review

A cursory review of state and municipal codes pertaining to public contracting was conducted in addition to conducting a set of conversations with procurement professionals from several Cascadia cities. While state policies for Washington and Oregon require the receipt of goods at the time of payment, many variations may be considered in the development of contracts to facilitate phased or progress payment options. This may be necessary in consideration of the procurement of trees for urban forestry programs, since the growing cycle typically necessitates a five year timeframe to go from

the tree order to the delivery of a 2” caliper tree. Some the procurement professionals that were consulted for this project were clear to stress that creative approaches to contracting can accommodate the needs of long-term contracts in support of urban forestry programs, while remaining true to the requirements and policies of state and local procurement regulations.

Additionally, the codes for both states enable the usage of cooperative purchasing arrangements between government and non-profit agencies. Such an option might be important if a group of cities decides to cooperatively approach tree purchasing to facilitate larger tree orders (quantities) to help entice growers and/or lower the average cost of tree stock due to higher quantities.

Contracting Approaches

A variety of approaches were discussed during the course of the stakeholder conversations. These ranged from simple contracts stipulating payment upon receipt to annual progress payments to master contracts with multiple phases and benchmarks.

Near-term needs for trees are being met by some cities via the use of rosters or bids from growers. For example, the City of Vancouver utilizes an RFP to establish a qualified bidder roster, then uses the roster to send out specific bid solicitations for the contractor to procure and deliver the plants needed within the next planting cycle. In Eugene, short-term needs are met through the use of a broker to secure quality trees on behalf of the city.

Regardless of the specific approach to contracting, each contract should provide clear language as to the specific trees or prioritized trees of interest by the municipality, specifications addressing height, caliper, quality, etc., and language pertaining to weather risks, substitutions, refunds and discounts.

While no single contracting approach may be applicable in all circumstances related to tree procurement. A potentially viable model surfaced during conversations with procurement professionals to address long-term needs and accommodate the growing cycle for the development of tree stock that might be unique or not readily available in the region.

Phased Contracting

If one thinks of tree procurement in the same vein as computer software purchases, a model for tree contracting may include an initial “implementation” phase where the grower is paid to plant the trees requested, then subsequent years are treated as a “maintenance” contract where the grower is caring for the trees to ensure they meet the desired specifications.

Splitting the contract into these two phases would also eliminate the need for progress payments, in the traditional sense of the term, since the progress of the grower to produce the trees to specification falls within the maintenance phase. During the maintenance phase, the grower could be compensated annually for the documented care of the tree stock.

Given that such a contract would be a multi-year contract, it would be recommended to post the solicitation as a formal bid. The total contract value might also exceed the jurisdictional thresholds that would necessitate a formal bid process. Also, formal bidding for this type of growing contract will also help provide details about the qualifications and experience of the individual growers.

Seattle is currently exploring this model, and Salt Lake City has an existing contract of this type (see Appendix D). The SuperTrees nursery provides Salt Lake City with trees using this model and does not require a down payment.

Cooperative Purchasing

Another option available is the use of cooperative procurement rules, such that one agency initiates the contract and other jurisdictions can utilize or piggyback on that contract for their needs. This would be helpful if multiple agencies had similar needs and could create a larger aggregate demand to further entice growers to participate. Such a contract could still be structured as a two-phase process (implementation and maintenance) and include amendments about pricing, delivery and substitutions.

The Tim Fisher Nursery has indicated an interest in participating in this type of agreement. ODOT indicated a need and an interest in cooperative purchase and spends approximately \$75,000 annually in trees for highway landscaping alone. The Million Trees NYC initiative also utilizes a multi-year purchasing contract, and J. Frank Schmidt Nursery worked with the NY Restoration Project to develop the 10-year contract that is being used there. A copy of that contract has been requested for reference.

Direct Purchase with Contract Maintenance

Another option is one where the jurisdiction purchases the tree liners and establishes a relationship with a nursery to grow them to specification. The cities of Eugene and Portland have experience (see Appendix A; notes from Erik Burke of Friends of Trees Eugene). Conditions for contracting may be informal depending on the interest and needs of the nursery.

Flexing Tree Specifications

During conversations with municipal foresters, there was a common reference to the usage of ANSI Z60.1 standards pertaining to nursery stock for tree purchasing requirements. While the ANSI standards provide direction on quality and other characteristics, misperceptions exist within the growing community about the size requirements for municipal planting projects. Some growers had remarked that local jurisdictions often require large caliper trees (greater than 2”) and that the recession and national market for smaller caliper trees makes providing the larger caliper trees difficult, expensive and potentially less marketable. In reviewing the tree size requirements of Cascadia jurisdictions, the widest variability exists within the two largest cities in Cascadia – Seattle and Portland.

The City of Portland has a policy that requires 2-1/2" caliper trees in industrial/commercial zones, 2" in multi-family zones, and 1-1/2" in residential zones. To clarify, this is not written into the city's development code, but it is an internal policy, and some flexibility may be granted by Portland Parks & Recreation, Urban Forestry – the division that oversees the implementation of the policy. In Seattle, Seattle ReLeaf specifies 1" caliper trees for residential projects. Seattle CityLights uses 2-3" caliper trees in their power corridors. Seattle's Department of Transportation uses 2-3" caliper trees for street trees, and Seattle Parks uses more small stock for native plantings.

Recognizing this variability between internal divisions of Seattle and Portland and understanding that there might be necessity for larger caliper trees for certain transportation projects, substantial flexibility remains within urban forestry and environmental services divisions, where the concerns for shorter establishment periods and tree stock variety may facilitate lower requirements on tree size. Flexibility was noted in conversations with urban foresters, who commonly specify tree caliper to 1-1/2" but are willing to explore or utilize 1-1/4" caliper trees. As noted in one of the interviews,, the establishment period is shorter and establishment is better for planting smaller caliper trees, resulting in lower cost of purchase and lower cost of installation.

Street Tree List Review

Urban forests require adaptive strategies to enable and manage a sustainable canopy that will provide sought-after environmental and community benefits. Tree species lists have been prepared by many local jurisdictions and are intended to help consulting foresters, public works, environmental services, park planners and street tree advocacy groups to make intentional and informed choices regarding an adaptable palette of tree species for future planting consideration.

In determining the appropriate tree species for urban growing conditions, one must also consider what tree species should not be used within urban situations. The ability to grow and survive in difficult urban growing conditions must be balanced with the avoidance of nuisance and invasive species. While comparing different existing approved municipal street tree lists, it was noted that the same tree species was sometimes listed as invasive or prohibited in some jurisdictions, while other jurisdictions listed that species on their approved lists. The degree of complexity in tree species listing was highly variable across the subject jurisdictions. Street tree lists were compared between the following jurisdictions:

- Seattle, WA
- Bellingham, WA
- Kent, WA
- Olympia, WA
- Vancouver, WA
- Salem, OR
- Eugene, OR
- Portland, OR
- Corvallis, OR
- Albany, OR

Several of the trial or newer tree species being proposed by some jurisdictions have not yet been thoroughly tested in the Pacific Northwest, and they are not yet grown extensively by regional nurseries. With an interest toward climate change adaptability and the challenges present in urban growing conditions, assessing the durability and resilience of tree species from other regions or countries will be an on-going process.

This street tree list comparison did not include evergreen tree species, since most jurisdictions focused solely on deciduous trees, and the comparisons would have been distorted by the discrepancies. It is acknowledged, however, that in many instances evergreen trees can be part of the desired urban canopy and a valuable element in a community forest.

In general, lists of suitable street tree species are compiled through the evaluation of many factors, such as height, spread, fruit production, thorns, surface roots, structural integrity, insect and disease resistance, hardiness zone, commercial availability and other considerations. As climate change affects the adaptability of tree species in the urban environment, the resilience of the urban forest and its canopy will depend on the use of a wider selection of tree species for street tree use.

Recommended List

In reviewing the tree lists in terms of variety and range, the City of Eugene's recommended planting list can be a strong foundation for exploration and evaluation of potential street tree species that can provide climate resiliency and sustainable urban canopy traits in the Cascadia region. The full list is provided in Appendix C of this document.

Also, the City of Eugene created a separate document to describe its process for tree selection, which includes definitions and evaluation criteria. The document is available on the City's website at <https://www.eugene-or.gov/DocumentCenter/View/17767>

In planning for the future, other considerations beyond those listed above may become relevant in discussions between urban forestry professionals. One relates to health risks of pollen tied to asthma. For example, early development of desirable traits for street trees had included the propagation of male cultivars to limit the production of fruit and debris into the urban street environment. One unanticipated result was that the emphasis on male trees (various species) created elevated levels of pollen in the atmosphere. Measurable results were showing up in Arizona cities during the late 1980s to 1990s that triggered higher rates of asthma in those drier weather conditions.

Another potential consideration is in regard to the impact of biomatter decomposition on the food chain in urban watersheds. The use of non-native tree species may be a necessity to ensure the establishment of a sustainable urban tree canopy. However the effect of emphasizing non-native trees without some provisions for native species can have significant impacts on the health of aquatic species within urban watersheds. Research from the Stroud Water Research Center examined the connections to healthy aquatic ecosystems and the creation of "watershed tea", the product of decomposed leaf materials that feed macro benthic organisms in waterways, and thus contribute to the entire food chain within riparian corridors. Heavy reliance on tree species, such as Callery pears (whose leaves are not readily

decomposed by insects and soil micro-organisms), can effectively 'starve' local urban streams that are already stressed from urban runoff quality and quantity.

Unique or Uncommon Tree List

Bellingham, Eugene, Portland, Seattle and Vancouver each had some tree species listed on their recommended street tree lists that were unique – in other words, not on other jurisdictions' approved lists. These tree species could be considered or evaluated for inclusion on future revisions to other municipal lists if some degree of commercial availability is confirmed. The unique list does not include the priority trial lists being considered by Portland. Those A and B priority trial lists have additional uncommon tree species and are discussed below.

Eugene's approved list also contains numerous evergreen tree species, which are not typically incorporated in other jurisdictions' approved street tree lists. Eugene has a large evergreen section of their list that includes broad-leaved evergreens. It has been predicted that broad-leaved evergreen trees are to increase as part of NW urban forests in the future, it may be worth considering trees from the Eugene list

Urban/Community Forestry
Street Tree Planning

Unique or Uncommon Species (cited by one agency; excl. Eugene evergreen list)

Botanic Name	Common name	Jurisdictions
Acer davidii	David's maple	B
Acer henryi	Henry maple	V
Acer nigrum 'Green Column'	Green Column black maple	Se
Aesculus flava	Yellow buckeye	Se
Alnus rhombifolia	White alder	E
Araucaria araucana	Monkey puzzle tree	P
Asimina triloba	Paw paw	Se
Azara microphylla	Boxleaf azara	P
Betula albosinensis septen.	Chinese red birch	Se
Carya ovata	Shagbark hickory	P
Castanea sativa	Spanish chestnut	P
Celtis reticulata	Netleaf hackberry	E
Cercis siliquastrum	Judas tree	Se
Cercis texensis 'Oklahoma'	Oklahoma redbud	E
Chilopsis linearis	Desert willow	E
Fraxinus holotricha	Balkan ash	B
Hovenia dulcis	Japanese raisin tree	P
Idesia polycarpa	Chinese wonder tree	E
Juglans regia 'Carpathian'	English walnut	P
Larix laricina	American larch	E
Laurus nobilis	Bay laurel	P
Morus alba	Fruitless mulberry	V
Nyssa sinensis	Chinese tupelo	P
Nothofagus obliqua	Roble beech	E
Pterocarya fraxinifolia	Caucasian wingnut	B
Pterostyrax hispida	Fragrant epaulette tree	Se
Ptelea trifolia	Hoptree	E
Pteroceltis tatarinowii	Winged hackberry	E
Quercus cerris	Turkey oak	E
Quercus gambelii	Gambel oak	E
Quercus x (cultivars)		P
Quercus laceyi	Texas blue oak	E
Quercus texana	Nuttall oak	P
Quercus velutina	Black oak	Se
Sassafras albidum	Sassafras	P
Styphnolobium japonicum	Japanese pagodatree	P
x Sycoparrotia semidecidua	Sycoparrotia	P
Tetracentron sinense	Tetracentron	B
Tilia platyphyllos	Bigleaf linden	P

Jurisdiction Key

A: Albany	O: Olympia
B: Bellingham	P: Portland
C: Corvallis	Sm: Salem
E: Eugene	Se: Seattle
K: Kent	V: Vancouver

Above list does not include Portland's priority trial lists which have additional uncommon Eugene's approved list also contains numerous evergreen tree species, not typically

Trial Lists

In the on-going effort to create and maintain recommended street tree plantings that enable sustainable and resilient urban forest canopies, trial tree species listings could be considered. Portland has developed an “A” and “B” list for priority tree species for trial consideration. These tree species lists can be evaluated for inclusion on future revisions to other municipal lists. Portland’s trial lists are included in Appendix C.

Stormwater Management Facilities (SWM) List

Several jurisdictions have compiled approved or recommended tree lists for use within stormwater management (SWM) facilities. Assuming that the SWM facility refers to detention or retention basins, additional consideration should be given beyond species adaptability to the periodic flooding and compacted soil conditions typical in many SWM basins. Since SWM basins connect surface runoff to the natural riparian systems (via gray or green infrastructure), no invasive species should be approved for use in stormwater facilities. Native species should be preferred for SWM facility use, although non-native trees could provide additional value, if characteristics are desirable, and those traits do not pose negative impacts on wildlife or stream health. Consideration should be given to the overall contribution to ‘watershed tea’ relative to the percentage of native versus non-native canopy trees within a SWM basin.

SWM basins can provide suitable sites for tree species with larger canopies when adaptable to soil conditions of the design storms of the facility. Using larger trees can help cool stormwater runoff, reduce runoff quantity through rapid tree absorption rates and improve water quality through nutrient uptake. The large trees provide greater mass and higher rates of treatment to mitigate for urban stormwater conditions.

Approved Tree Species for use within Stormwater Facilities

Botanic Name	Common name	Jurisdictions
<i>Abies lasiocarpa</i>	Rocky Mt fir	E
<i>Acer freemanii</i>	Freeman maple	K
<i>Acer ginnala</i>	Amur maple*	E
<i>Acer glabra douglasii</i>	Rocky Mt maple	E
<i>Acer griseum</i>	Paperbark maple	E
<i>Acer negundo</i>	Boxelder maple*	K
<i>Acer rubrum</i> 'Armstrong'	Armstrong maple	K
<i>Acer truncatum x platanoides</i>	Pacific Sunset maple	A
<i>Alnus rubra</i>	Red alder	E
<i>Amelanchier x grandiflora</i> 'Autmun Brilliance'	Autumn Brilliance serviceberry	E
<i>Amelanchier x grandiflora</i> 'Forest Prince'	Forest Prince serviceberry	E
<i>Amelanchier alnifolia</i>	Pacific serviceberry	E
<i>Betula jacquemontii</i>	Jacquemont birch	A
<i>Betula nigra</i> 'Cully'	Heritage river birch	E
<i>Betula populifolia</i>	Gray birch	K
<i>Carpinus betulus</i>	European hornbeam	E
<i>Carpinus caroliniana</i>	American hornbeam	A
<i>Catalpa speciosa</i>	Northern catalpa	K
<i>Celtis occidentalis</i>	Common hackberry	K
<i>Chionanthus retusus</i>	Asian fringetree	K
<i>Crataegus crus-galli</i>	Cockspur hawthorn	K
<i>Cupressus bakeri</i>	Modoc cypress	E
<i>Fraxinus pennsylvanicus</i>	Green ash	K
<i>Gleditsia triacanthos inermis</i>	Thornless honeylocust	K
<i>Koelreuteria paniculata</i>	Golden raintree	A
<i>Magnolia virginiana</i>	Sweetbay magnolia	K
<i>Nyssa sylvatica</i>	Black gum	A, K
<i>Populus tremuloides</i>	Quaking aspen	E
<i>Taxodium distichum</i>	Bald cypress	E
<i>Ulmus americana</i>	American elm	K

* these tree species are on other prohibited or invasive lists and should be reconsidered for use in SWM facilities.

Jurisdiction Key

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Over-used Street Trees

Risks of over-use and the repercussions of monocultures were experienced by many communities when Dutch elm disease wiped out significant street tree populations in the US. The over dominance of a single species results in a vulnerability to the resilience of the street tree population. From an aesthetic perspective, streets can present an attractive visual effect when matching canopies overarch and frame

the edges of roads and lane. However, any use of single species should be mitigated by creating variety and diversity throughout the total street tree population.

In the case of Norway maple, the species adaptability has resulted in placement on invasive species lists in different parts of the country. The dense shade and highly effective root system prohibit the growth of understory plants. The tendency for the development of girdling roots can result in future structural risks or premature decline and death of the tree.

Many tree species have been propagated as selected clones or cultivars for their particular desirable habits or characteristics. Over time, some of these initially desirable selections have aged and adapted to their environments to develop prolific reproductive abilities. When located near disturbed habitats, these “newcomers” can effectively become invasive as they are spread through wind, surface water or birds to adjacent landscapes where they can become the prominent and dominant vegetative cover. This process has occurred with autumn and Russian olive and, more recently, with various cultivars of Callery pear. While Callery pear cultivars are still considered by many jurisdictions as approved street trees, this invasive adaption (being experienced in parts of the Midwest) should be a forewarning of future problems.

Over-used or Cautionary Tree Species

Botanic Name	Common name	Comments
Acer platanoides cultivars	Norway maple	Known invasive traits, girdling root issues, prohibits understory plants; non-native
Pyrus x calleryana cultivars	Callery pear	Known structural limitations, becoming invasive, non-native
Prunus cerasifera cultivars	Purpleleaf plum	Insect/disease susceptibility, grafting failures; short-lived

Prohibited Tree Species

Jurisdictions that have developed prohibited tree lists can save future headaches and limit invasive management issues through the sharing of information on the trees that are not recommended for incorporation into a community’s urban forest. Whether listed as specifically “prohibited” or “not approved”, those undesirable species can be avoided through intentional identification. Some jurisdictions include a “conditionally approved” list that may include normally excluded tree species that may not be invasive, but have other characteristics that are typically cause for caution before planting, such as black walnut whose roots create a phytotoxic substance that prevents the growth of neighboring plants within the root zone of the tree.

Another challenge in the management of the urban and community forest is the inconsistency between municipal and state agencies. For example, the Seattle Department of Transportation lists several cultivars of trees on their approved lists that are considered invasive or prohibited on other jurisdictional listings. Collaboration across forestry, park, transportation and environmental agencies is highly recommended to ensure consistency and reduce conflict.

Urban/Community Forestry
Street Tree Planning

Tree Lists: Prohibited or "Not Approved"

NOTE: Most jurisdictions only listed approved species, neglecting to caution the use of invasive or undesirable tree species.

Botanic Name	Common name	Jurisdictions	Reasons
Acer ginnala 'Flame'	Flame Amur maple	V	prohibited
Acer platanoides 'Crimson Sentry'	Crimson Sentry maple	V	prohibited
* Acer pseudoplatanus	Planetree maple	B	not approved
* Acer negundo	Boxelder maple	B, S, V	not approved; prohibited
Acer saccharinum	Silver maple	S, V	prohibited
* Aesculus hippocastanum	Horse chestnut	S	prohibited
Ailanthus altissima	Tree of Heaven	B, V, S	not approved; prohibited; prohibited
Albizzia sp.	Mimosa tree	B	not approved
Alnus rubra	Red alder	B	not approved
Betulus alba	White birch	B	not approved
* Catalpa sp.	Catalpa	B	not approved
Crataegus oxycantha	Hawthorn	B, V	not approved, prohibited
* Crataegus laevigata	Hawthorn	B, V	not approved, prohibited
Crataegus monogyna	European hawthorn	V	prohibited
Ginkgo biloba	Gingkos (female)	B	not approved
Ilex spp., I. aquifolium	English holly	S, V	prohibited, prohibited
Juglans nigra	Black walnut	B	not approved
Laburnum spp.	Golden chaintree	S	prohibited
* Malus spp (fruiting)	All Fruiting apples	B	not approved
* Platanus sp.	Planetree maple	B	not approved
Populus sp., P. nigra	Poplar, Lombardy poplar	B, S, V	not approved; prohibited, prohibited
Prunus "Amanagawa"	Amanagawa cherry	B	not approved
Prunus x bilireana	Bilireana plum	B	not approved
Prunus subheritilla	Autumnalis flwg cherry	V	prohibited
Prunus (fruiting)	All fruiting plum/cherry	B	not approved
Pyrus (fruiting)	All fruiting pear	B	not approved
* Robinia pseudoacacia	Black locust	V	prohibited
Salix sp., S. babylonica	Willow, weeping	B, S, V	not approved; prohibited, prohibited
* Sophora japonica	Pagoda tree	B	not approved
Sorbus spp.	Mountain ash	V	prohibited
* Tilia americana	Basswood	B	not approved
* Ulmus pumila	Siberian elm	B	not approved

* these tree species have been listed on some other jurisdictions' approved street tree lists

Bellingham also provides a list of "conditionally approved" street trees. That list includes trees on their prohibited list: black walnut, and flowering cherries, plums and pears.

Seattle Dept of Transportation

On approved list but reported as potentially invasive

Botanic Name	Common name
Acer platanoides 'Emerald Queen'	Norway maple
Acer platanoides 'Parkway'	Norway maple
Acer platanoides 'Columnar'	Norway maple
Pyrus calleryana 'Aristocrat'	Aristocrat pear
Pyrus calleryana 'Glen's Form'	Chanticleer/Cleveland pear
Pyrus calleryana 'Redspire'	Redspire pear
Sorbus aucuparia 'Mitchred'	Cardinal Royal mt ash

Jurisdiction Key

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Invasive to Noxious Species

Several terms have been used to identify tree species that are generally not recommended for use in street tree plantings. The usage of these terms stem from reasons that range from having undesirable fruit or specific growth habits or environmental risks.

Many jurisdictions apply the term “nuisance” for plants that create potential health, safety or habitat concerns. Trees with heavy fruit production would be considered undesirable due to the mess they create on sidewalks, streets and cars. Fallen fruit can create bad odors (e.g., ginkgo) or high wasp activity (e.g., pear or other fruit trees). The City of Portland also describes nuisance plants as those species that could degrade the quality of habitat of natural areas. Some tree lists use the terms nuisance and invasive interchangeably.

Invasive species spread at a rate that exceeds the natural propagation cycle of most native vegetation to the extent that they displace native plants and spread beyond their intended planting locations. Invasive plants can limit the establishment and growth of native species and reduce the available food chain for native wildlife. Non-native ornamental trees may not be invasive; however, some species have adapted well to new climates and eventually are found to exhibit invasive characteristics. Periodic evaluations are recommended.

Noxious plant species have been specifically designated by Oregon Department of Agriculture and usually require a control management plan towards eradication due to the threats to livestock and ecological health. Tree species that are commonly considered as feasible for urban or community forestry use are not typically designated in noxious species listings.

Invasive Species Risk: Avoidance Recommended

Botanic Name	Common name	City	Concern
Acer platanoides	Norway maple*	P	invasive, nuisance, girdling roots
Acer negundo	Boxelder maple		invasive, weak structure
Acer ginnala	Amur maple*		invasive,
Ailanthus altissima	Tree of Heaven	P	invasive, nuisance
Betula pendula	Cutleaf birch	P	invasive
Clerodendrum trichotomum	Glorybower tree		invasive
Crataegus monogyna	English hawthorn	P	invasive
Laburnum watereri	Golden chain tree	P	invasive watch list
Robinia pseudoacacia	Black locust	P	invasive
Paulownia tomentosa	Empress (princess) tree	P	invasive/watch list
Populus alba	White poplar	P	invasive, nuisance
Prunus avium	Sweet cherry	P	invasive
Prunus laurocerasus	English laurel	P	invasive
Sorbus aucuparia	European mountain ash	P	somewhat invasive
Ulmus pumila	Siberian elm	P	somewhat invasive

P: on Portland's nuisance species list

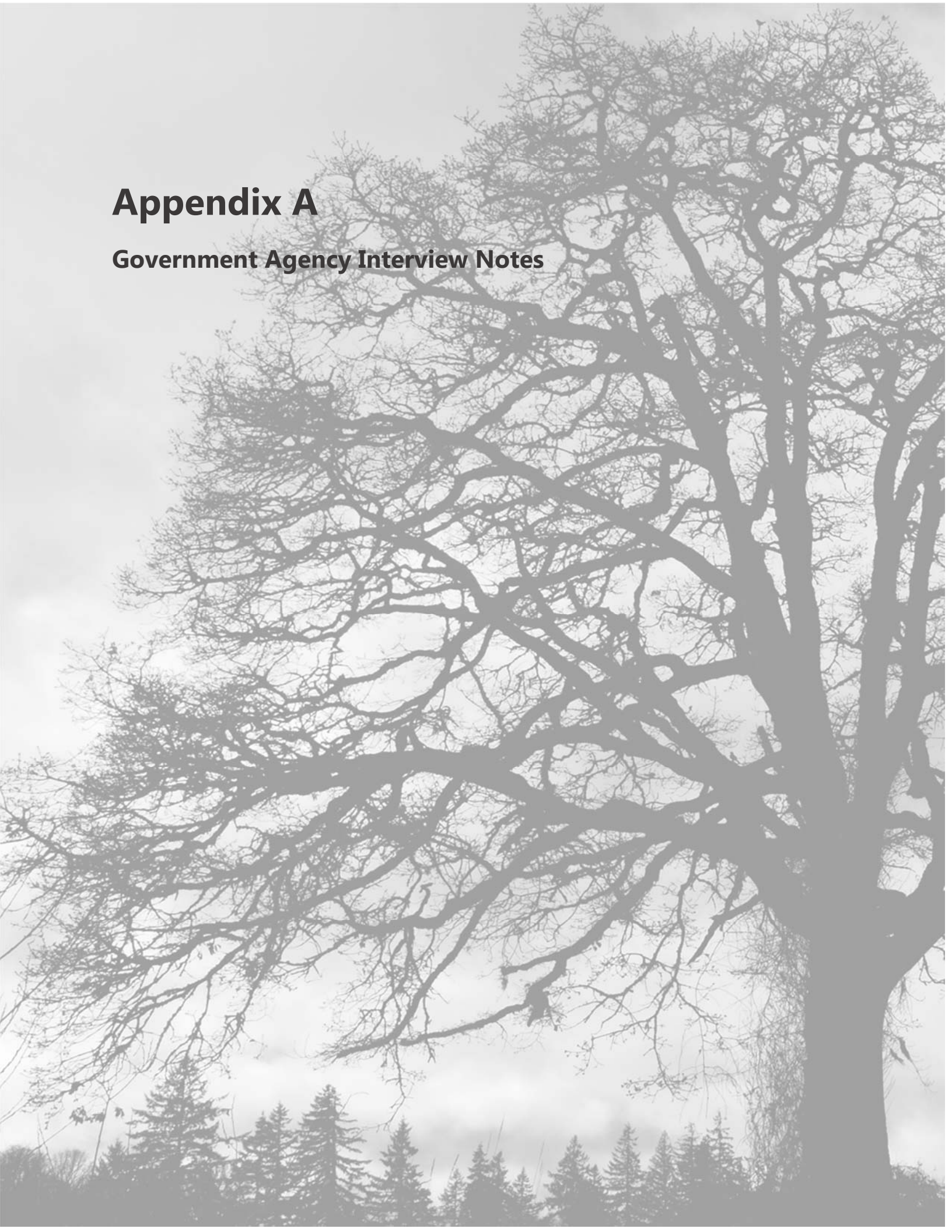
** tree species that are still on approved lists*

Appendices

A photograph of a tree-lined path in autumn. The path is paved and covered with fallen yellow and orange leaves. The trees are large and mature, with some showing early autumn colors. The word "Appendices" is overlaid in a large, bold, blue font in the center of the image.

Appendix A

Government Agency Interview Notes



Treeplanter.com*Jason Stein*

Jason is an arborist and spent 23 years as tree climber. He started Treeplanter.com in Santa Cruz, then he moved to Eugene in 2002. He has helped with Friends of Trees (FOT) Eugene on street tree planting and acquires trees for FOT.

Jason knows where to get easy trees in Oregon. Nurseries don't grow out trees if they don't have a market; however, they would grow trees if they know they have a customer. Limited land means placing a priority on planting trees that sell.

Growing or securing trees for projects requires 5-year thinking to know what you want and what characteristics and specifications you are aiming for (i.e., caliper). Cities should consider organizing a committee to collaborate on tree lists and tree planting timing. Explore government agency's willingness to pay (down payment, performance or progress payments during growing, etc.). They should list what trees they want and to what specs; identify growers and brokers to fill the need. This should be a no-brainer for growers; it's a no-gamble situation with governments – they're the best customers.

Regarding specifications, Eugene used to do 2" caliper. Example: 110 trees were installed as part of a project with 2" caliper; they were good stock, but some didn't thrive. About 45 had to be replaced. Watering was the limitation. Replaced the 45 with 1-1/4" trees, by the third year, these were the same diameter as the original 2" trees. It takes longer for the larger caliper trees to get established because more of the root structure is damaged between harvesting and planting. The smaller diameter trees get established faster. Smaller trees do not get vandalized as much (it isn't too macho to break off a branch from a smaller tree), and smaller diameter trees are ideal for urban areas where watering might not be as consistent during the establishment period.

Portland Bureau of Environmental Services

Matt Kreuger

Portland Parks & Recreation, Urban Forestry Division doesn't do much tree planting; they develop code, handle permits, ROW maintenance, and hazard trees.

Friends of Trees (FOT) is a partner, and they are more broad-brush in their planting program with any/every street.

Portland's Bureau of Environmental Services (BES) takes a green infrastructure approach (i.e., green roofs, trees), and they utilize stormwater rate payer money, so they must be more focused and accountable to rate payers for their efforts. Jennifer Karps and Matt Kreuger are the primary staff. Matt manages the outreach team and data collection, such as planting strip sizes, number of existing and potential planting strip sites, overhead lines, etc. He is able to query on set of factors to direct mail and focus planting efforts. BES can also be strategic about where and how to plant, especially to address equity concerns.

In terms of numbers (annual), FOT did 1,100-1,300 per year when it started; at peak was planting 4000/yr; now they are doing 2,000-2,500 this year in street trees. BES plants an additional 500-1,000 per year. BES has done 2,000 per year, but that quantity is a strain on staffing.

Regarding procurement, BES has used on-call contractors, and they have issued RFPs mostly for planting services, tree sourcing and watering.

The City has approved street tree list, and the City didn't want to be strictly tied to what the regional nurseries are offering. Now there is a shortage of large caliper trees, and the shortage is forcing the City to try alternative trees. City policy requires 2-1/2" caliper trees in industrial/commercial zones, 2" in multi-family zones, and 1-1/2" in residential zones. This is not written into the Code, but it is an internal policy. Some flexibility may be granted by Portland Parks & Recreation, Urban Forestry.

For growers, the recession created a lull, which translated to more available stock. Some turned down production at that time, so there is a lack of availability now. On top of that, national demand is high - with cities trying to replace trees from diseases like Emerald Ash Borer.

In the search for new varieties, the City has had informal arrangements with Rigert Trees, and they purchased trees for Rigert to grow out. Quail Ridge Nursery and Eugene Wholesale Nursery may be willing to grow out trees.

With the new Urban Forester at Portland about three years ago, the City developed a more formal process for amending its street tree list. The list has been reviewed and expanded over time, and now it is an official adopted list of approved trees. It includes trial trees for test cases. There are annual amendments allowed.

Oregon Department of Transportation

Mike Shippey

ODOT is organized into multiple sections (air, rail, freight, highway) and then by function (project development, planning, maintenance) within sections. Structural challenges exist within ODOT regarding coordination across sections, especially for contracting.

Mike works in the Highway division on the project development team. The team has design skills, and he leads landscape design and plant material selection that is appropriate to specific for sites. Over time, ODOT has modified their plant palette to add more native, drought-tolerant and resilient plants (i.e., N CA species, blue oak)

The ODOT procurement process requires selection of low bidder based on specs and bid package. The general contractor is retained, and the general contractor selects the landscape contractor who is then responsible to secure the identified plant materials. In some case, the landscape contractor cannot secure the selected plants – they might not be available at all or in the required size or there is a long time lag to get the plants. This leads to substitution requests.

ODOT plants a lot of restorative landscapes with their projects. These require smaller plants (i.e., 1 gallon), seedlings or seeds. For larger ornamental landscapes, ODOT works with the municipality to draw from their street tree or approved tree list. They typically spec larger container plants (i.e., 10 – 20 gal) or 6'-10' trees. If it is an urban project where aesthetics are important, ODOT sticks to nursery standards where form and size are important. In more rural areas, the form is less important than the species.

ODOT was a signatory agency for the Rogue Valley Native Plant Collective, and accesses that partnership to grow out native plants for its projects. Also works with NRCS for contract growing of forbs and grasses. ODOT sees the need for more natives in larger sizes – native mock orange (4-5'), native oaks, pacific yews, true firs, cedars.

ODOT may be interested in buying from a City of Eugene nursery and/or tapping into an existing municipal contract for plant procurement. ODOT typically spends about \$75,000 annually on plant materials for the Highway division. In future, ODOT may look into programmatic statewide needs for woody plant procurement and look at plants for environmental enhancement, climate change, and pollinators. ODOT has worked with the Xerxes Society on pollinator issues.

City of Vancouver (WA)

Charles Ray

Try connecting with Rigert and SuperTrees for the growers perspective

Procurement – can only use a company so much until the aggregate contract value hits an upper threshold (\$35K). City sends out request to fill plant order to see who can fill the request most completely and at the best price. City utilizes a RFP to establish a qualified bidder roster, then uses the roster to send out specific bid solicitations

The city typically uses 1-1/2" stock. Volunteers plant 150-200 trees annually, plus contract planting on top. FOT plants about 400 per year and other paid contractors plant an additional 300 per year. For contract planting, the City provides the specs and the contractor procures the plants.

The city doesn't purchase enough plant material to push the market, and they don't have the time to be forward thinking about unusual trees to try. Starting to see less common trees showing up on planting plans (i.e., mackii, hackberry). Interested in corktree (seedless variety) as an alternative to Ash.

City needs to update its street tree list. They have lightly managed their list over the years, and they have deleted poor performing trees (Raywood Ash and Crimson Century Maple).

Talk with Peter Yin the procurement manager about requirements or barriers. He used to work at the City of Portland and is familiar with OR and WA laws.

City of Eugene

Scott Altenhoff

The City recently revised its street tree list and established a process for how to add and remove trees. The process is based on a matrix and criteria that include diversity, resilience/adaptability, known maintenance problems, vigorous growth, hardscape conflicts, etc.

Regarding quantities, Friends of Trees (FOT) works in developed areas on infill planting. The trees are secured by FOT and planted. Erik Burke and Jeff Lanza of FOT work with local growers and purchase liners to grow out. On new development sites, the City works with Jason Stein (Treeplanter.com) as a broker to secure quality trees. It has been hard to find some varieties locally, and Jason has been willing to travel to California to procure trees for the City. As for tree specifications, they rely on ANSI Z60.1 – section on nursery stock. Also, they refer to Ed Gilman’s (Florida professor) research and notes on landscape specs.

Regarding contracting, Scott said to consider connecting with Paul Reis and Kirsten Ramstad regarding the potential contract language between the city and grower; they could be a resource in looking at the ‘wish list’ with the MOU or pledge that address tree size, quality, etc.

City code requires 2” caliper trees, but any changes to that may stem from an internal Administrative Judgment. The fear of vandalism on smaller trees has not been validated. For planting smaller caliper trees, the establishment period is shorter and establishment is better, lower cost of purchase and lower cost of installation.

Another issue Eugene is trying to address is the soil requirements in planter strips. The goal is to have plantable soil to a certain depth and extent and meet certain requirements on soil compaction and structure.

Seattle ReLeaf

Katie Gibbons

Seattle ReLeaf is one of several programs in Seattle that links to tree planting; SDOT and public utilities also plant trees for their projects. ReLeaf purchases plants directly, and they are typically in the 5 gallon size range. They plant about 1,000 trees annually via a residential give-away program. For purchasing, they seek three bids of about 10-15 species per year.

Seattle sees concerns with their current bid process. Growers say that the quantities are too small (i.e. 100 trees per species) or that the trees are not available. With the uptick in the economy, Seattle feels that growers do not need the City's business, so they are less interested in making the purchases work. Also, the City is starting to move up their tree orders earlier in the project cycle. For example, they are ordering trees in November for the next year's planting cycle to ensure delivery of trees. Due to budget issues, they used to wait to order until early spring for fall delivery.

The City is exploring options for long-term contract growing arrangements to work with a selection of growers to produce the plant materials requested. The intent is for the City to have a long-term contract (i.e., 7 yr) with orders placed two years in advance. Insurance coverages required by the City of the growers may be a barrier. Katie suggested talking to a city procurement specialist who has been involved with the initial long-term growing contract concept. It was noted that SuperTrees has a similar long-term contract with Salt Lake City. Seattle would be interested in piggy-backing on the SLC contract if they can. On long-term contracts, they heard that J. Frank Schmidt & Sons wants 20% payment upfront. SuperTrees does not require a down payment.

Regarding tree lists and criteria, ReLeaf aims for plants to be drought tolerant and require lower water demand in early establishment years. They also look to expand plant diversity and use field evidence from past plantings to help inform future purchases. For residential projects, ReLeaf specifies 1" caliper trees. CityLights uses 2-3" caliper trees in their power corridors. SDOT uses 2-3" caliper trees for street trees. Seattle Parks uses more small stock for native plantings.

There is interest in adding more broadleaf evergreens to the mix (i.e., holly oak, silver leaf oak, certain magnolias)

Seattle Public Utilities - Procurement

Kathy Peterson

Kathy is working with Katie (Seattle ReLeaf), along with a group of other City staff, to formulate ideas and options to address a contract to facilitate contract growing. The group is in the formative stage, and no formal direction has been established for moving the idea forward as of yet.

To date, Katie has utilized an informal process and has been requesting three quotes from vendors for her plant material needs. The City has also utilized a blanket contract in the past that identified set prices for plant materials, but that contract model did not provide direction on priorities for specific tree species.

Going forward, a multi-year contract arrangement will require that the City plans ahead for its needs. One consideration could be that the contract defines a list of priority species of interest by the City in year one for delivery in year 4 or 5 (as determined by the growing timeline), then a second year request or work order could be issued for year 5 or 6. In this way, the City has a clear path to receipt of plant material in subsequent years. It may also be necessary to identify a short list of trees needed for the immediate intervening years (i.e., years 1 through 4) to bridge the tree planting needs of the initial years of the contract when the first year's trees are being grown to specification.

Another option may be to issue multiple awards against the RFP, rather than awarding to a single grower. Using multiple growers may help ensure that the plant materials will be available, in addition to tapping into each growers unique set of available tree species for the initial years.

Regarding grower concerns about progress payments or risks related to weather, Kathy noted that she would need to review Washington code about paying for goods before delivery, but that issues of weather, replacement trees and tree specifications did not seem to be large hurdles that couldn't be addressed in a clear contract.

City of Eugene, Procurement

Jimmy Trasport

One of the major barriers to procurement for trees may be creativity. There is a need for flexible thinking to go beyond that which has been done before. It might be relevant to consider the growing of trees as a service, rather than a product. There are implications with purchasing products or goods. An example of a service contract might be a maintenance equipment agreement on products (i.e., computer technology).

The contract could consider a fixed price over a time frame, maybe tied to an index (i.e., BLI, PPI). In the meanwhile, the City is paying for the right to buy or secure the product in the future. Liability insurance may be needed to protect against business failure. An option could be to bond over the course of the contract and have funds in an escrow. If the approach is to use a future value payment, then the contract should establish the market rate for the trees now and limit cost increases to PPI. If the approach is toward progress payments, then the grower will need to grow a sufficient quantity to make sure that they grow sufficient stock to meet the specifications for quality and size, in addition to quantity. This could also include an annual review of insurances and annual inventory stock inspections, which would be followed by the progress payment. The progress payments could be structured as ramped payments, rather than linear payments, to lower the risk and payments by the City in the early years.

Prior to initiating an RFP, the City needs to be able to articulate whether the intent is that the City will guarantee buying the trees or whether it is to merely enable the potential to buy them at a future date. If the latter and if the City doesn't purchase at the end of the contract term, is there a refund on a portion of the costs for growing the trees?

In the best case (most clear), the City defines that it needs a certain number of trees of a specific species in year six, for example. Then, in year, seven, it needs an additional number of trees by variety. A master agreement could be established to outline the general terms, and a work order/purchase order process could be used annually to define the required trees, delivery timeframe, specifications and market prices. This approach is modular and flexible. Also, both parties could review the contract annually prior to the anniversary of the execution date to identify whether the contract would be extended into future crops. In this model, progress payments could also be utilized. Each year's annual inspection is linked to and the basis for the progress payment, based on the number and quality of trees being grown. Such a contract also becomes an asset to the grower's business and can be used to solicit bank loans in support of the costs of production. Such a contract would also need attention paid to the overall contract value, since different cities approach contract thresholds differently. The value of the contract may necessitate a more formal bid/proposal process, which can also be helpful in identifying the quality and experience of the growers/proposers.

City of Portland, Procurement

Barbara Gibson

Challenges exist with procurement, such that state law is prescriptive on the process for procurement and on whether the process should be a bid or proposal. In Portland, the city code mirrors state law, and the City Charter requires that contracts for goods and services (of which tree purchases are included) can be no longer than ten years in term. That ten-year window represents the ceiling. Also, periodic contract reviews and updates need to go before City Council, so it helps to keep the contract process understandable. Lastly, state and local legislators are continually amending the rules for procurement, so a process that might work today, may not work well in the future. There is some uncertainty about the scope of future procurement changes.

That said, the buyer is really only limited by their thought or approach. Thinking outside the box is necessary. Barbara has worked with Matt Krueger (BES) on past tree-related contracts and have prepared long-term (5-year) contracts to address his tree needs. It can be done.

If one thinks of tree procurement in the same vein as computer software purchases, a model for tree contracting may include an initial “implementation” phase where the grower is paid to plant the trees requested, then subsequent years are treated as a “maintenance” contract where the grower is caring for the trees to ensure they meet the desired specifications. Splitting the contract into these two phases would also eliminate the need to progress payments, in the traditional sense of the term, since the progress of the grower to produce the trees to specification falls within the maintenance phase. During the maintenance phase, the grower could be compensated annually for the documented care of the tree stock.

Given that such a contract would be a multi-year contract, it would be recommended to post the solicitation as a formal bid. The total contract value might also exceed the jurisdictional thresholds that would necessitate a formal bid process. In Portland, contracts under \$100,000 only require three quotes from vendors; anything over \$150,000 requires a formal bid process. Also, formal bidding for this type of growing contract will also help provide details about the qualifications and experience of the individual growers.

Another option available in Oregon is the use of cooperative procurement rules, such that one agency initiates the contract and other jurisdictions can utilize or piggyback on that contract for their needs. This would be helpful if multiple agencies had similar needs and could create a larger aggregate demand to further entice growers to participate. Such a contract could still be structured as a two-phase process (implementation and maintenance) and include amendments about pricing, delivery and substitutions.

In Portland, the maintenance agreement portion may be extended beyond the ten year ceiling to facilitate using the same/existing vendor due to familiarity with the tree stock.

Friends of Trees Eugene

Erik Burke

In February 2013, with funding from the City of Eugene Sustainability Office, Friends of Trees (FOT) purchased liners from five species thought to be good bets for future "climate resilient" species for city plantings in Eugene-Springfield. The liners were purchased from Sevenoaks Native Nursery, one of the only producers of liners of west coast native trees. Each species provenance was selected to be from the Eugene area or from northern California and tracked during grow-out in the nursery. The trees were planted at Eugene Wholesale Nursery (EWN), a small commercial nursery in north Eugene. Friends of Trees has purchased trees from EWN for more than 10 years and has a good relationship with the owners. Each year, EWN plants a new block of liners, primarily of the trees that have been consistent sellers for them. EWN had extra room, and they were willing to try two nursery rows (220 trees per row) in a growing arrangement with FOT.

The five species selected were chosen as good possibilities for street trees. Four of the five were on approved street tree lists in California, and the one that was not had a closely related species on approved lists. Three species were deciduous and two broadleaved evergreens - the consensus forest type likely for Oregon in 50 years. EWN did not want to enter into a formal arrangement or contract, even with money offered upfront. Since the trees were new to them, they wanted to try growing them first to see if they could be successful and avoid committing to successfully producing the trees. FOT asked EWN if FOT staff could volunteer to help and learn about the production cycle. FOT staff helped prune sprouts and install "grow straights" at the beginning of the second season and performed structural pruning at the beginning of the third season.

After the first year, it became clear that the two evergreen species were not performing well, and most of the evergreen trees died. However, 5-10 individual trees survived and continued to be grown out. The other three species thrived. At the end of the fourth year in the ground (5th growing season including the liner year) in fall 2016, FOT expects to have street tree grade trees of California black oak, valley oak and blue oak. After three years in the ground, these three species could be seen to have potential for street trees with decent success, form and growth rate. The valley oak had the best form, upright with a strong central leader, follow by the black oak. The black oak had the fastest growth rate and blue oak the slowest. By the end of the 3rd year in the ground, 4-5 of the California black oaks had reached street tree size. Blue oak performed similarly to Oregon white oak, and would likely need an extra year to get to street tree grade.

At the end of the 2016 growing season we expect nearly all the black and valley oaks to have reached 1.5" caliper, and some of the blue oaks to be approaching this size. EWN has told FOT that each year they have a row or two of room in their new planting block, and are willing to work with FOT to plant liners of new trees. Spring 2016 will be the fourth year with liners being planted, but the species have narrowed to the three species that have been successful so far.

Next season we will begin trialing one or two new species. We still believe that the two species that were not initially successful have potential, but more needs to be learned about how to grow these. FOT

is trialing several potentially challenging species on private land, and if growing challenges can be figured out, we will try again on a larger scale. The father and son owners of EWN are generous with their time, knowledge and cropland. They taught FOT staff a lot about nursery production. FOT hopes to repay them partially by pushing business to EWN, and by making sure that all the trees in the rows sell by telling FOT partners about the availability of these trees.

The final cost of these trees is expected to be \$55 to \$75 for a 1.25" to 1.5" caliper ball and burlap tree. All the trees planted are on Eugene's approved street tree list, and we expect to plant them as street and yard trees, in our ODOT and Lane County roadside plantings, and in our Green Space program plantings.

Diane Steeck, Wetland Ecologist

City of Eugene

Our Partnership plant materials program costs are shared among 3 entities: City, BLM, TNC. We meet to make 5, 3, and 1 year projections of need and funding. Each entity pays for different parts of the program. We have an older MOU that we are currently updating (below) to formalize this.

As a Partnership, we acquire seed primarily from 3 sources that are each handled differently (we also have a couple species at the Native Plant Nursery):

Heritage Seedlings, Inc.: We provide collected seed and they grow via contract. Our biggest seed supplier with a horticultural/ecologist who is well-respected and has a 12+ year history with us (so the contract is not as specific as it would be with an unproven grower). Advantage: proven producer, consistent supply, predictable in the future (relatively, of course). Disadvantages: if you don't have a stable 3 year source of funding this is difficult to do. With seed, we can store it to make up for the variability in annual need, if the supply and need don't match exactly in any given year.

Pacific Northwest Natives: We provided source seed about 10 years ago and he continues to produce some of our seed and he produces other locally collected seed that we have collection information on (e.g. from Friends of Buford Park / Mt Pisgah lowlands, from Federal programs). No contract, we just coordinate about 1 or more years in advance and buy in advance and store, if needed. Advantages: it is still our local seed and we only need to buy what we need (need to put in 'advance order' about 6 months before fall harvest). Disadvantages: less certainty in terms of production and future availability and he may quit growing a field if he doesn't find it profitable, since there is no formal agreement.

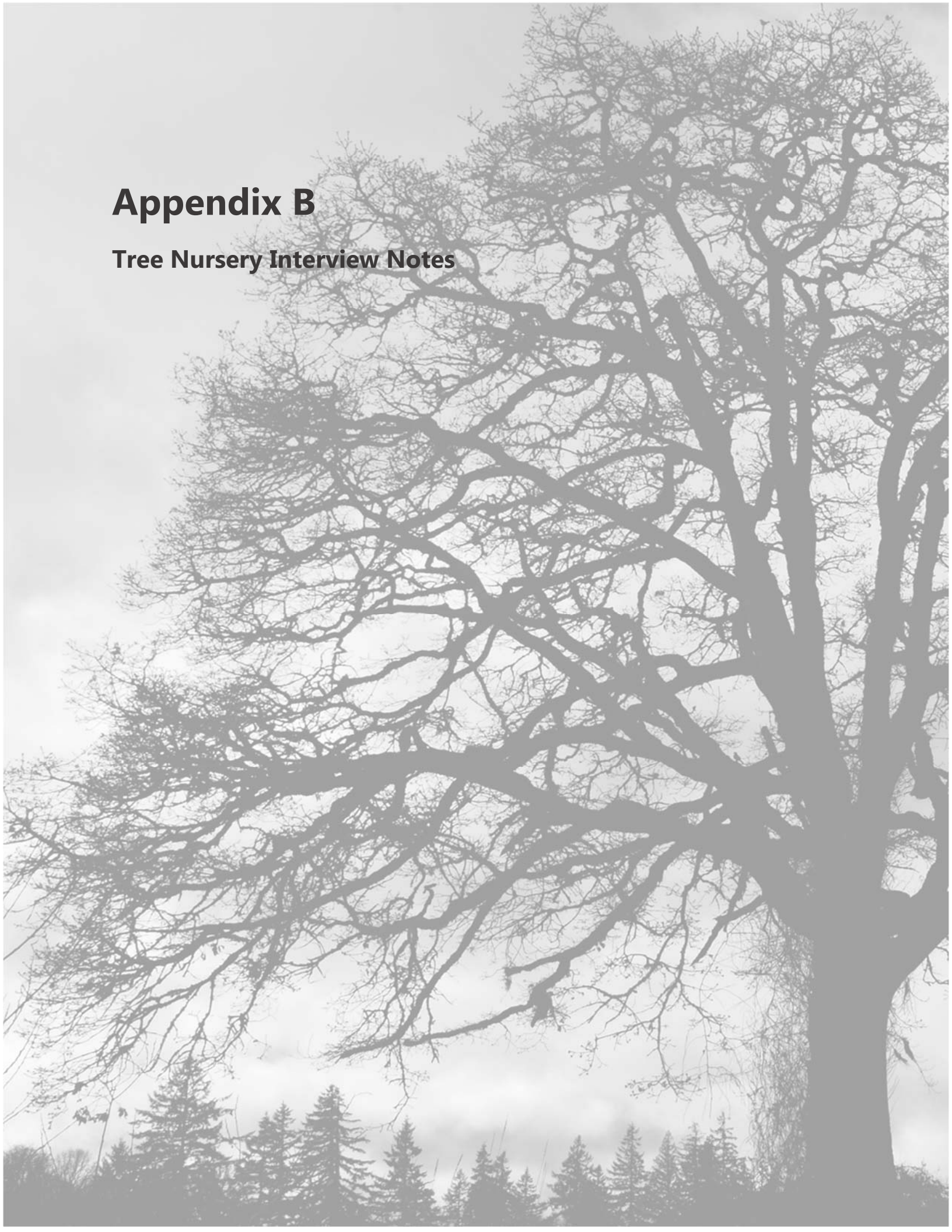
Corvallis Plant Materials Center: A federal facility that BLM has an agreement with (only Federal-Federal and this is ending). They grow the species the private growers don't find profitable.

The following agreements are provided in Appendix D of this report:

- Heritage Contract
- Heritage plug growing contact amendment
- Plant materials MOU

Appendix B

Tree Nursery Interview Notes



Blue Heron Nursery

Carlos Oliveira

Blue Heron is a mid-sized nursery and has a good relationship with Friends of Trees (Portland). Carlos has developed relationships with some cities (e.g., Spokane, Boise). In the western Washington market, he works with brokers, since the brokers can aggregate plant material and take care of the delivery needs of the cities.

Carlos is interested in trees and has most common varieties, since he doesn't want to have overhead or burden of growing trees on the risk of future failure or no sale. Profit and sale-ability are business drivers.

Due to the past overplanting of single types (e.g. ash) and the potential for diseases (e.g., EAB), especially on the east coast, Carlos ships many trees to the Midwest and Eastern US.

He has a little discomfort about long-term, formal contracts. They may be harder to specify. Also, less common varieties that haven't been field tested may grow differently than expected and may take time to understand how to work with the trees – this translates to higher risks (structure, timeline, quantity, sale). For example, a less common tree may require a lot of pruning to establish a strong central leader.

There is a need for more education on both sides (grower and city) regarding tree species of interest and expected structural outcomes. Try to avoid disappointment – formal contract may be too rigid, an informal arrangement may be better. Carlos believes in soft starts; start in a small quantity, if it sells, then grow more gradually.

His nursery is not limited by space or management; the only risk is if the trees can sell. Limitations include access to seeds, seedlings, liners or unusual varieties.

Regarding collaboration with cities, progress payments are good. Aggregating the needs of multiple cities might help lower the risk on the sales and is better for quantity sales (i.e., if 10 cities say they want trees, then 2 drop out, there is still a market with 8 remaining cities). He would have to look at city tree lists to understand what they are promoting. Overall, he is interested in what sells and what people want and have interest in.

SuperTrees

Ben Walker

SuperTrees does a lot with root stock development and specializes in soil issues, root pruning and management.

If they say ' here's the list they want' may have challenges with planting and B&B

In Denver, SuperTrees has been supplying trees and planting, and with that contract, other cities in the area can tag onto the master contract and get trees for the same price. He has had multi-year contracts with other cities, and he will send a sample contract from Utah for reference for the project.

Regarding contracts, he is interested in supplying trees and planting and even helping with the tree lists. He envisions 2-3 year time frame (at a fixed price), plus increasing percentage over time for subsequent 2-3 years. Ideally, he is interested in an option that enables the pre-payment of some of the costs, then do progress payments as trees mature.

Regarding test/trial trees (new varieties), it may take longer to grow, and he may need to use cultural techniques to get the structure the cities want. City staff need to learn more about the practical aspects of the trees on their lists, such as root needs and structural habits. Most jurisdictions have looked for trees that have been tested, so the risks are lower.

Tim Fisher Nursery

Tim Fisher

Tim started the nursery in 1977, and it transitioned to full-time operations in 1986. He is a small grower with 28 acres in B&B and another 7 acres for pot in pot. He leases an additional 8 acres, but is transitioning out of that acreage.

The nursery mostly does B&B trees and ships all over the US (PA, TN, ID, UT). It takes 5-6 years to get to a 2" caliper tree; it takes 3+ years to get to 1-1/4" caliper. Right now, it's a tree seller's market; there have been some growers who went out of business from the recent recession, and the recovery is creating a strong demand for nursery material. It is really hard to find/get 2" caliper trees.

Regarding contracts, Tim prefers a gentleman's handshake - just stick to your word about what you want and when you'll buy. If can't do that, then he would rely on a contract. Bank financing is not necessary and not an issue. If he has a contract or commitment, then he will grow out the trees. He will grow out without progress payments, but will need commitment of sale.

Issues:

- risk of growing out special trees and can't find buyer to take them if deal goes south
- some trees are too hard to grow; risks of growing out different trees due to limited knowledge or experience with tree characteristics (e.g., structure, how it grows, how it likes to be trained)
- Some trees require excessive care or spraying (some are bug magnets like birches – aphids; some get fungus like crabapples)

Regarding space requirements for growing lots, he would need an order of 100 trees minimum for 2" caliper trees and need 130 minimum for 1-1/4" or 1-1/2" caliper. Smaller quantities than that are not worth it. Ideally grow out full rows to be most efficient.

Tim is interested in the idea of municipalities joining together for larger bulk purchases. It would be better for growers if the contracts were limited to a small number of growers, so there is less internal competition between growers that might affect pricing. Collaborative purchasing makes sense if it helps hit the tree/row target quantities.

He would need to look at the tree lists and understand the varieties and characteristics of the trees before submitting a quote. Contract requirements would need to acknowledge risks for growers – acts of god, such as freezing rain causing tree damage and reducing the number of available trees.

Tim would want a trial period for new or uncommon varieties (i.e. Burr Oak has a lot of variation in branching structure and might be hard to develop a full row meeting specs for terminal leader, etc.).

Rigert Shade Trees

Mike McKee

Rigert has about a 100 acres under cultivation and has worked with the City of Portland and Friends of Trees in the past on tree orders. Mike is purposefully seeking seedlings and liners to grow out unique trees for the market. There is now more scarcity for larger caliper trees. In some cases, he has had success finding liners to grow on to street tree caliper. However, some varieties that Portland or FOT specify are hard to find liners for in the local (OR) market. He hasn't yet looked to California or for finding root stock for certain varieties. Mike has tried growing some northern CA oak varieties, but there is a learning curve on how they grow. It typically takes 3-5 years to get to commercial-sized trees.

Regarding contracts, a few issues were noted about providing for local governments; these include the availability of seeds or liners, cultural practices to get the tree to production, timeline for delivery. Mike is willing to try to grow 50-100 trees to give it a shot and see if there is a demand for them. With block purchases, it might take a few years for some of the trees to reach the specified caliper, but then it might take a few additional years for the remainder of the crop to reach that size (some trees may be laggards). How would this be addressed in a contract that stipulates a certain number of trees at a certain year? In some cases, the City of Portland has directly purchased its own trees and has asked Rigert to grow them out.

Also with the contract, would the pricing be in terms of years or caliper size? Caliper size is preferred. In the case where some trees do not meet the caliper specification when the rest are harvested, is there an opportunity to offer partial payment or a utilize a discounted payment for these trees?

A multi-city collaborative purchasing program would increase the benefits to the growers and improve the quantities of trees needed. This would require planning ahead on part of the cities. Also, it would be good to have a short list of higher priority trees or have the tree list grouped in terms of segmented priorities. This would be better to focus on finding liners for the priority trees and get better selections on the priority trees.

Weather is a potential risk that should be addressed in the contract.

Northwest Shade Trees

Martin Hanni

Northwest Shade Trees is 350 acres and produces exclusively balled/burlapped deciduous shade trees and a limited number of conifer trees. It is owned by J Frank Schmidt and is a subsidiary of them. Traditionally, they sold 2"-5" caliper trees, and that used to work well until the recession came. Now, everyone wants 2" – 2-1/2" trees, which is good for the nursery since it is a shorter growing cycle and more profitable.

The nursery had a contract with TriMet for the new Tillicum Bridge. The nursery needed three years to get to 2" caliper trees. The trees were identified in the field and marked, then delivered on time. For larger caliper trees (greater than 2"), the supply is dwindling, since there are not many suppliers left in the bare root market following the recession.

Regarding contract arrangements, the nursery would likely want 25% down at the time of field planting with the balance due at delivery of the trees. If the jurisdiction cancels the order and the size of the stock is 2"-3", then the nursery has a good chance of re-selling the trees. Then, there might be the option to refund a portion of the down payment. Other issues that come to mind include plant substitutions. Sometimes it might be hard to find exact matches, especially with a tighter market. The nursery would want the jurisdiction to be somewhat flexible in terms of species and substitutions, and they should make a Substitutions Plan at the same time as setting up the contract, so it is clear how and which trees are substituted. Providing quantities of native trees may need more research. For example, Gary Oak doesn't like nurseries in general. It is a slow grower and hard to find.

In terms of order size, a minimum order should be at least 25 trees. Regarding specifications, the limb up height might need consideration, since a typical right of way tree is limbed to 6', but that may be bit of a push for smaller stock and still maintain a healthy trunk.

J Frank Schmidt

Nancy Buley

Overall, the Oregon market for Schmidt is small. Approximately 80% of the trees ship out of state. Over time, the nursery has been seen as less favorable from local government agencies due to tree sizes and quantities. Schmidt is a propagator and use seeds or cuttings to establish their varieties. They only grow their stock to 1-1/2" or 2" at the largest. Nancy mentioned that most local agencies specify 3" caliper trees, so in order for them to utilize Schmidt plant stock, they need to work through another contract grower to grow the trees to that caliper (i.e., third-party grower purchases liners or whips from Schmidt). The other challenge with local government requests is that the quantities are too small. Schmidt used to allow folks to select one or a handful of trees, but that arrangement is inefficient. Schmidt has instituted a \$1000 pick-up minimum for orders.

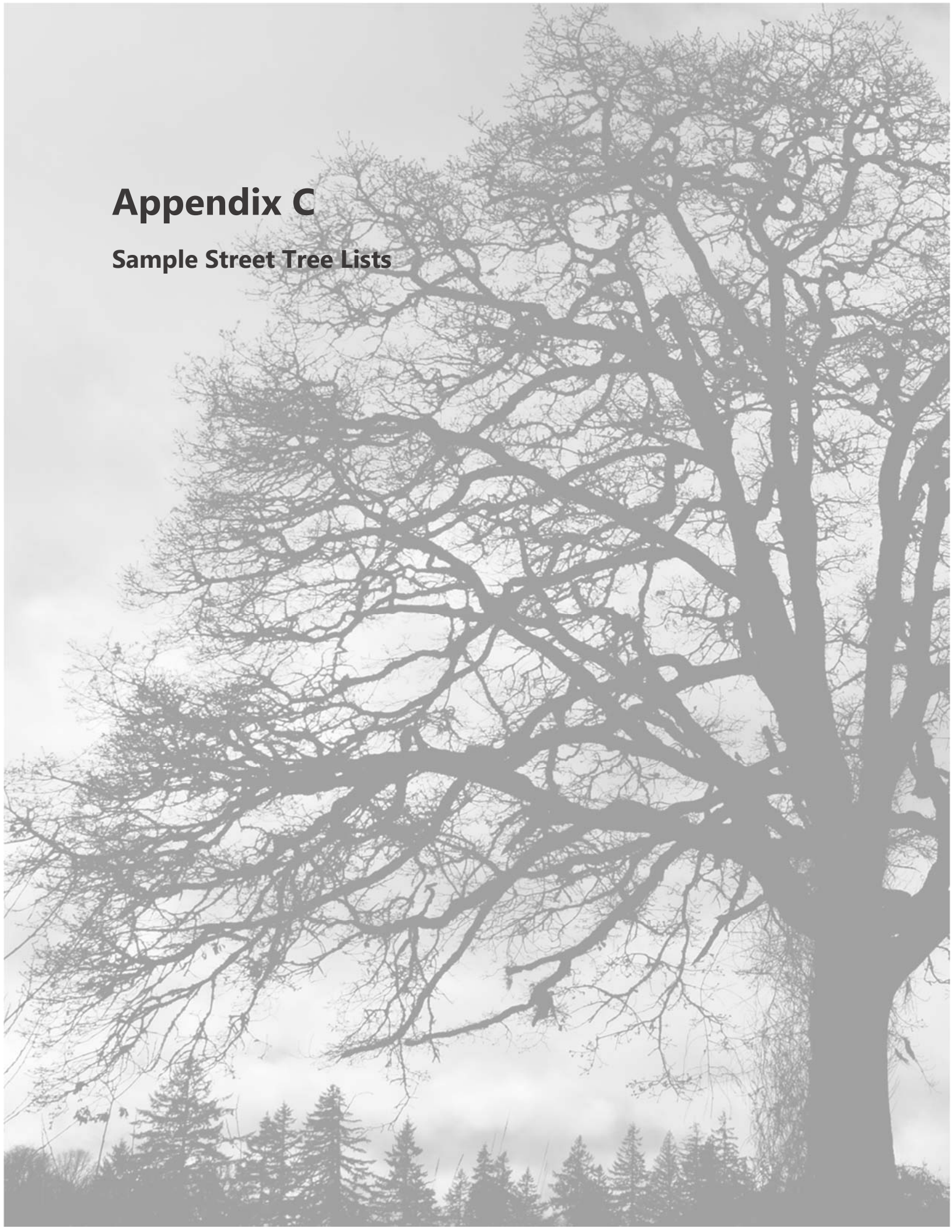
From her experience, many Oregon jurisdictions have been too focused on price rather than tree quality, so Schmidt has been less competitive.

Regarding contracting, individual cities may not have the demand in terms of annual tree quantities to entice growers to participate in long term contracts. One option could be the establishment of a purchasing collective (e.g., reference to buying groups in Illinois) as a means to increase the annual quantities. Nancy referenced New York City's one million tree initiative and said that Schmidt worked with Matt Stevens of the NY Restoration Project to develop the 10-year contract that is being used there. She will provide a copy of that contract for reference.

Nancy also suggested reaching out to Willamette Trees (Salem, OR), EF Nursery (Forest Grove, OR), Bradshaw (Forest Grove, OR) and Urban Forestry Trees (Mt Vernon, WA).

Appendix C

Sample Street Tree Lists



Street Tree List: Albany, OR

City of Albany Approved Street Trees

Common Name	Scientific Name	Cultivar	Height (feet)	Width (feet)	Planting Strip Width ¹			Overhead Utility Wires ²	Approved Stormwater Quality Facilities ³	Comments
					6' +	6'-5'	4-5'			
Ash**	<i>Fraxinus sp.</i>							NR		**All Ash trees are susceptible to the Emerald Ash Borer, and although the beetle is not found in Oregon yet, it is best to take precautions.
Ash, Autumn Purple	<i>Fraxinus americana</i>	Junginger	45	40	✓	✓		NR		Good selection, fall color varies from purple to dull red
Ash, Golden Desert	<i>Fraxinus excelsior</i>	Aureafolia	20	18	✓	✓	✓	OK		Relatively horizontal branch structure
Ash, Oregon	<i>Fraxinus latifolia</i>		50	30	✓	✓		NR		Native; tolerates wet soil
Ash, Flowering	<i>Fraxinus ornus</i>		30	15	✓	✓	✓	OK		Summer flowering
Ash	<i>Fraxinus pennsylvanica</i>	Urbanite	50	40	✓	✓		NR		Very good selection, glossy leaves, tough
		Cimmaron	50	30	✓	✓		NR		Resembles White Ash
		Patmore	45	35	✓	✓		NR		Dark glossy leaves, male selection
		Summit	45	25	✓	✓		NR		Apparently seedless
Beech, Fastigiata	<i>Fagus sylvatica</i>	Fastigiata	40	12	✓	✓	✓	NR		Very columnar
Beech, Rivers Purple	<i>Fagus sylvatica</i>	Riversii	50	40	✓			NR		Purple leaves that can fade to green. Good canopy tree.
Birch, Jacquemontii	<i>Betula jaquemontii</i>		40	30	✓	✓		NR	OK	Whitest trunk of all the birches

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					6' +	6'-5'	4-5'			
Birch, Japanese White	<i>Betula platyphylla</i>	Whitespire	40	25	✓	✓		NR		Resistant to birch borer
Birch, River	<i>Betula nigra</i>	Heritage	40	30	✓	✓		NR		Lovely exfoliating bark
Black gum, Black Tupelo	<i>Nyssa sylvatica</i>	Red Rage	35	20	✓	✓		NR	OK	Can be difficult to transplant as Ball and Burlap. Bright red fall color
		Afterburner	35	20	✓	✓		NR	OK	Symmetrical, uniform branch structure; bright red fall foliage
Box elder	<i>Acer negundo</i>	Flamingo	20	15	✓	✓	✓	OK		Male selection only; Short lived
Cherry**	<i>Prunus sp.</i>							OK		**Despite their beautiful spring blooms, they are susceptible to multiple pests and diseases in the Northwest and short lived. Caution.
	<i>Prunus incisa x campanulata</i>	Okame	25	20	✓	✓	✓	OK		Pink flower
	<i>Prunus serrulata</i>	Royal Burgundy	20	15	✓	✓	✓	OK		Red-purplish foliage, pink flower
	<i>Prunus serrulata</i>	Kwanzan	30	20	✓	✓		OK		Upright growth habit, pink double flowers; most widely planted cherry
	<i>Prunus x yeodensis</i>	Cascade Snow	25	20	✓	✓	✓	OK		White flowers, upright growth, very disease resistant
Cherry, Sargent	<i>Prunus sargentii</i>		30	30	✓	✓		OK		Pink flower, good fall color
	<i>Prunus sargentii</i>	Columnaris	35	15	✓	✓	✓	NR		Pink flower, good fall color

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					6' +	6'-5'	4-5'			
Coffeetree, Kentucky	<i>Gymnocladus dioicus</i>	"Espresso"	50	35	✓			NR		Irregular branching habit, bluish-green double compound leaves
Corktree, Amur	<i>Phellodendron amurense</i>	Macho	40	30	✓	✓		NR		A beautiful tree with broad spreading branches
Crabapple, Flowering	<i>Malus sp.</i>	Adirondack	18	10	✓	✓	✓	OK		Good columnar variety, very good disease resistance
		Centurion	20	15	✓	✓	✓	OK		Good disease resistance; Red flowers, upright growth
		Purple Prince	20	20	✓	✓	✓	OK		Purple foliage becoming bronze green; rose red flowers
		Prairifire	20	20	✓	✓	✓	OK		Very pink flowers, red fruit
		Red Jewel	15	12	✓	✓	✓	OK		Very red persistent fruit, white flowers
		Sugar Tyme	15	15	✓	✓	✓	OK		Good disease resistance, white flowers
Dogwood, Kousa	<i>Cornus kousa</i>	Many cultivars	20	20	✓	✓	✓	OK		Low branching, the kousa hybrid selections are the best choices, Constellation, Aurora, and Stellar Pink. All are resistant to anthracnose.
Elm, Hybrid	<i>Ulmus sp.</i>	Frontier	40	30	✓	✓		NR		Tolerant of DED and Phloem Necrosis; excellent red-purple fall color ; not as drought tolerant
		Homestead	55	35	✓			NR		Tolerant of DED and Phloem Necrosis. Good canopy tree.

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					6' +	6'-5'	4-5'			
		Pioneer	50	50	✓			NR		Tolerant of DED and Phloem Necrosis. Good canopy tree.
Elm, Lacebark or Chinese	<i>Ulmus parvifolia</i>	Allee	50	35	✓	✓		NR		Tolerant of DED and Phloem Necrosis. Upright, vase habit; Good canopy tree.
Elm, Wilson's	<i>Ulmus wilsoniana</i>	Prospector	40	30	✓	✓		NR		Tolerant of DED, Phloem Necrosis and Elm Leaf Beetle
Ginkgo, Maidenhair Tree	<i>Ginkgo biloba</i>	Autumn Gold	45	35	✓	✓		NR		Male clones only.
		Princeton Sentry	40	15	✓	✓		NR		Male clones only; Very columnar
Goldenrain	<i>Koelreuteria paniculata</i>		30	30	✓	✓		OK	OK	Beautiful yellow flowering tree, very adaptable
		Summerburst	30	30	✓	✓		OK	OK	Unique lantern-like seed capsules
Hackberry	<i>Celtis occidentalis</i>		40	30	✓	✓		NR		Seldom causes sidewalk damage, difficult to transplant in Fall, a tough tree
Hawthorn, Washington	<i>Crataegus phaenopyrum</i>		25	20	✓	✓	✓	OK		Orange fruit; thorny—do not plant in high use areas
Hawthorn, Paul's Scarlet	<i>Crataegus laevigata</i>	'Paul's Scarlet'	25	20	✓	✓	✓	OK		Scarlet double flower; susceptible to rust and leaf spot
Honeylocust	<i>Gleditsia triacanthos</i>	Skyline	45	35	✓	✓		NR		Tolerant to Pod gall midge
		Shademaster	45	35	✓	✓		NR		Tolerant to Pod gall midge

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					6' +	6'-5'	4-5'			
		Imperial	35	35	✓	✓		NR		Tolerant to Pod gall midge
Hophornbeam, American, Ironwood	<i>Ostrya virginiana</i>		40	25	✓	✓		NR		Hop like fruit; slow to establish after transplanting, but performs well in urban setting
Hornbeam, American	<i>Carpinus caroliniana</i>		25	20	✓	✓	✓	OK	OK	Difficult to transplant, dig in spring; does not tolerate compaction
Hornbeam, European	<i>Carpinus betulus</i>	Fastigiata	35	25	✓	✓		NR		Columnar when young, but broadens to oval shape, few pest or disease problems, sometimes eriophyd mites can cause severe yellowing
		Emerald Ave	40	28	✓	✓		NR		Strong central leader; easy to grow; heat tolerant
Horsechestnut	<i>Aesculus hippocastanum</i>	Baumannii	50	40	✓			NR		Large, double white flowers
Horsechestnut, Red	<i>Aesculus x carnea</i>	Briotii	30	35	✓	✓		NR		Resists heat and drought better than other horsechestnuts
Linden, American	<i>Tilia americana</i>	Redmond	35	25	✓	✓		NR		Large leaves compared to Greenspire
Linden, Little leaf	<i>Tilia cordata</i>	Greenspire	40	30	✓	✓		NR		Does very well in street situations, can sun scald; All Lindens susceptible to aphids
		Corinthian	45	15	✓	✓		NR		A narrow selection, glossy leaves; doesn't attract aphids as much
		Chancellor	35	20	✓	✓		NR		Narrow but not so much as Corinthian

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					6' +	6'-5'	4-5'			
Linden, Silver	<i>Tilia tomentosa</i>	Sterling	45	35	✓	✓		NR		Beautiful tree, gray undersides to leaves
Magnolia, Star	<i>Magnolia stellata</i>	cultivars are rare	15	10	✓	✓	✓	OK		Tree form stellata, difficult to find.
Magnolia hybrid	<i>Magnolia hybrids</i>	Galaxy	30	15	✓	✓	✓	OK		A bit messy when flowers drop off
		Merril	25	25	✓	✓		OK		Yellow fall color, large white flower
Maple	<i>Acer buergeranum</i>	Trident	25	20	✓	✓	✓	OK		Lovely fall color; must train to single stem
	<i>Acer campestre</i>	Hedge	30	30	✓	✓		OK		A tough tree with corky bark
	<i>Acer ginnala</i>	Flame	20	20	✓	✓	✓	OK		Fragrant flowers great fall color; very adaptable; prolific seeds; multistemmed
	<i>Acer griseum</i>	Paperbark	25	20	✓	✓	✓	OK		All year interest tree; good urban tolerance
Maple, Freeman hybrid	<i>Acer x freemanii</i>	Autumn Blaze	50	40	✓			NR		Long lasting orange to red fall color;
Maple, Bigleaf	<i>Acer macrophyllum</i>		60	50	✓			NR		Native, Good Canopy Tree
Maple, Red	<i>Acer rubrum</i>	Red Sunset	45	35	✓	✓		NR		One of the best but over planted
		Scarlet Sentinel	40	20	✓	✓		NR		Upright and narrow; leaves hold up well in summer

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					6' +	6'-5'	4-5'			
		October Glory	40	35	✓	✓		NR		Great fall color
		Bowhall	40	15	✓	✓		NR		Good columnar tree but wider than Armstrong
		Armstrong	45	15	✓	✓		NR		Very narrow
		Autumn Flame	35	35	✓	✓		NR		Good smaller selection
Maple, Sugar	<i>Acer saccharum</i>	Legacy	50	35	✓			NR		Glossy dark green leaves, excellent cultivar
		Green Mountain	45	35	✓	✓		NR		Another good selection
		Commemoration	50	35	✓			NR		Another good selection
		Bonfire	50	40	✓			NR		Beautiful fall color but poor form
Maple, Hybrid	<i>Acer truncatum x A. platanooides</i>	Pacific Sunset	30	25	✓	✓		NR	OK	Yellow orange to bright red fall color; resistant to Japanese beetle
Mulberry, fruitless	<i>Morus alba</i>	'Kingam'	40	35	✓	✓		NR		Well rounded shade tree, fast grower
Myrtle, Oregon	<i>Umbellularia californica</i>		50	40	✓			NR		Native, deep green dense foliage, evergreen
Oak, Northern Red	<i>Quercus rubra</i>		50	45	✓			NR		Great tree for large spaces. Good canopy tree.
Oak, Pin	<i>Quercus palustris</i>		55	40	✓			NR		Needs space due to limb drooping, Good for parks or large planters

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					6' +	6'-5'	4-5'			
Oak, Shumard	<i>Quercus shumardii</i>		50	40	✓			NR		Good for alkali sites, similar looking to Scarlet Oak
Oak, Bur	<i>Quercus macrocarpa</i>		55	45	✓			NR		One of the most beautiful oaks. Good canopy tree.
Oak, Hungarian	<i>Quercus frainetto</i>	Forest Green	50	30	✓	✓		NR		An excellent tree, somewhat columnar with glossy foliage. Good canopy tree.
Skyrocket Oak	<i>Quercus robur</i>	Fastigiata	40	15	✓	✓		NR		Columnar variety of oak
Oak, Swamp White	<i>Quercus bicolor</i>		60	45	✓			NR		Glossy foliage above & gray below, shaggy bark. Good canopy tree.
Pagodatree	<i>Sophora japonica</i>	Regent	50	45	✓			NR		Fragrant pea-like flowers, a tough city tree. Good canopy tree.
		Halka	50	50	✓			NR		Another good selection
Pear, Callery	<i>Pyrus calleryana</i>	Aristocrat	40	28	✓	✓		NR		Unique wavy margin to leaf
		Capital	35	12	✓	✓	✓	NR		Very columnar selection
		Chanticleer/ Cleveland Select	40	15	✓	✓		NR		One of the best flowering pear selections
Persian Parrotia	<i>Parrotia persica</i>		30	20	✓	✓	✓	OK		Excellent, many fine attributes...bark, fall color; specify tree form
		Vanessa	28	14	✓	✓	✓	OK		Upright, tightly vase shaped; fall color is orange-red

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					6' +	6'-5'	4-5'			
Pistachio, Chinese	<i>Pistacia chinensis</i>		30	25	✓	✓		OK		A very good urban tree, although hard to find
Planetree, Sycamore	<i>Platanus acerifolia</i>	Bloodgood	50	40	✓			NR		Good canopy tree, exfoliating bark; more resistant to Anthracnose, although still can get badly infected.
		Yarwood	50	40	✓			NR		More resistant to mildew, still gets anthracnose
Redbud, Eastern	<i>Cercis canadensis</i>	several cultivars	25	30	✓	✓	✓	OK		Beautiful small flowering tree, but can experience a lot of branch breakage, die back, and is susceptible to Verticillium
Serviceberry	<i>Amelanchier laevis</i>		25	15	✓	✓	✓	OK		Blooms early spring, more like a shrub; More resistant to rust, native.
		Snowcloud	28	15	✓	✓	✓	OK		Upright, oval good tree form
Sourwood	<i>Oxydendrum arboreum</i>		20	15	✓	✓	✓	OK		Temperamental tree, difficult to establish
Stewartia, Japanese	<i>Stewartia pseudocamellia</i>		30	20	✓	✓	✓	OK		Great tree with white camellia-like flowers and red fall color
Snowbell, Japanese	<i>Styrax japonica</i>		25	25	✓	✓	✓	OK		Beautiful small tree, early summer flowers
		Pink Chimes	15	15	✓	✓	✓	OK		Pink flowers; smaller cultivar
Sweetgum	<i>Liquidambar styraciflua</i>		55	35	✓			NR		Variable fall color from green to brilliant scarlet, drops spiky fruit, lifts sidewalks (better yard or park tree)

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					6' +	6'-5'	4-5'			
		Rotundiloba	45	25	✓			NR		Less fruit reported
Tuliptree	<i>Liriodendron tulipifera</i>	cultivars rare	60	30	✓			NR		Fast growing; Good canopy tree.
		Arnold	50	15	✓	✓		NR		Columnar cultivar, but difficult to find
Yellowwood	<i>Cladrastis kentukea</i>	cultivars rare	30	40	✓			OK		White and fragrant flowers
Zelkova	<i>Zelkova serrata</i>	Green Vase	50	40	✓	✓		NR		Probably the best of the selections
		Halka	50	30	✓	✓		NR		Slightly more upright growth habit
		Village Green	40	40	✓	✓		NR		The shortest of the selections

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Street Tree List: Corvallis, OR

Tree planting requires a permit from the Urban Forester

Latin name	Common name	Reccomended planter width	Size	Mature Height	Mature Width	Under Wires	notes	hyperlink
Celtis occidentalis	Common Hackberry	6	Large	55	40	no		http://oregonstate.edu/dept/ldplants/ceoc.htm
Cercidiphyllum japonicum	Katsura Tree	6	Large	60	40	no	Site protected from excessive heat	http://oregonstate.edu/dept/ldplants/ceja.htm
Eucommia ulmoides	Hardy rubber tree	6	Large	60	35	no		http://oregonstate.edu/dept/ldplants/euul.htm
Fagus grandifolia	American Beech	8	Large	80	50	no	not tollerant of flooding	http://oregonstate.edu/dept/ldplants/fagr.htm
Fagus sylvatica	European Beech	8	Large	80	60	no		http://oregonstate.edu/dept/ldplants/fasy.htm
Fagus sylvatica 'Asplenifolia'	Fern-Leafed European Beech	8	Large	80	40	no		http://oregonstate.edu/dept/ldplants/fasya.htm
Gymnocladus dioicus	Kentucky Coffee Tree	6	Large	70	50	no		http://oregonstate.edu/dept/ldplants/gydi.htm
Magnolia grandiflora	Southern Magnolia	6	Large	70	50	no		http://oregonstate.edu/dept/ldplants/magr.htm
Metasequoia glyptostroboides	Dawn redwood	6	Large	60	25	no	deciduous needleleaved tree	http://oregonstate.edu/dept/ldplants/megl.htm
Platanus x acerifolia 'Bloodgood'	Bloodgood Planetree	8	Large	85	75	no		http://edis.ifas.ufl.edu/st487
Platanus x acerifolia 'Columbia'	Columbia Planetree	8	Large	80	40	no		http://www.usna.usda.gov/Newintro/platanus.pdf
Platanus x acerifolia 'Liberty'	Liberty Planetree	8	Large	85	70	no		http://www.usna.usda.gov/Newintro/platanus.pdf
Quercus bicolor	Swamp white Oak	6	Large	60	45	no		http://oregonstate.edu/dept/ldplants/qubi.htm
Quercus coccinea	Scarlet Oak	6	Large	70	45	no		http://oregonstate.edu/dept/ldplants/quco-i.htm
Quercus garryana	Western White Oak	6	Large	60	40	no		http://oregonstate.edu/dept/ldplants/quga-i.htm
Quercus imbricaria	Shingle Oak	6	Large	55	45	no		http://oregonstate.edu/dept/ldplants/quimb.htm
Quercus macrocarpa	Burr Oak	6	Large	70	40	no		http://oregonstate.edu/dept/ldplants/quma.htm
Quercus macrocarpa 'JFS-KW14'	Cobblestone Oak	6	Large	55	45	no		http://www.jfschmidt.com/introductions/cobblestone/index.html
Quercus macrocarpa 'JFS-KW3'	Urban Pinnacle Oak	6	Large	55	25	no		http://www.jfschmidt.com/introductions/urbanpinnacle/
Quercus palustris	Pin Oak	8	Large	75	40	no		http://oregonstate.edu/dept/ldplants/qupa-i.htm
Quercus phellos	Willow Oak	8	Large	70	50	no		http://oregonstate.edu/dept/ldplants/quph-i.htm
Quercus robur	English Oak	6	Large	60	40	no		http://oregonstate.edu/dept/ldplants/quro-i.htm
Quercus rubra	Northern Red Oak	8	Large	75	50	no		http://oregonstate.edu/dept/ldplants/quru-i.htm
Quercus stellata	Post Oak	6	Large	65	50	no		http://www.na.fs.fed.us/pubs/silvics_manual/volume_2/quercus/stellata.htm
Tilia americana	American Linden	6	Large	60	35	no		http://oregonstate.edu/dept/ldplants/tiamer.htm
Ulmus americana 'Independence'	Independence Elm	8	Large	70	60	no		
Ulmus americana 'New Harmony'	New Harmony Elm	8	Large	70	65	no	high DED resistance and more open form	http://www.jfschmidt.com/pdfs/jfs-elmus-americana-varieties.pdf
Ulmus americana 'Prairie expedition'	Prairie expedition elm	6	Large	55	60	no		http://www.jfschmidt.com/pdfs/jfs-elmus-americana-varieties.pdf
Ulmus americana 'Valley forge'	Valley Forge Elm	8	Large	70	60	no	requires significant structural pruning, most disease resistant	http://www.jfschmidt.com/pdfs/jfs-elmus-americana-varieties.pdf
Ulmus japonica x wilsoniana 'Morton'	Accolade Elm	8	Large	70	60	no		http://oregonstate.edu/dept/ldplants/ulacc.htm
Aesculus hippocastanum 'Baumannii'	Bauman Horsechestnut	6	Med	40	30	no		http://oregonstate.edu/dept/ldplants/aehibau.htm
Aesculus X carnea	Red Horsechestnut	6	Med	35	30	no		http://oregonstate.edu/dept/ldplants/aeca.htm
Alnus rubra	Red Alder	4	Med	40	30	no	Along wetlands only	http://oregonstate.edu/dept/ldplants/alrub.htm
Carpinus betulus	European Hornbeam	4	Med	35	20	no		http://oregonstate.edu/dept/ldplants/cabe.htm
Carpinus betulus 'JFS-KW1CB'	Emerald Avenue Hornbeam	6	Med	40	28	no		http://www.jfschmidt.com/introductions/emeraldavenue/index.html
Carpinus carolina	American hornbeam	6	Med	35	20	no		http://oregonstate.edu/dept/ldplants/caca.htm
Carpinus caroliniana 'CCSQU' PP 11280	Palisade American Hornbeam	6	Med	30	15	no		http://www.selecttrees.com/pgs/Portfolio.php?TREE=44
Carpinus caroliniana 'JFS-KW6'	Native Flame American Hornbeam	6	Med	35	20	no		http://www.jfschmidt.com/pdfs/nativeflamehornbeam.pdf
Celtis occidentalis x C. laevigata 'Magnifica'	Magnifica Hackberry	8	Med	50	40	no		http://www.acornfarms.com/celtis_hackberry.htm
Chionanthus virginicus	White Fringe Tree	4	Med	30	20	no		http://oregonstate.edu/dept/ldplants/chvi.htm
Cladrastis kentukea	American Yellow wood	4	Med	40	40	no		http://oregonstate.edu/dept/ldplants/clke.htm
Cornus controversa 'June Snow'	June Snow Giant Dogwood	4	Med	30	40	no		http://www.jfschmidt.com/introductions/junesnow/index.html
Cornus kousa x nuttallii 'KN4-43' PP 16293	Starlight Dogwood	4	Med	30	20	no		http://www.jfschmidt.com/pdfs/starlightdogwood.pdf
Cornus nuttallii	Pacific Dogwood	4	Med	40	20	no		http://oregonstate.edu/dept/ldplants/conu.htm
Corylus colurna	Turkish Filbert	6	Med	40	20	no		http://oregonstate.edu/dept/ldplants/cocolur.htm
Crataegus 'Autumn glory'	Autumn glory hawthorne	4	Med	30	20	no		http://oregonstate.edu/dept/ldplants/crag.htm
Davidia involucrata	Dove Tree	6	Med	40	20	no		http://oregonstate.edu/dept/ldplants/dain-i.htm
Fagus sylvatica 'fastigiata'	Fastigate european beech	6	Med	45	15	no		
Fraxinus latifolia	Oregon Ash	6	Med	40	30	no	Along wetlands only	http://oregonstate.edu/dept/ldplants/frla.htm
Gleditsia tricanthos 'Christie'	Halka Honeylocust	6	Med	50	40	no		http://oregonstate.edu/dept/ldplants/gltri.htm
Gymnocladus dioicus 'Espresso-JFS'	Espresso Kentucky Coffee Tree	6	Med	50	35	no		http://www.jfschmidt.com/introductions/espresso/
Koeleruteria paniculata	Goldenrain Tree	4	Med	30	30	no		http://oregonstate.edu/dept/ldplants/kopa.htm

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Magnolia kobus	Kobus Magnolia	6	Med	40	30	no		http://oregonstate.edu/dept/ldplants/mako.htm
Magnolia 'Vulkan'	Vulkan Magnolia	6	Med	30	20	no		
Magnolia x loebneri	Loebner Magnolia	6	Med	30	20	no		http://oregonstate.edu/dept/ldplants/maloeblm.htm
Malus tschonoskii	Tschonoski Crab	4	Med	30	15	no	Oval habit. Full sun required for optimum flowering and fruting.	http://www.jfschmidt.com/pdfs/tschonoskiicrab.pdf
Nyssa sylvatica	Black Gum, Tupelo	6	Med	40	20	no		http://oregonstate.edu/dept/ldplants/nysy8.htm
Nyssa sylvatica 'David Odom'	Afterburner Tupelo	6	Med	35	20	no		http://www.jfschmidt.com/introductions/afterburner/index.html
Nyssa sylvatica 'Haymanred'	Red Rage Tupelo	6	Med	35	20	no		http://www.jfschmidt.com/introductions/redrage/index.html
Nyssa sylvatica 'JFS-PN Legacy1'	Gum Drop Tupelo	6	Med	30	20	no		http://www.jfschmidt.com/introductions/gumdrop/index.html
Ostrya virginiana	American hophornbeam	4	Med	35	25	no		http://oregonstate.edu/dept/ldplants/osvi.htm
Quercus bicolor 'Bonnie and Mike'	Beacon Oak	6	Med	40	15	no		http://www.jfschmidt.com/introductions/beacon/
Quercus bicolor 'JFS-KW12'	American Dream Oak	6	Med	50	40	no		http://www.jfschmidt.com/introductions/americanream/
Quercus frainetto 'Schmidt'	Forest Green Hungarian oak	6	Med	50	30	no		http://www.jfschmidt.com/introductions/forestgreen/
Rhamnus purshiana	Cascara Buckthorn	4	Med	30	20	no		http://oregonstate.edu/dept/ldplants/rhapu.htm
Stewartia pseudocamellia	Japanese Stewartia	4	Med	40	20	no		http://oregonstate.edu/dept/ldplants/stps-i.htm
Styrax japonicus	Japanese Snowdrop Tree	4	Med	30	20	no		http://oregonstate.edu/dept/ldplants/stja.htm
Styrax obassia	Fragrant Snowbell	4	Med	30	20	no		http://oregonstate.edu/dept/ldplants/stob-i.htm
Tilia cordata	Littleleaf Linden	6	Med	50	30	no		http://oregonstate.edu/dept/ldplants/tico.htm
Tilia tomentosa	Silver Linden	6	Med	60	40	no		http://oregonstate.edu/dept/ldplants/tito-i.htm
Tilia x euchlora	Crimean linden	6	Med	50	30	no		http://oregonstate.edu/dept/ldplants/tieu.htm
Ulmus parvifolia	Lacebark elm	6	Med	50	40	no		http://oregonstate.edu/dept/ldplants/ulpa.htm
Ulmus pumilla 'Homestead'	Homestead Siberian Elm	6	Med	50	35	no		http://oregonstate.edu/dept/ldplants/ulhom.htm
Zelkova serrata 'Halka'	Halka Zelkova	6	Med	50	30	no	more open structure than other varieties	http://www.jfschmidt.com/introductions/halkazelkova/index.html
Zelkova serrata 'Village Green'	Village Green Zelkova	6	Med	40	40	no		http://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/zelserc.pdf
Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	4	Small	25	20	yes		http://hort.ufl.edu/database/documents/pdf/tree_fact_sheets/amegrab.pdf
Amelanchier x grandiflora 'Forest Prince'	Forest Prince Serviceberry	4	Small	25	20	yes		http://oregonstate.edu/dept/ldplants/amgrfp.htm
Amelanchier laevis 'JFS-Arb'	Spring Flurry Serviceberry	4	Small	28	20	no		
Amelanchier laevis 'Snowcloud'	Snowcloud Serviceberry	4	Small	25	15	yes		http://oregonstate.edu/dept/ldplants/amlae.htm
Cercis canadensis	Eastern Redbud	4	Small	25	30	yes		http://oregonstate.edu/dept/ldplants/ceca.htm
Chionanthus retusus	Chinese Fringetree	4	Small	25	35	yes		http://oregonstate.edu/dept/ldplants/chre.htm
Clerodendrum trichotomum	Glorybower Tree	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/cltr.htm
Cornus (kousa x nuttallii) x kousa 'KN 30-8' PP 16309	Venus Dogwood	4	Small	25	20	yes		http://www.jfschmidt.com/introductions/springflurry/index.html
Cornus Aurora® P.P. 7205 ('Rutban')	Hybrid Flowering Dogwood	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/corut.htm
Cornus Celestial® P.P. 7204 ('Rutdan')	Hybrid Flowering Dogwood	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/corut.htm
Cornus 'Eddie's White Wonder'	Eddie's White Wonder Dogwood	4	Small	25	20	yes		http://www.jfschmidt.com/articles/eddie_white/
Cornus florida	Flowering dogwood	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/cofl.htm
Cornus kousa	Kousa Dogwood	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/coko.htm
Cornus kousa var. chinensis	Chinese Dogwood	4	Small	25	25	yes		http://oregonstate.edu/dept/ldplants/coko.htm
Cornus Stellar Pink® P.P. 7207 ('Rutgan'):	Hybrid Flowering Dogwood	4	Small	20	20	yes		http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=j890
Cotinus coggygria	Smoke Tree	4	Small	15	15	yes		http://oregonstate.edu/dept/ldplants/cocog.htm
Crataegus x lavallei	Lavalle Hawthorn	4	Small	30	20	no		http://oregonstate.edu/dept/ldplants/crla.htm
Halesia carolina	Carolina Silverbell	4	Small	25	30	yes		http://oregonstate.edu/dept/ldplants/hatet.htm
Halesia carolina 'JFS-PN2Legacy'	Crushed Velvet Silverbell	4	Small	20	15	yes		http://www.jfschmidt.com/introductions/crushedvelvet/index.html
Lagerstroemia indica x fauriei cultivars	Crape Myrtle	4	Small	25	25	yes		http://oregonstate.edu/dept/ldplants/lain.htm
Maackia amurensis	Amur maackia	4	Small	30	20	no	very slow grower	http://oregonstate.edu/dept/ldplants/maamur.htm
Magnolia 'Galaxy'	Galaxy magnolia	4	Small	30	25	yes		http://www.usna.usda.gov/Newintro/galaxy.html
Malus 'Sutyzam'	Sugar tyme Crabapple	4	Small	18	15	yes		http://www.pnwplants.wsu.edu/PlantDisplay.aspx?PlantID=645
Malus 'Prairifire'	Prairifire Crabapple	4	Small	20	20	yes	Full sun required for optimum flowering and fruting.	http://oregonstate.edu/dept/ldplants/mapra.htm
Malus 'Adirondack'	Adirondack Crabapple	4	Small	18	10	yes		http://www.usna.usda.gov/Newintro/adirond1.html
Malus 'Jewelcole'	Red jewel Crabapple	4	Small	15	12	yes		http://www.jfschmidt.com/pdfs/redjewelcrabapple.pdf
Malus purpurea lemoinei	Lemoinei Crab	4	Small	20	20	yes	Full sun required for optimum flowering and fruting.	
Malus 'Schmidtcutleaf'	Golden raindrops crab	4	Small	20	15	yes		http://jfschmidt.com/introductions/goldenraindrops/
Prunus sargentii	Columnar Sargent Cherry	4	Small	25	15	no	Full sun required for optimum flowering.	http://oregonstate.edu/dept/ldplants/prsac.htm
Prunus serrulata	Kwanzan Cherry	6	Small	25	20	yes	Full sun required for optimum flowering.	http://oregonstate.edu/dept/ldplants/prsek.htm

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Stewartia monadelpha	Tall Stewartia	4	Small	25	25	yes		http://oregonstate.edu/dept/ldplants/stmo-i.htm
Styrax japonica 'JFS-D'	Snowcone Japanese Snowbell	4	Small	25	20	yes		http://www.jfschmidt.com/articles/styrax_japonicus/
Styrax japonica 'JFS-E'	Snow Charm Japanese Snowbell	4	Small	20	20	yes		http://www.jfschmidt.com/introductions/snowcharm/index.html
Syringa pekinensis 'DTR 124' PP 8951	Summer Charm Tree Lilac	4	Small	20	15	yes		http://www.jfschmidt.com/pdfs/summercharmliac.pdf
Syringa pekinensis 'Morton'	China SnowTree Lilac	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/sypek.htm
Syringa pekinensis 'Zhang Zhiming'	Beijing Gold Tree Lilac	4	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/sypek.htm
Syringa reticulata	Japanese tree lilac	4	Small	20	20	yes	Only understory tree or under wires	http://oregonstate.edu/dept/ldplants/syre-i.htm
X Chitalpa tashkentensis 'Pink Dawn'	Pink Dawn Chitalpa	6	Small	20	20	yes		http://oregonstate.edu/dept/ldplants/chtapd.htm

Street Tree List: Eugene, OR

**APPENDIX A:
Approved Street Tree Species List**

1. Deciduous Species

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
1	<i>Acer circinatum</i>	Vine Maple	1	6	S	X	
2	<i>Acer ginnala</i>	Amur Maple	2	4	S	X	Only in SW Facility
3	<i>Acer glabrum</i> var. <i>douglasii</i>	Rocky Mountain Maple	2	4	S	X	Only in SW Facility
4	<i>Acer griseum</i>	Paperbark Maple	3	4	S	X	Only in SW Facility
5	<i>Acer macrophyllum</i>	Big Leaf Maple	2	6	L		
6	<i>Alnus rhombifolia</i>	White Alder	2	6	L		X
7	<i>Alnus rubra</i>	Red Alder	3	4	M		Only in SW Facility
8	<i>Amelanchier</i> x <i>grandiflora</i> 'Autumn Brilliance'	Autumn Brilliance Serviceberry	3	4	M	X	X
9	<i>Amelanchier</i> x <i>grandiflora</i> 'Forest Prince'	Forest Prince Serviceberry	3	4	M	X	X
10	<i>Amelanchier alnifolia</i>	Pacific Serviceberry	3	4	M	X	X
11	<i>Amelanchier laevis</i> 'JFS-Arb'	Spring Flurry Serviceberry	3	4	M	X	
12	<i>Betula nigra</i>	River Birch	3	5	M		
13	<i>Betula nigra</i> 'Cully'	Heritage River Birch	3	5	M		X
14	<i>Betula nigra</i> 'BNMTF'	Dura-Heat Birch	3	5	M		
15	<i>Carpinus betulus</i> 'JFS-KW1CB'	Emerald Avenue Hornbeam	3	4	M		
16	<i>Carpinus betulus</i>	European Hornbeam	3	4	M		X
17	<i>Carpinus caroliniana</i> 'JFS-KW6'	Native Flame American Hornbeam	1	5	S	X	

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#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
18	<i>Carpinus caroliniana</i> 'CCSQU'	Palisade American Hornbeam	1	5	S	X	
19	<i>Carpinus caroliniana</i>	American hornbeam	1	5	S	X	
20	<i>Catalpa speciosa</i>	Northern Catalpa	3	8	L		
21	<i>Celtis occidentalis</i>	Common Hackberry	3	5	M		X
22	<i>Celtis occidentalis</i> x <i>C. laevigata</i> 'Magnifica'	Magnifica Hackberry	3	5	M		
23	<i>Celtis reticulata</i>	Netleaf Hackberry	3	5	S	X	X
24	<i>Cercidiphyllum japonicum</i>	Katsura Tree	3	5	S		
25	<i>Cercis texensis</i> 'Oklahoma'	Oklahoma Redbud	3	5	S	X	
26	<i>Chionanthus retusus</i>	Chinese Fringe Tree	3	5	S	X	
27	<i>Chionanthus virginicus</i>	White Fringe Tree	3	5	S	X	
28	<i>Chilopsis linearis</i>	Desert Willow	2	5	S	X	X
29	x <i>Chitalpa tashkentensis</i> , 'Pink Dawn'	Pink Dawn Chitalpa, other cultivars	3	5	S	X	X
30	<i>Cornus Celestial</i> ® ('Rutdan')	Hybrid Flowering Dogwood	2	5	S	X	
31	<i>Cornus Aurora</i> ® ('Rutban')	Hybrid Flowering Dogwood	2	5	S	X	
32	<i>Cornus Stellar Pink</i> ® ('Rutgan'):	Hybrid Flowering Dogwood	2	5	S	X	
33	<i>Cornus controversa</i> 'June Snow'	June Snow Giant Dogwood	2	5	S	X	
34	<i>Cornus kousa</i>	Kousa Dogwood	2	5	S	X	
35	<i>Cornus kousa</i> x <i>nuttallii</i> 'KN4-43'	Starlight Dogwood	2	5	S	X	
36	<i>Cornus</i> (<i>kousa</i> x <i>nuttallii</i>) x <i>kousa</i> 'KN 30-8'	Venus Dogwood	2	5	S	X	
37	<i>Cornus nuttallii</i>	Pacific Dogwood	2	5	M		X
38	<i>Cornus</i> 'Eddie's White Wonder'	Eddie's White Wonder Dogwood	2	5	M		
39	<i>Corylus colurna</i>	Turkish Filbert	3	6	M		
40	<i>Cotinus coggygria</i>	Smoke Tree	3	6	S	X	
41	<i>Davidia involucrata</i>	Dove Tree	1	5	M		
42	<i>Fagus sylvatica</i>	European Beech	2	6	L		
43	<i>Fraxinus excelsior</i> 'Golden Desert'	Golden Desert Ash	3	5	S	X	

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#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
44	<i>Fraxinus latifolia</i>	Oregon Ash	3	5	M		X
45	<i>Fraxinus ornus</i>	Flowering Ash	3	5	M		
46	<i>Fraxinus ornus</i> 'JFS-Coate'	Urban Bouquet Ash	3	5	M		
47	<i>Ginkgo biloba</i> male cultivars only	Ginkgo	3	6	M		X
48	<i>Ginkgo biloba</i> 'Autumn Gold'	Autumn Gold Ginkgo	3	6	M		X
49	<i>Ginkgo biloba</i> 'Princeton Sentry'	Princeton Sentry Ginkgo	3	6	M		X
50	<i>Ginkgo biloba</i> 'JFS-UGA2'	Golden Colonnade Ginkgo	3	6	L		X
51	<i>Ginkgo biloba</i> 'The President'	Presidential Gold Ginkgo	3	6	L		X
52	<i>Gleditsia tricanthos</i> 'Christie'	Halka Honeylocust	3	5	M		
53	<i>Gymnocladus dioicus</i>	Kentucky Coffee Tree	3	6	L		
54	<i>Gymnocladus dioicus</i> 'Espresso-JFS'	Espresso Kentucky Coffee Tree	3	6	L		
55	<i>Halesia carolina</i>	Carolina Silverbell	2	5	M		
56	<i>Halesia carolina</i> 'JFS-PN2Legacy'	Crushed Velvet Silverbell	2	5	M	X	
57	<i>Heptacodium miconioides</i>	Seven Sons	3	5	S	X	
58	<i>Idesia polycarpa</i>	Chinese Wonder Tree	1	5	M		X
59	<i>Koelreuteria paniculata</i>	Goldenrain Tree	3	5	M		X
60	<i>Lagerstroemia indica</i> x <i>fauriei</i> cultivars	Crape Myrtle	2	4	S	X	X
61	<i>Larix laricina</i>	American Larch	1	6	L		
62	<i>Maackia amurensis</i> , 'JFS-Schichtel1'	Maackia, MaacNificent Maackia	2	5	S	X	
63	<i>Maclura pomifera</i> 'Whiteshield'	Whiteshield Osage Orange	3	6	M		
64	<i>Malus</i> 'Jarmin'	Marilee® Crabapple	3	5	S	X	
65	<i>Malus</i> 'Spring Snow'	Spring Snow Crabapple	3	5	S	X	
66	<i>Malus tschonoskii</i>	Tschonoskii Crabapple	3	5	S	X	
67	<i>Nothofagus antarctica</i>	Southern Beech	2	5	M		
68	<i>Nothofagus obliqua</i>	Roble Beech	2	5	L		
69	<i>Nyssa sylvatica</i>	Tupelo, Black Gum	3	5	M		X
70	<i>Nyssa sylvatica</i> 'David Odom'	Afterburner Tupelo	3	5	M		X
71	<i>Nyssa sylvatica</i> 'JFS-PN Legacy1'	Gum Drop Tupelo	3	5	M	X	X

**APPENDIX A:
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#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
72	<i>Nyssa sylvatica</i> 'Haymanred'	Red Rage Tupelo	3	5	M		X
73	<i>Ostrya virginiana</i>	American Hophornbeam	1	5	M		
74	<i>Oxydendrum aroboreum</i>	Sourwood	3	5	M		
75	<i>Parrotia persica</i>	Persian Ironwood	2	5	M		X
76	<i>Phellodendron</i> His Majesty™	His Majesty Corktree	3	6	M		
77	<i>Phellodendron lavallei</i> 'Longenecker'	Eye Stopper Cork Tree	3	6	M		
78	<i>Pistacia chinensis</i>	Chinese Pistachio	2	5	M		X
79	<i>Platanus X acerifolia</i> 'Bloodgood'	Bloodgood London Plane	3	8	L		
80	<i>Platanus x acerifolia</i> 'Columbia'	Columbia Planetree	3	8	L		
81	<i>Platanus x acerifolia</i> 'Liberty'	Liberty Planetree	3	8	L		
82	<i>Platanus x acerifolia</i> 'Morton Circle'	Exclamation Planetree	3	8	L		
83	<i>Populus tremuloides</i>	Quaking aspen	2	6	M		Only in SW Facility
84	<i>Prunus x yedoensis</i> Cascade Snow	Cascade Snow Cherry	2	5	S	X	
85	<i>Prunus incisa x campanulata</i> 'Okame'	Okame Cherry	2	5	S	X	
86	<i>Prunus sargentii</i> 'JFS-KW58'	Pink Flair Cherry	2	5	S	X	
87	<i>Prunus virginiana</i> 'Canada Red'	Canada Red Chokecherry	3	5	S	X	
88	<i>Ptelea trifoliata</i>	Hoptree	2	5	S	X	
89	<i>Pteroceltis tatarinowii</i>	Winged Hackberry	3	5	M		
90	<i>Quercus acutissima</i>	Sawtooth Oak	3	6	L		
91	<i>Quercus bicolor</i>	Swamp White Oak	3	6	L		X
92	<i>Quercus bicolor</i> 'JFS-KW12'	American Dream Oak	3	6	L		X
93	<i>Quercus bicolor</i> 'Bonnie and Mike'	Beacon Oak	3	6	L		X
94	<i>Quercus buckleyi</i>	Texas Red Oak	2	5	M		
95	<i>Quercus cerris</i>	Turkey Oak	2	6	L		
96	<i>Quercus douglasii</i>	Blue Oak	2	6	L		X
97	<i>Quercus frainetto</i>	Hungarian Oak	2	6	L		

**APPENDIX A:
Approved Street Tree Species List**

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
98	Quercus frainetto 'Schmidt'	Forest Green Oak	2	5	L		X
99	Quercus gambelii	Gambel Oak	2	5	S	X	
100	Quercus garryana	Oregon White Oak	3	6	L		X
101	Quercus imbricaria	Shingle oak	2	6	M		X
102	Quercus kelloggii	California Black Oak	3	6	L		X
103	Quercus laceyi	Texas Blue Oak	2	5	S	X	
104	Quercus lyrata	Overcup Oak	2	6	L		
105	Quercus lobata	Valley Oak	1	6	L		X
106	Quercus macrocarpa	Bur Oak	2	6	L		
107	Quercus macrocarpa 'JFS-KW14'	Cobblestone Oak	2	6	L		
108	Quercus macrocarpa 'JFS-KW3'	Urban Pinnacle Oak	2	6	L		
109	Quercus muehlenbergii	Chinquapin Oak	2	6	M		
110	Quercus phellos	Willow Oak	2	6	L		
111	Quercus shumardii	Shumardii Oak	2	6	L		X
112	Quercus stellata	Post Oak	2	6	L		
113	Quercus X morehus	Oracle Oak	2	5	M		
114	Rhamnus purshiana	Cascara Buckthorn	2	5	M		X
115	Sophora japonica	Japanese Pagoda Tree	3	5	M		X
116	Sophora japonica 'Halka'	Millstone Japanese Pagodatree	3	5	M		X
117	Stewartia koreana	Korean Stewartia	2	5	M	X	
118	Stewartia monadelpha	Tall Stewartia	2	4	M	X	
119	Stewartia pseudocamellia	Japanese Stewartia	2	4	M		
120	Styrax japonica 'JFS-D'	Snowcone Japanese Snowbell	1	4	M	X	
121	Styrax japonica 'JFS-E'	Snow Charm Japanese Snowbell	1	4	M	X	
122	Styrax obassia	Fragrant Snowbell	1	4	S	X	
123	Syringa pekinensis 'Morton'	China SnowTree Lilac	3	4	M	X	
124	Syringa pekinensis 'DTR 124'	Summer Charm Tree Lilac	3	4	M	X	
125	Syringa pekinensis 'Zhang Zhiming'	Beijing Gold Tree Lilac	3	4	M	X	
126	Syringa reticulata 'Ivory Silk'	Ivory Silk Japanese Tree Lilac	3	4	M	X	
127	Taxodium distichum	Baldcypress	3	6	L		X

**APPENDIX A:
Approved Street Tree Species List**

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
128	Taxodium distichum 'JFS-SGPN'	Green Whisper Bald Cypress	3	6	L		
129	Tilia americana	American Linden	2	6	M		
130	Ulmus americana 'Jefferson'	Jefferson Elm	3	6	L		
131	Ulmus americana 'New Harmony'	New Harmony Elm	3	6	L		
132	Ulmus japonica x wilsoniana 'Morton' Accolade	Accolade Elm	3	6	L		
133	Ulmus carpinifolia x parvifolia 'Frontier'	Frontier Elm	3	6	M		
134	Ulmus propinqua 'Emerald Sunshine'	Emerald Sunshine Japanese Elm	3	6	M		
135	Zelkova serrata	Japanese Zelkova	2	6	L	X	
136	Zelkova serrata 'JFS-KW1'	City Sprite Zelkova	2	5	S		
137	Zelkova serrata 'Halka'	Halka Zelkova	2	6	M		
138	Zelkova serrata 'Schmidtlow'	Wireless Zelkova	2	6	S	X	

2. Evergreen Species

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
1	Abies grandis	Grand Fir	2	10			
2	Abies koreana	Silver Korean fir	2	10	S		X
3	Abies lasiocarpa	Rocky Mountain Fir	2	10	M		Only in SW Facility
4	Abies pinsapo	Spanish fir	2	10	L		
5	Arbutus x 'Marina'	Marina Strawberry Tree	2	5	M		
6	Arbutus menziesii	Pacific Madrone	2	5	M		X
7	Arbutus unedo	Strawberry Madrone	2	5	S	X	X
8	Calocedrus decurrens	Incense Cedar	2	10	L		X
9	Castanopsis cuspidata	Japanese Chinquapin	1	6	M		

**APPENDIX A:
Approved Street Tree Species List**

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
10	<i>Cedrus atlantica</i>	Atlas Cedar	2	10	L		
11	<i>Cedrus deodara</i>	Deodar Cedar	2	10	L		
12	<i>Cedrus libani</i>	Cedar of Lebanon	2	10	L		
13	<i>Chrysolepis chrysophylla</i>	Golden Chinquapin	2	6	L		
14	<i>Cinnamomum chekiangense</i> 'Camellia Forest'	Camellia Forest Camphor Tree	2	6	M		
15	<i>Cupressus arizonica</i>	Blue Ice Arizona cypress	2	8	S	X	X
16	<i>Cupressus bakeri</i>	Modoc cypress	2	8	M		Only in SW Facility
17	<i>Juniperus communis</i>	common juniper	2	6	S	X	
18	<i>Juniperus osteosperma</i>	Utah Juniper	2	6	S	X	
19	<i>Juniperus scopulorum</i>	Rocky Mountain Juniper	2	10	M		
20	<i>Lithocarpus densiflorus</i>	Tanbark Oak	1	6	S	X	
21	<i>Picea smithiana</i>	Morinda spruce	2	10	L		X
22	<i>Pinus brutia</i>	Calabrian Pine, Turkish Pine	2	10	L		
23	<i>Pinus bungeana</i>	Lacebark pine	2	6	M		X
24	<i>Pinus canariensis</i>	Canary Island Pine	2	10	L		
25	<i>Pinus durangensis</i>	Durango Pine	2	10	L		
26	<i>Pinus ponderosa</i> var. <i>benthamania</i>	Willamette Valley Ponderosa Pine	3	10	L		X
27	<i>Pinus wallichiana</i>	Himalayan pine	2	10	L		X
28	<i>Pseudotsuga menziesii</i>	Douglas-Fir	2	20	L		
29	<i>Quercus agrifolia</i>	Coast Live Oak	1	6	M		
30	<i>Quercus calliprinos</i>	Palestine Oak	2	6	M		
31	<i>Quercus chrysolepis</i>	Canyon Live Oak	2	6	M		X
32	<i>Quercus coccifera</i>	Kermes Oak	2	6	S	X	
33	<i>Quercus douglasii</i>	Blue Oak	2	6	M		X
34	<i>Quercus engelmannii</i>	Engelmann Oak	2	6	M		X
35	<i>Quercus hypoleucoides</i>	Silver Oak	2	6	S	X	

**APPENDIX A:
Approved Street Tree Species List**

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
36	<i>Quercus ilex</i>	Holly Oak	2	6	L		
37	<i>Quercus myrsinifolia</i>	Chinese Evergreen Oak	2	6	S	X	
38	<i>Quercus rysophylla</i>	Loquat Leaf Oak	2	6	L		
39	<i>Quercus rysophylla x canbyi</i>	Mexican Red Oak Hybrid	2	6	M		
40	<i>Quercus sadleriana</i>	Deer Oak	2	6	S	X	
41	<i>Quercus suber</i>	Cork Oak	2	6	L		X
42	<i>Quercus tomentella</i>	Channel Island Live Oak	2	6	S	X	
43	<i>Quercus virginiana 'Cathedral'</i>	Cathedral live oak	2	6	L		X
44	<i>Quercus wislizeni</i>	Interior Live Oak	2	6	L		
45	<i>Sciadopitys verticillata</i>	Japanese Umbrella Pine	2	6	M	X	X
46	<i>Sequoia sempervirens</i>	Coast Redwood	2	20	L		
47	<i>Sequoiadendron giganteum</i>	Giant Sequoia	2	20	L		
48	<i>Taxodium distichum</i>	Bald Cypress	2	20	L		Only in SW Facility
49	<i>Taxodium mucronatum</i>	Montezuma Cypress	3	10	L		
50	<i>Taxus brevifolia</i>	Pacific yew	2	10	M		
51	<i>Thuja plicata</i>	Western Red Cedar	3	10	L		X
52	<i>Tsuga canadensis</i>	Canadian hemlock	1	10	L		X
53	<i>Tsuga heterophylla</i>	Western Hemlock	2	10	L		
54	<i>Tsuga mertensiana</i>	Mountain hemlock	2	10	L		X
55	<i>Tsuga sieboldii</i>	Southern Japanese hemlock	2	10	L		X
56	<i>Umbellularia californica</i>	Oregon Myrtle	2	10	S	X	

**APPENDIX A:
Approved Street Tree Species List**

#	Scientific Name	Common Name	Soil Type	Planter Width	Canopy Size	Okay under wires	Storm Water Facility
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NOTES:

Soil Type:

(a) From Lane County Soil Survey Table 13 - Physical and Chemical Properties of Soil, Shrink-Swell Potential. Type 1 = rating of Low; Type 2 = rating of Moderate; Type 3 = rating of High.

(b) Trees with Soil Type 3 can be planted in Type 3, Type 2 and Type 1 soils. Trees with Soil Type 2 can be planted in Type 2 and Type 1 soils. Trees with Soil Type 1 can only be planted in Type 1 soils.

Planter Width: Minimum width of soil planting strip required for this species, as measured in feet from back of curb to front of sidewalk.

Canopy Size: **Small** - up to 30 feet tall. **Medium** - between 30 and 50 feet. **Large** - over 50 feet tall. Most information is as listed in Oregon State University's Landscape Plants website (<http://oregonstate.edu/dept/ldplants/>).

Okay under wires: X = approved for planting under high-voltage primary electric wires.

Storm Water Facility: X = approved for planting as listed in the City of Eugene Stormwater Management Manual. "Only in SW Facility" means the species cannot be planted in any other right-of-way except a Storm Water Facility.

Suggested Planting Soil Volumes: **Small** trees = 600 cubic feet; **Medium** trees = 1000 cubic feet; **Large** trees = 1500 cubic feet.

Street Tree List: Portland, OR

APPENDIX A: FY2015-2016 BES Approved Street Tree Planting List

Portland Lists Key:

- A** 2.5ft - 3ft
- B** 3ft - 4ft
- C** 4ft - 6ft w/o HV
- D** 4ft - 6ft with HV
- E** 6-8ft w/o lines
- F** > 6ft with HV
- G** > 8.5ft w/o lines
- H** (FU) - Unimproved F List: > 6ft with HV
- I** (GU) - Unimproved G List: > 8.5ft w/o lines
- J** (CC) - Curb No Sidewalk C List: 4ft - 6ft w/o HV
- K** (CD) - Curb No Sidewalk D List: 4ft - 6ft with HV
- L** (EOL) - E with other lines (w/o HV)
- M** (GOL) - G with other lines (w/o HV)
- N** (GUOL) - Unimproved G with other lines (w/o HV)

Botanical name	Common name	Strip Code														Family	Native	Evrgrn	Large	Medium	Small
		A	B	C	D	E	F	G	H	I	J	K	L	M	N						
<i>Abies grandis</i>	Grand fir					E		G		I			L	M	N	Pinaceae	Yes	Yes	Large		
<i>Aesculus hippocastanum</i> 'Baumannii'	Baumann horsechestnut					E		G		I			L	M	N	Sapindaceae			Large		
<i>Amelanchier laevis</i> 'Cumulus'	Cumulus serviceberry	A	B		D								K			Rosaceae					Small
<i>Amelanchier laevis</i> 'JFS-Arb'	Spring Flurry serviceberry	A	B		D								K			Rosaceae					Small
<i>Amelanchier laevis</i> 'Snowcloud'	Snowcloud serviceberry	A	B		D								K			Rosaceae					Small
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	Autumn Brilliance serviceberry	A	B		D								K			Rosaceae					Small
<i>Araucaria araucana</i>	Monkey puzzle tree					E		G		I						Araucariaceae		Yes	Large		
<i>Arbutus menziesii</i>	Pacific madrone			C		E					J		L			Ericaceae	Yes	Yes	Large		
<i>Arbutus unedo</i>	Strawberry tree	A	B													Ericaceae		Yes			Small
<i>Azara microphylla</i>	Boxleaf azara	A	B													Salicaceae		Yes			Small
<i>Betula nigra</i> 'BNMTF'	Dura Heat river birch			C		E					J		L			Betulaceae					Medium
<i>Betula nigra</i> 'Cully'	Heritage river birch			C		E					J		L			Betulaceae					Medium
<i>Calocedrus decurrens</i>	Incense-cedar					E		G		I			L	M	N	Cupressaceae		Yes	Large		
<i>Carpinus betulus</i>	European hornbeam					E							L			Betulaceae			Large		
<i>Carpinus betulus</i> 'Fastigiata'	Pyramidal European hornbeam			C		E					J		L			Betulaceae					Small
<i>Carpinus betulus</i> 'Frans Fontaine'	Frans Fontaine hornbeam			C							J					Betulaceae					Small
<i>Carpinus betulus</i> 'JFS-KW1CB'	Emerald Avenue hornbeam			C		E					J		L			Betulaceae					Medium
<i>Carpinus caroliniana</i>	American hornbeam				D		F		H		J	K				Betulaceae					Small
<i>Carpinus caroliniana</i> 'CCSQU'	Palisade American hornbeam	A	B													Betulaceae					Small

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
<i>Carpinus caroliniana</i> 'JFS-KW6'	Native Flame American hornbeam				D		F		H			K				Betulaceae					Small
<i>Carpinus japonicus</i>	Japanese hornbeam		B		D		F		H			K				Betulaceae					Small
<i>Carya ovata</i>	Shagbark hickory							G		I				M	N	Juglandaceae			Large		
<i>Castanea sativa</i>	Spanish chestnut					E		G		I			L	M	N	Fagaceae				Medium	
<i>Catalpa bignonioides</i>	Southern catalpa					E							L			Bignoniaceae				Medium	
<i>Catalpa ovata</i>	Chinese catalpa				D		F		H			K				Bignoniaceae					Small
<i>Catalpa speciosa</i>	Northern catalpa					E		G		I			L	M	N	Bignoniaceae			Large		
<i>Catalpa x erubescens</i> 'Purpurea'	Purple catalpa					E		G		I			L	M	N	Bignoniaceae				Medium	
<i>Cedrus atlantica</i> 'Glauca'	Blue Atlas cedar							G		I						Pinaceae	Yes		Large		
<i>Cedrus deodara</i>	Deodar cedar							G		I						Pinaceae	Yes		Large		
<i>Cedrus deodara</i> 'Albospica'	White-tipped deodar cedar						F		H							Pinaceae	Yes				Small
<i>Cedrus deodara</i> 'Aurea'	Golden deodar cedar							G		I						Pinaceae	Yes			Medium	
<i>Cedrus deodara</i> 'Shalimar'	Shalimar deodar cedar							G		I						Pinaceae	Yes		Large		
<i>Cedus libanii</i>	Cedar of Lebanon					E		G		I						Pinaceae	Yes		Large		
<i>Celtis occidentalis</i>	Hackberry					E		G		I			L	M	N	Ulmaceae				Large	
<i>Celtis x 'Magnifica'</i>	Magnifica hackberry					E		G		I			L	M	N	Ulmaceae				Large	
<i>Cercidiphyllum japonicum</i>	Katsuratree					E					J		L			Cercidiphyllaceae					Medium
<i>Cercidiphyllum japonicum</i> 'Rotfuchs'	Red Fox katsuratree					E					J		L			Cercidiphyllaceae					Medium
<i>Cercis canadensis</i> 'Forest Pansy'	Forest Pansy redbud				D		F		H			K				Fabaceae					Small
<i>Cercis canadensis</i> 'Luclavzam'	Luscious Lavender eastern redbud	A	B		D							K				Fabaceae					Small
<i>Cercis canadensis</i> 'Merlot'	Merlot redbud	A	B													Fabaceae					Small
<i>Cercis occidentalis</i>	Western redbud	A	B		D							K				Fabaceae					Small
<i>Chionanthus retusus</i>	Chinese fringetree				D		F		H			K				Oleaceae					Small
<i>Chionanthus retusus</i> 'Arnold's Pride'	Arnold's Pride Chinese fringetree		B		D		F		H			K				Oleaceae					Small
<i>Chionanthus retusus</i> 'Tokyo Tower'	Tokyo Tower Chinese fringetree	A														Oleaceae					Small
<i>Chitalpa x tashkentensis</i> 'Morning Cloud'	Morning Cloud chitalpa		B		D							K				Bignoniaceae					Small
<i>Chitalpa x tashkentensis</i> 'Pink Dawn'	Pink Dawn chitalpa		B		D							K				Bignoniaceae					Small
<i>Cladrastis kentukea</i>	American yellowwood			C		E		G			J		L			Fabaceae					Medium
<i>Cladrastis kentukea</i> 'Perkins Pink'	Perkins Pink American yellowwood			C		E		G			J		L			Fabaceae					Medium
<i>Cornus controversa</i> 'June Snow'	June Snow dogwood				D		F		H			K				Cornaceae					Medium
<i>Cornus kousa</i> ssp. <i>chinensis</i>	Chinese dogwood				D		F		H							Cornaceae					Medium
<i>Cornus kousa</i> var. <i>chinensis</i> 'Milky Way'	Milky Way Chinese dogwood	A	B													Cornaceae					Small
<i>Cornus mas</i>	Corneliancherry dogwood		B		D							K				Cornaceae					Small
<i>Cornus mas</i> 'Golden Glory'	Golden Glory corneliancherry dogwood	A	B													Cornaceae					Small
<i>Cornus x</i> 'Eddie's White Wonder'	Eddie's White Wonder dogwood				D		F		H			K				Cornaceae					Small
<i>Cornus x rutgerensis</i> 'KF111-1'	Hyperion dogwood				D							K				Cornaceae					Small
<i>Cornus x rutgerensis</i> 'Rutban'	Aurora dogwood		B		D							K				Cornaceae					Small
<i>Cornus x rutgerensis</i> 'Rutcan'	Constellation dogwood		B		D							K				Cornaceae					Small
<i>Cornus x rutgerensis</i> 'Rutdan'	Celestial dogwood	A	B													Cornaceae					Small
<i>Cornus x rutgerensis</i> 'Rutgan'	Stellar Pink dogwood	A	B													Cornaceae					Small
<i>Cornus x rutgerensis</i> 'Starlight'	Starlight dogwood				D		F		H			K				Cornaceae					Small
<i>Cornus x rutgerensis</i> 'Venus'	Venus dogwood				D		F		H			K				Cornaceae					Small

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
<i>Corylus colurna</i>	Turkish hazel			C		E		G		I	J		L	M	N	Betulaceae				Medium	
<i>Cotinus obovatus</i>	American smoketree	A	B													Anacardiaceae					Small
<i>Crataegus douglasii</i>	Black hawthorn		B		D							K				Rosaceae	Yes			Medium	
<i>Crataegus phaenopyrum</i>	Washington hawthorn				D		F		H			K				Rosaceae					Small
<i>Crataegus x lavallei</i>	Lavalle hawthorn		B		D		F		H			K				Rosaceae					Small
<i>Cryptomeria japonica</i>	Cryptomeria					E		G		I			L	M	N	Cupressaceae		Yes		Medium	
<i>Cryptomeria japonica</i> 'Kitayama'	Kitayama cryptomeria			C		E					J					Cupressaceae		Yes		Medium	
<i>Cryptomeria japonica</i> 'Radicans'	Radicans cryptomeria			C		E					J					Cupressaceae		Yes		Medium	
<i>Cryptomeria japonica</i> 'Sekkan'	Sekkan cryptomeria				D							K				Cupressaceae		Yes			Small
<i>Cryptomeria japonica</i> 'Yoshino'	Yoshino cryptomeria			C		E					J					Cupressaceae		Yes		Medium	
<i>Cupressus bakeri</i>	Baker cypress					E		G		I			L	M	N	Cupressaceae		Yes		Medium	
<i>Cupressus x leylandii</i>	Leyland cypress					E		G		I						Cupressaceae		Yes		Medium	
<i>Davidia involucrata</i>	Dove tree					E		G		I			L	M	N	Cornaceae			Large		
<i>Diospyros kaki</i> 'Fuyu'	Fuyu Japanese persimmon						F		H							Ebenaceae					Small
<i>Diospyros kaki</i> 'Hachiya'	Hachiya Japanese persimmon						F		H							Ebenaceae					Small
<i>Eucommia ulmoides</i>	Hardy rubber tree			C		E					J		L			Eucommiaceae				Medium	
<i>Eucommia ulmoides</i> 'Empozam'	Emerald Pointe hardy rubber tree		B		D							K				Eucommiaceae				Medium	
<i>Fagus sylvatica</i>	European beech							G		I				M	N	Fagaceae			Large		
<i>Fagus sylvatica</i> 'Asplenifolia'	Fernleaf beech							G		I				M	N	Fagaceae			Large		
<i>Fagus sylvatica</i> 'Cuprea' or 'Purpurea'	Copper beech					E		G		I			L	M	N	Fagaceae			Large		
<i>Fagus sylvatica</i> 'Dawyck Purple'	Dawyck Purple European beech			C							J					Fagaceae				Medium	
<i>Fagus sylvatica</i> 'Riversii'	Rivers purple beech					E		G		I			L	M	N	Fagaceae				Medium	
<i>Ginkgo biloba</i> 'Autumn Gold'	Autumn Gold ginkgo					E		G		I			L	M	N	Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'Fairmount'	Fairmount ginkgo					E							L			Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'Halka'	Halka ginkgo			C		E					J		L			Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'JFS-UGA2'	Golden Colonnade ginkgo			C		E					J		L			Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'Magyar'	Magyar ginkgo			C		E					J		L			Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'Princeton Sentry'	Princeton Sentry ginkgo			C							J					Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'Saratoga'	Saratoga ginkgo				D		F		H			K				Ginkgoaceae				Medium	
<i>Ginkgo biloba</i> 'Shangri-La'	Shangri-La ginkgo					E		G		I			L	M	N	Ginkgoaceae			Large		
<i>Ginkgo biloba</i> 'The President'	Presidential Gold ginkgo					E		G		I			L	M	N	Ginkgoaceae				Medium	
<i>Gleditsia triacanthos</i> f. <i>inermis</i> 'Draves'	Street Keeper columnar honeylocust			C							J					Fabaceae				Medium	
<i>Gleditsia triacanthos</i> f. <i>inermis</i> 'Shademaster'	Shademaster honeylocust					E		G		I			L	M	N	Fabaceae				Medium	
<i>Gleditsia triacanthos</i> f. <i>inermis</i> 'Skycole'	Skyline honeylocust					E							L			Fabaceae				Medium	
<i>Gymnocladus dioicus</i>	Kentucky coffeetree					E		G		I			L	M	N	Fabaceae			Large		
<i>Gymnocladus dioicus</i> 'Espresso'	Espresso Kentucky coffeetree					E		G		I	J		L	M	N	Fabaceae				Medium	
<i>Gymnocladus dioicus</i> 'J.C. McDaniel'	Prairie Titan Kentucky coffeetree					E		G		I			L	M	N	Fabaceae			Large		
<i>Halesia carolina</i>	Carolina silverbell			C							J					Styracaceae				Medium	
<i>Heptacodium miconioides</i>	Seven-son flower tree	A	B													Caprifoliaceae					Small
<i>Hovenia dulcis</i>	Japanese raisin tree		B		D		F		H		J	K				Rhamnaceae					Small
<i>Juglans regia</i> 'Carpathian'	Carpathian English walnut							G		I				M	N	Juglandaceae			Large		

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
<i>Koelreuteria paniculata</i>	Goldenrain tree				D		F		H			K				Sapindaceae					Small
<i>Koelreuteria paniculata</i> 'Coral Sun'	Coral Sun goldenrain tree	A	B		D							K				Sapindaceae					Small
<i>Koelreuteria paniculata</i> 'JFS Sunleaf'	Summerburst goldenrain tree		B		D							K				Sapindaceae					Small
<i>Koelreuteria paniculata</i> 'September'	September goldenrain tree				D		F		H			K				Sapindaceae					Small
<i>Lagerstroemia indica</i> 'Catawba'	Catawba crape myrtle	A	B													Lythraceae					Small
<i>Lagerstroemia</i> x 'Arapaho'	Arapaho crape myrtle	A	B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Apalachee'	Apalachee crape myrtle		B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Biloxi'	Biloxi crape myrtle		B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Centennial Spirit'	Centennial Spirit crape myrtle	A	B													Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Choctaw'	Choctaw crape myrtle	A	B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Miami'	Miami crape myrtle	A	B													Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Muskogee'	Muskogee crape myrtle	A	B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Natchez'	Natchez crape myrtle		B		D		F		H			K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Osage'	Osage crape myrtle	A	B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Tuscarora'	Tuscarora Crape myrtle	A	B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Wichita'	Wichita crape myrtle		B		D							K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Yuma'	Yuma crape myrtle	A	B									K				Lythraceae					Small
<i>Lagerstroemia</i> x fauriei 'Zuni'	Zuni crape myrtle	A	B													Lythraceae					Small
<i>Larix decidua</i>	European larch					E		G		I			L	M	N	Pinaceae				Large	
<i>Laurus nobilis</i>	Bay laurel		B		D		F		H			K				Lauraceae		Yes			Small
<i>Liriodendron tulipifera</i>	Tuliptree							G		I				M	N	Magnoliaceae				Large	
<i>Liriodendron tulipifera</i> 'Fastigiata'	Columnar tuliptree					E							L			Magnoliaceae				Large	
<i>Maackia amurensis</i>	Amur maackia		B		D		F		H			K				Fabaceae					Small
<i>Maackia amurensis</i> 'JFS-Schichtel1'	Maackia Amur maackia		B		D							K				Fabaceae					Small
<i>Maackia chinensis</i>	Chinese maackia		B		D		F		H			K				Fabaceae					Small
<i>Maclura pomifera</i> 'Whiteshield'	Whiteshield osage orange			C	D		F		H		J	K				Moraceae					Medium
Magnolia - hybrids or cultivars reaching 20-35' tall by 15-35' wide	Magnolia hybrids/cultivars				D		F		H			K				Magnoliaceae					Small
<i>Magnolia denudata</i>	Yulan magnolia				D		F		H			K				Magnoliaceae					Small
<i>Magnolia grandiflora</i> 'Edith Bogue'	Edith Bogue magnolia			C	D		F		H		J	K				Magnoliaceae		Yes			Small
<i>Magnolia grandiflora</i> 'Little Gem'	Little Gem magnolia		B									K				Magnoliaceae		Yes			Small
<i>Magnolia grandiflora</i> 'Victoria'	Victoria southern magnolia			C	D		F		H		J	K				Magnoliaceae		Yes			Medium
<i>Magnolia kobus</i>	Kobus magnolia			C							J					Magnoliaceae					Medium
<i>Magnolia virginiana</i> 'Jim Wilson'	Moonglow sweetbay magnolia			C	D		F		H		J	K				Magnoliaceae		Yes			Medium
<i>Magnolia</i> x brooklynensis 'Elizabeth'	Elizabeth magnolia				D		F		H			K				Magnoliaceae					Small
<i>Magnolia</i> x 'Butterflies'	Butterflies magnolia		B		D							K				Magnoliaceae					Small
<i>Magnolia</i> x 'Galaxy'	Galaxy magnolia			C	D		F		H		J	K				Magnoliaceae					Medium
<i>Magnolia</i> x soulangiana cultivars that reach at least 20' x 15' including Alba, Alexandrina, Brozzoni, Lennei, Lennei Picture, Rustica																					
<i>Rubra</i> , <i>Spectabilis</i> , etc.	Saucer magnolia				D		F		H		J	K				Magnoliaceae					Small
<i>Magnolia</i> x soulangiana 'Lennei'	Lennei magnolia				D		F		H			K				Magnoliaceae					Small

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
Magnolia x 'Vulcan'	Vulcan magnolia		B		D		F		H			K				Magnoliaceae					Small
Magnolia x 'Yellow Lantern'	Yellow Lantern magnolia		B		D							K				Magnoliaceae					Small
Malus 'JFS-KW5'	Royal Raindrops crabapple		B		D							K				Rosaceae					Small
Malus transitoria 'Schmidcutleaf'	Golden Raindrops crabapple		B		D							K				Rosaceae					Small
Malus x 'Akane'	Apple 'Akane' semi-dwarf						F		H							Rosaceae					Small
Malus x 'Jonagold'	Apple 'Jonagold' semi-dwarf						F		H							Rosaceae					Small
Malus x 'Liberty'	Apple 'Liberty' semi-dwarf						F		H							Rosaceae					Small
Malus x 'Purple Prince'	Purple Prince crabapple		B													Rosaceae					Small
Malus x 'Spartan'	Apple 'Spartan' semi-dwarf						F		H							Rosaceae					Small
Metasequoia glyptostroboides	Dawn redwood					E		G		I			L	M	N	Cupressaceae			Large		
Metasequoia glyptostroboides 'Ogon'	Gold Rush dawn redwood					E		G		I			L	M	N	Cupressaceae			Large		
Nyssa sinensis	Chinese tupelo			C		E			H		J		L			Cornaceae				Medium	
Nyssa sylvatica	Black tupelo			C		E			H		J		L			Cornaceae				Medium	
Nyssa sylvatica 'David Odom'	Afterburner black tupelo			C			F		H		J					Cornaceae				Medium	
Nyssa sylvatica 'Haymanred'	Red Rage black tupelo			C	D		F		H		J	K				Cornaceae				Medium	
Nyssa sylvatica 'JFS-PN'	Gum Drop black tupelo		B		D							K				Cornaceae					Small
Nyssa sylvatica 'NXSXF'	Forum black tupelo			C		E					J		L			Cornaceae				Medium	
Nyssa sylvatica 'PRP1'	Fire Master black tupelo			C		E					J		L			Cornaceae				Medium	
Nyssa sylvatica 'Wildfire'	Wildfire black tupelo			C		E					J		L			Cornaceae				Medium	
Ostrya virginiana	American hophornbeam			C	D		F		H		J	K				Betulaceae				Medium	
Oxydendron arboreum	Sourwood			C		E					J		L			Ericaceae					Small
Parrotia persica	Persian ironwood			C		E	F		H		J		L			Hamamelidac.				Medium	
Parrotia persica 'Inge's Ruby Vase'	Ruby Vase Persian ironwood		B		D							K				Hamamelidac.					Small
Parrotia persica 'JLColumnar'	Persian Spire ironwood	A	B													Hamamelidac.					Small
Parrotia persica 'Vanessa'	Vanessa Persian ironwood		B		D							K				Hamamelidac.					Small
Phellodendron amurense 'His Majesty'	His Majesty cork tree			C		E					J		L			Rutaceae				Medium	
Phellodendron amurense 'Longenecker'	Eyestopper cork tree			C		E					J		L			Rutaceae				Medium	
Picea pungens 'Hoopsii'	Hoop's Colorado blue spruce					E										Pinaceae		Yes		Medium	
Pinus cembra	Swiss stone pine			C		E					J		L			Pinaceae		Yes	Large		
Pinus durangensis	Durango pine					E		G		I			L	M	N	Pinaceae		Yes	Large		
Pinus flexilis 'Vanderwolf's Pyramid'	Vanderwolf's Pyramid pine				D							K				Pinaceae		Yes			Small
Pinus ponderosa var. benthamiana	Willamette Valley ponderosa pine					E		G		I			L	M	N	Pinaceae	Yes	Yes	Large		
Pinus sylvestris	Scots pine					E							L			Pinaceae		Yes	Large		
Pistacia chinensis	Chinese pistache		B		D		F		H			K				Anacardiaceae					Small
Pistacia chinensis 'Keith Davey'	Keith Davey Chinese pistache		B		D		F		H			K				Anacardiaceae					Small
Pistacia chinensis 'Pair's Choice'	Western Son Chinese pistache		B		D		F		H			K				Anacardiaceae					Small
Platanus x acerifolia 'Bloodgood'	Bloodgood London planetree					E		G		I			L	M	N	Platanaceae			Large		
Platanus x acerifolia 'Columbia'	Columbia London planetree					E		G		I			L	M	N	Platanaceae			Large		
Platanus x acerifolia 'Liberty'	Liberty London planetree					E		G		I			L	M	N	Platanaceae			Large		
Platanus x acerifolia 'Morton's Circle'	Exclamation London planetree					E		G		I			L	M	N	Platanaceae			Large		
Platanus x acerifolia 'Yarwood'	Yarwood London planetree							G		I			L	M	N	Platanaceae			Large		
Prunus emarginata	Bitter cherry						F		H			K				Rosaceae	Yes			Medium	

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
<i>Prunus salicina</i> 'Shiro'	Plum 'Shiro' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus virginiana</i> 'Canada Red'	Canada Red chokecherry		B		D							K				Rosaceae					Small
<i>Prunus x blireiana</i>	Bliereiana plum				D							K				Rosaceae					Small
<i>Prunus x domestica</i> 'Beauty'	Plum 'Beauty' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus x domestica</i> 'Brooks'	Plum 'Brooks' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus x domestica</i> 'Italian'	Plum 'Italian' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus x domestica</i> 'Methley'	Plum 'Methley' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus x domestica</i> 'Santa Rosa'	Plum 'Santa Rosa' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus x domestica</i> 'Seneca'	Plum 'Seneca' semi-dwarf						F		H							Rosaceae					Small
<i>Prunus x yedoensis</i>	Yoshino cherry								H			K				Rosaceae					Small
<i>Prunus x yedoensis</i> 'Akebono'	Akebono cherry								H			K				Rosaceae					Small
<i>Pseudotsuga menziesii</i>	Douglas-fir							G		I						Pinaceae	Yes	Yes	Large		
<i>Pyrus communis</i> 'Anjou'	Pear 'Anjou' semi-dwarf						F		H							Rosaceae					Small
<i>Pyrus communis</i> 'Bartlett'	Pear 'Bartlett' semi-dwarf						F		H							Rosaceae					Small
<i>Pyrus communis</i> 'Comice'	Pear 'Comice' semi-dwarf						F		H							Rosaceae					Small
<i>Pyrus communis</i> 'Moonglow'	Pear 'Moonglow' semi-dwarf						F		H							Rosaceae					Small
<i>Pyrus communis</i> 'Seckel'	Pear 'Seckel' semi-dwarf						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Chojuro'	Asian pear 'Chojuro'						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Hosui'	Asian pear 'Hosui'						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Korean Giant'	Asian pear 'Korean Giant'						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Kosui'	Asian pear 'Kosui'						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Nijiseiki'	Asian pear 'Nijiseiki'						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Seuri'	Asian pear 'Seuri'						F		H							Rosaceae					Small
<i>Pyrus pyrifolia</i> 'Shinseiki'	Asian pear 'Shinseiki'						F		H							Rosaceae					Small
<i>Quercus acutissima</i>	Sawtooth oak			C		E		G		I	J		L	M	N	Fagaceae				Medium	
<i>Quercus agrifolia</i>	Coast live oak							G		I				M	N	Fagaceae		Yes	Large		
<i>Quercus bicolor</i>	Swamp white oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus bicolor</i> 'JFS-KW12'	American Dream swamp white oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus buckleyi</i>	Texas red oak					E					J		L			Fagaceae				Medium	
<i>Quercus chrysolepis</i>	Canyon live oak					E		G		I			L	M	N	Fagaceae		Yes		Medium	
<i>Quercus coccinea</i>	Scarlet oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus douglasii</i>	Blue oak			C		E					J		L			Fagaceae				Medium	
<i>Quercus frainetto</i> 'Schmidt'	Forest Green oak			C		E					J		L			Fagaceae				Medium	
<i>Quercus garryana</i>	Oregon white oak					E		G		I			L	M	N	Fagaceae	Yes		Large		
<i>Quercus hypoleucoides</i>	Silverleaf oak			C		E					J		L			Fagaceae		Yes		Medium	
<i>Quercus ilex</i>	Holly oak							G		I				M	N	Fagaceae		Yes	Large		
<i>Quercus imbricaria</i>	Shingle oak							G		I				M	N	Fagaceae			Large		
<i>Quercus kelloggii</i>	California black oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus lobata</i>	Valley oak							G		I				M	N	Fagaceae			Large		
<i>Quercus lyrata</i>	Overcup oak							G		I				M	N	Fagaceae			Large		
<i>Quercus macrocarpa</i>	Bur oak					E		G		I			L	M	N	Fagaceae			Large		

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
<i>Quercus macrocarpa</i> 'JFS-KW14'	Cobblestone bur oak					E		G		I				M	N	Fagaceae			Large		
<i>Quercus macrocarpa</i> 'JFS-KW3'	Urban Pinnacle oak			C		E					J		L			Fagaceae			Large		
<i>Quercus muehlenbergii</i>	Chinkapin oak					E		G		I			L	M	N	Fagaceae				Medium	
<i>Quercus myrsinifolia</i>	Bamboo-leaf oak			C	D	E	F		H		J	K	L			Fagaceae		Yes		Medium	
<i>Quercus phellos</i>	Willow oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus robur</i> x <i>bicolor</i> 'Long'	Regal Prince oak			C		E							L			Fagaceae				Medium	
<i>Quercus shumardii</i>	Shumard oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus shumardii</i> 'Southern Plains'	Southern Plains Shumard oak			C		E					J		L			Fagaceae			Large		
<i>Quercus suber</i>	Cork oak					E		G		I			L	M	N	Fagaceae		Yes	Large		
<i>Quercus texana</i> (formerly <i>Q. nuttallii</i>)	Nuttall oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus virginiana</i>	Southern live oak							G		I				M	N	Fagaceae		Yes	Large		
<i>Quercus wislizeni</i>	Interior live oak					E		G		I			L	M	N	Fagaceae		Yes	Large		
<i>Quercus x bimundorum</i> 'Midwest'	Prairie Stature oak							G		I				M	N	Fagaceae			Large		
<i>Quercus x 'Crimschmidt'</i>	Crimson spire oak			C		E					J		L			Fagaceae				Medium	
<i>Quercus x 'JFS-KW1QX'</i>	Streetspire oak			C		E					J		L			Fagaceae				Medium	
<i>Quercus x morehus</i>	Oracle oak					E		G		I			L	M	N	Fagaceae			Large		
<i>Quercus x 'Tabor'</i>	Forest Knight oak							G		I				M	N	Fagaceae			Large		
<i>Rhamnus purshiana</i>	Cascara	A	B		D		F		H			K				Rhamnaceae	Yes				Small
<i>Sassafras albidum</i>	Sassafras					E		G								Lauraceae				Medium	
<i>Sequoia sempervirens</i>	Coast redwood							G		I						Cupressaceae		Yes	Large		
<i>Sequoia sempervirens</i> 'Aptos Blue'	Aptos Blue coast redwood							G		I						Cupressaceae		Yes	Large		
<i>Sequoia sempervirens</i> 'Santa Cruz'	Santa Cruz coast redwood							G		I						Cupressaceae		Yes	Large		
<i>Sequoia sempervirens</i> 'Soquel'	Soquel coast redwood							G		I						Cupressaceae		Yes	Large		
<i>Sequoiadendron giganteum</i>	Giant sequoia							G		I						Cupressaceae		Yes	Large		
<i>Sequoiadendron giganteum</i> 'Glaucum'	Blue giant sequoia							G		I						Cupressaceae		Yes		Medium	
<i>Styphnolobium japonicum</i> 'Halka'	Millstone Japanese pagodatree			C		E		G		I	J		L	M	N	Fabaceae				Medium	
<i>Styphnolobium japonicum</i> 'Princeton Upright'	Princeton Upright Japanese pagodatree			C		E		G		I	J		L	M	N	Fabaceae				Medium	
<i>Styrax japonicus</i>	Japanese snowbell		B		D							K				Styracaceae					Small
<i>Styrax japonicus</i> 'Emerald Pagoda'	Emerald Pagoda Japanese snowbell		B		D							K				Styracaceae					Small
<i>Styrax japonicus</i> 'JFS-D'	Snowcone Japanese snowbell		B		D							K				Styracaceae					Small
<i>Styrax japonicus</i> 'JFS-E'	Snow Charm Japanese snowbell	A	B		D							K				Styracaceae					Small
<i>Styrax japonicus</i> 'Pink Chimes'	Pink Chimes Japanese snowbell	A	B													Styracaceae					Small
<i>Styrax obassia</i>	Fragrant snowbell		B	C	D				H		J	K				Styracaceae					Small
<i>X Sycoparrotia semidecidua</i>	Sycoparrotia		B		D							K				Ulmaceae		Yes			Small
<i>Syringa reticulata</i> 'Ivory Silk'	Ivory Silk Japanese tree lilac	A	B													Oleaceae					Small
<i>Syringa reticulata</i> ssp. <i>pekinensis</i> 'Zhang Zhiming'	Beijing Gold tree lilac	A	B		D							K				Oleaceae					Small
<i>Syringa reticulata</i> ssp. <i>pekinensis</i> 'Morton'	China Snow tree lilac	A	B		D							K				Oleaceae					Small
<i>Syringa reticulata</i> ssp. <i>pekinensis</i> 'DTR 124'	Summer Charm tree lilac	A	B													Oleaceae					Small

Botanical name	Common name	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Family	Native	Evrgrn	Large	Medium	Small
Taxodium distichum	Bald cypress					E		G		I			L	M	N	Cupressaceae			Large		
Taxodium distichum 'JFS-SGPN'	Green Whisper bald cypress							G		I						Cupressaceae			Large		
Taxodium distichum 'Mickelson'	Shawnee Brave bald cypress					E							L			Cupressaceae			Large		
Taxodium distichum 'Skyward'	Lindsey's Skyward bald cypress	A	B													Cupressaceae					Small
Thuja plicata	Western redcedar					E		G		I			L	M	N	Cupressaceae	Yes	Yes	Large		
Thuja plicata 'Hogan'	Hogan western redcedar					E		G		I			L	M	N	Cupressaceae	Yes	Yes	Large		
Tilia americana 'Continental Appeal'	Continental Appeal linden					E		G		I			L	M	N	Malvaceae			Large		
Tilia americana 'McKSentry'	American Sentry linden					E		G		I			L	M	N	Malvaceae				Medium	
Tilia cordata 'Chancole'	Chancellor littleleaf linden					E					J		L			Malvaceae				Medium	
Tilia cordata 'Greenspire'	Greenspire linden					E							L			Malvaceae				Medium	
Tilia cordata 'Halka'	Summer Sprite linden				D		F		H			K				Malvaceae					Small
Tilia platyphyllos	Bigleaf linden							G		I			L	M	N	Malvaceae			Large		
Tilia tomentosa 'Sterling'	Sterling silver linden			C		E					J		L			Malvaceae					Small
Tilia x 'Redmond'	Redmond linden					E							L			Malvaceae				Medium	
Tilia x flavescens 'Glenleven'	Glenleven linden					E		G		I			L	M	N	Malvaceae			Large		
Tilia x 'Harvest Gold'	Harvest Gold linden					E							L			Malvaceae					Small
Tsuga heterophylla	Western hemlock							G		I						Pinaceae	Yes	Yes	Large		
Ulmus americana 'Jefferson'	Jefferson elm					E		G		I			L	M	N	Ulmaceae			Large		
Ulmus americana 'Valley Forge'	Valley Forge elm					E		G		I			L	M	N	Ulmaceae			Large		
Ulmus parvifolia 'Emerald Prairie'	Emerald Prairie lacebark elm			C		E					J		L			Ulmaceae				Medium	
Ulmus parvifolia 'Golden Rey'	Golden Rey lacebark elm					E		G		I	J		L	M	N	Ulmaceae			Large		
Ulmus parvifolia 'UPMTF'	Bosque lacebark elm			C		E		G		I	J		L	M	N	Ulmaceae				Medium	
Ulmus propinqua 'JFS-Bieberich'	Emerald Sunshine elm			C		E					J		L			Ulmaceae					Small
Ulmus x 'Frontier'	Frontier elm			C		E					J		L			Ulmaceae				Medium	
Ulmus x 'Morton'	Accolade elm					E		G		I			L	M	N	Ulmaceae			Large		
Ulmus x 'Morton Glossy'	Triumph elm					E		G		I			L	M	N	Ulmaceae			Large		
Ulmus x 'Patriot'	Patriot elm					E		G		I			L	M	N	Ulmaceae			Large		
Ulmus x 'Prospector'	Prospector elm					E							L			Ulmaceae				Medium	
Umbellularia californica [4]	Oregon myrtle					E		G		I			L	M	N	Lauraceae		Yes		Medium	
Zelkova serrata 'Green Vase'	Green Vase zelkova					E		G		I			L	M	N	Ulmaceae			Large		
Zelkova serrata 'JFS-KW1'	City Sprite zelkova		B		D							K				Ulmaceae					Small
Zelkova serrata 'Musashino'	Musashino zelkova			C		E					J		L			Ulmaceae			Large		
Zelkova serrata 'Schmidtlow'	Wireless zelkova						F		H							Ulmaceae					Small
Zelkova serrata 'Village Green'	Village Green zelkova			C		E					J		L			Ulmaceae				Medium	

APPENDIX H: Approved Trial Street Tree List

Portland Lists Key:

- A** 2.5ft - 3ft
- B** 3ft - 4ft
- C** 4ft - 6ft w/o HV
- D** 4ft - 6ft with HV
- E** 6-8ft w/o lines
- F** > 6ft with HV
- G** > 8.5ft w/o lines
- H** (FU) - Unimproved F List: > 6ft with HV
- I** (GU) - Unimproved G List: > 8.5ft w/o lines
- J** (CC) - Curb No Sidewalk C List: 4ft - 6ft w/o HV
- K** (CD) - Curb No Sidewalk D List: 4ft - 6ft with HV
- L** (EOL) - E with other lines (w/o HV)
- M** (GOL) - G with other lines (w/o HV)
- N** (GUOL) - Unimproved G with other lines (w/o HV)

Botanical name	Common name	Strip Code														Family	Native	Evrgrn	Large	Medium	Small
		A	B	C	D	E	F	G	H	I	J	K	L	M	N						
A Priority trial species		A	B	C	D	E	F	G	H	I	J	K	L	M	N		Native	Evrgrn	Large	Medium	Small
Abies pinsapo	Spanish fir					E				J						Pinaceae		Yes	Large		
Abies pinsapo 'Glauca'	Blue Spanish fir					E				J						Pinaceae		Yes	Large		
Arbutus arizonica	Arizona madrone			C		E				J		L				Ericaceae		Yes		Medium	
Carpinus caroliniana 'JN Strain Upright'	Firespire hornbeam	A	B		D							K				Betulaceae					Small
Carpinus henryana	Henry hornbeam					E		G		I			L	M	N	Betulaceae			Large		
Celtis julianae	Julian hackberry							G		I						Ulmaceae			Large		
Cupressus sargentii	Sargent cypress					E		G		I						Cupressaceae		Yes	Large		
Eucalyptus pauciflora ssp. debeuzevillei	Jounama snow gum			C	D					J	K					Myrtaceae		Yes			Small
Franklinia alatamaha	Franklin tree	A	B		D							K				Theaceae					Small
Koelreuteria paniculata 'Golcanzam'	Golden Candle goldenrain tree	A	B													Sapindaceae					Small
Magnolia grandiflora 'TMGH'	Alta southern magnolia		B		D							K				Magnoliaceae					Small
Magnolia x 'Daybreak'	Daybreak magnolia		B		D							K				Magnoliaceae					Small
Magnolia maudiae	Smiling monkey forest tree		B		D							K				Magnoliaceae		Yes			Small
Nothofagus obliqua	Roble Chilean beech					E		G		I			L	M	N	Nothofagaceae			Large		
Photinia serrulata	Chinese photinia				D		F		H			K				Rosaceae		Yes			Small
Pinus heldreichii	Bosnian pine			C		E				J		L				Pinaceae		Yes		Medium	

Pteroceltis tatarinowii	Tatarinow's winged hackberry			C		E				J		L			Ulmaceae				Medium		
Quercus arizonica	Arizona white oak					E	G		I		L	M	N	Fagaceae			Large				
Quercus canbyi	Canby oak		B		D	F		H		K				Fagaceae					Small		
Quercus laceyi	Lacey oak				D	F		H		K				Fagaceae		Yes			Small		
Quercus lyrata 'QLFTB'	Highbeam overcup oak						G		I			M	N	Fagaceae			Large				
Quercus x comptoniae	Compton oak					E					L			Fagaceae			Large				
Quercus mexicana	Mexican oak				D	F		H		K				Fagaceae					Small		
Quercus oblongifolia	Mexican blue oak				D	F		H		K				Fagaceae		Yes			Small		
Quercus polymorpha	Monterrey oak					E	G		I		L	M	N	Fagaceae		Yes		Medium			
Quercus tomentella	Channel Island oak			C						J				Fagaceae		Yes		Medium			
Quercus virginiana 'Cathedral'	Cathedral southern live oak					E	G		I		L	M	N	Fagaceae			Large				
Stewartia monadelpha	Orangebark stewartia		B		D	F								Theaceae					Small		
Sycopsis sinensis	Chinese fig hazel	A	B											Hamamelidac.		Yes			Small		
Ulmus x 'New Horizon'	New Horizon elm						G		I		L	M	N	Ulmaceae			Large				
B Priority trial species		A	B	C	D	E	F	G	H	I	J	K	L	M	N		Native	Evrgrn	Large	Medium	Small
Amelanchier canadensis 'Glennform'	Rainbow Pillar serviceberry	A	B												Rosaceae					Small	
Chrysolepis chrysophylla	Golden chinkapin							G		I			M	N	Fagaceae		Yes	Large			
Crataegus crus-galli var. inermis 'Cruzam'	Crusader thornless cockspur hawthorn		B		D	F		H		K					Rosaceae					Small	
Crataegus viridis 'Winter King'	Winter King green hawthorn	A	B		D	F		H		K					Rosaceae					Small	
Halesia carolina 'Arnold Pink'	Arnold Pink Carolina silverbell			C		E				J		L			Styracaceae					Small	
Halesia carolina 'JFS-PN2 Legacy'	Crushed Velvet Carolina silverbell	A	B												Styracaceae					Small	
Halesia carolina 'Rosy Ridge'	Rosy Ridge Carolina silverbell		B		D							K			Styracaceae					Small	
Halesia carolina 'UConn Wedding Bells'	Wedding Bells Carolina silverbell	A	B												Styracaceae					Small	
Halesia diptera var. magniflora	Two-winged silverbell	A	B												Styracaceae					Small	
Halesia monticola	Mountain silverbell			C		E				J		L			Styracaceae				Medium		
Lagerstroemia x fauriei 'Pecos'	Pecos crape myrtle	A	B												Lythraceae					Small	
Magnolia laevifolia	Yunnan michelia		B		D							K			Magnoliaceae		Yes			Small	
Malus fusca	Pacific crabapple				D							K			Rosaceae	Yes				Small	
Quercus engelmannii	Engelmann oak					E									Fagaceae		Yes		Medium		
Tilia henryana	Henry linden							G		I		L	M	N	Malvaceae			Large			
Ulmus americana 'New Harmony'	New Harmony elm							G		I		L	M	N	Ulmaceae			Large			

Street Tree List: Bellingham, WA



PARKS & RECREATION DEPARTMENT
3424 Meridian Street Bellingham, WA 98225
Telephone (360) 778-7000 ♦ FAX (360) 778-7001

STREET TREES

The City of Bellingham recognizes the contribution of street trees to the livability of this community. Street trees provide aesthetic, historic, biologic and functional benefits which contribute to the quality of life in this City. The benefits of street trees include: soil stabilization and erosion control, reduction of storm water runoff, removal of carbon dioxide from the air, visual screening, protection from severe weather, habitat for birds, enhancement of property values, and conservation of the City's aesthetic values.

As a means to preserve and encourage the use of street trees and other plant material in our City's development, the City of Bellingham has compiled a list of approved trees to assist you with selection. The listed trees are a guideline for planting inside the public right-of-way; they are not approved for every location and every condition. We recommend that you consult a landscape design professional in the selection of an appropriate street tree and other vegetation for your site before you submit an application for a street tree permit. Planting the right tree in the right place, at the right time, and in the right way, can provide an important contribution to the City for generations to come.

The City of Bellingham requires an approved Street Tree Permit before planting, removing, or pruning trees and other vegetation in a developed right-of-way. You can obtain a street tree permit application from the Permit Center located in City Hall at 210 Lottie Street, Bellingham WA 98225. Submit your street tree permit applications with your landscape plans to the Permit Center, where it will be routed to the Planning Department, Department of Public Works, and Parks and Recreation Department for review and approval.

Thank you for your support of this important community resource!

References:
BMC Titles 13, 18 and 20
Policy PAR 06.00.01

City of Bellingham
Parks and Recreation Department
List of Approved Street Trees

Small Trees (>15' to 25' Ht.)

Suitable for planting under overhead utilities at least 30' in height, 3'-4' wide planting strips, spatially confined spaces, and small-scale residential areas.

Botanical Name	Common Name	*Ht x W (Feet)	Shape	Sun Req't	Growth Rate	Canopy Density	Flower	Foliage Color	Autumn Color	Comments
<i>Acer buergerianum</i>	Trident Maple	25 x 20	O-R	S-LSh	Slow	D	ND	DG	Y	Must be street tree trained, cultivars
<i>Acer circinatum</i>	Vine Maple	20 x varies	V-I	S-LSh	.5' / year	O	R	G	R-Y	Must be street tree trained
<i>Acer davidii</i>	David's Maple	25 x 25	R	LS	1'/year	O	NR	MG	Y	
<i>Acer tartaricum ssp. ginnala</i>	Amur maple	20 x 20	R	S	1' / year or less	O	Y-W	DG	R-O-Y	Must be street tree trained
<i>Acer glabrum</i>	Rocky Mountain Maple	25 x 20	I-R	S	.5' / year	O	G	G	R-O-Y	Must be street tree trained, residential use
<i>Acer grandidentatum "Schmidt"</i>	Big Tooth	25 x 15	I-R	S-LSh	2' /year	M	Y	G	R-O-Y	Must be street tree trained, residential use
<i>Acer griseum</i>	Paperbark Maple	25 x 25	Up-O-R	S-LSh	1'/year	D	ND	DG	R	Must be street tree trained, cultivars
<i>Acer palmatum</i>	Japanese Maple	varies	varies	varies	4'-5'/year	varies	varies	varies	varies	Must be street tree trained
<i>Amelanchier canadensis</i>	Shadblow Serviceberry	20 x 10	Up	S	2'/year	O	W-C	G	Go	Must be street tree trained, residential use, wet sites
<i>Amelanchier laevis</i>	Allegheny Serviceberry	25 x 25	Umb	n/a	2'/year	M	W-C	G	ND	Must be street tree trained, residential use
<i>Amelanchier x grandiflora "Autumn Brilliance"</i>	Apple Serviceberry	25 x 20	O	n/a	2'/year	O	P	G	ND	Must be street tree trained, residential use
<i>Arbutus "Marina"</i>	Marina Madrone	25 x 15	Up	S	unk	O	P	G	EG	Substitute for Pacific Madrone
<i>Carpinus caroliniana</i>	American Hornbeam	25 x 25	R	Sh	.5' /year	M	ND	DG	R-O-Y	
<i>Carpinus japonicus</i>	Japanese Hornbeam	25 x 20	O	S-LSh	1' /year	M	G	G	ND	
<i>Cornus kousa "Chinensis"</i>	Chinese Dogwood	20 x 20	Up-I	S-LSh	1' /year	M	W	DG	R	Must be street tree trained, residential use
<i>Cornus mas</i>	Cornelian Cherry Dogwood	25 x 20	Up	S-LSh	2' /year	M	Y	DG	ND	
<i>Crataegus x Lavallei</i>	Lavalle Hawthorn	25 x 17	O	S	1' /year	D	W-R-Pi	DG	Bronze-Co-Y	
<i>Fraxinus pennsylvanica "Johnson"</i>	Leprechaun Ash	18 x 16	R	S	unk	M	G	G	Y	
<i>Magnolia grandiflora "Little Gem"</i>	Little Gem Magnolia	15 x 10	R	S-LSh	unk	M	W	G	Y	Residential only
<i>Zelkova serrata "Schmidtlow"</i>	Wireless Zelkova	24 x 35	S	S	Medium	M	ND	G	R	Exfoliating bark. Color: Orange, grey and brown.

* Mature size

Abbreviation Key

Shape: B (Broad), C (Columnar), I (Irregular), N (Narrow), O (Oval), Pe (Pendulous), Py (Pyramidal), R (Round), S (Spreading), Up (Upright), Umb (Umbrella), V (Vase)

Sun Requirements: S (Sun), PS (Part Sun), Sh (Shade), LSh (Light Shade), V (varies)

Canopy Density: D (Dense), F (Feathery), L (Light), M (Medium), O (Open), P (Pendulous), V (varies)

Flower Color: C (Cream), G (Green), M (Magenta), ND (Non-descript), R (Red), O (orange), Pi (Pink), Pu (Purple), V (varies), W (White), Y (Yellow)

Foliage Color: BL-G (Blue Green), BrG (Bright Green), DG (Dark Green), G (Green), GG (Gray Green), LG (Light Green), MG (Medium Green), PeG (Pea Green), Pu-G (Purple Green), V (varies)

Autumn Color: Bronze, Br (Brown), Co (Copper), Cr (Crimson), EG (Evergreen), G (Green), G (Gold), GY (Golden Yellow), Ma (Maroon), O (Orange), Pi (Pink), Pl-Pu (Plum Purple), Pu (purple), R (Red), S (Scarlet), TY (Tired Yellow), Y (Yellow), V (varies)

Not all trees on this list of approved street trees are appropriate for every location.

We recommended that applicants consult a landscape design professional before submitting a Street Tree Permit Application.

City of Bellingham
Parks and Recreation Department
List of Approved Street Trees

Small to Medium Trees (>25' to 40' Ht.)

Suitable for planting under overhead utilities at least 45' in height, planting strips 5' in width or greater, and 5'x5' in-sidewalk tree wells.

Botanical Name	Common Name	*Ht x W (Feet)	Shape	Sun Req't	Growth Rate	Canopy Density	Flower	Foliage Color	Autumn Color	Comments
<i>Acer campestre</i>	Hedge Maple	30 x 30	R	S	1'/year	D	ND	DG	Y	Many cultivars
<i>Acer truncatum</i> x <i>A. platanoides</i> "Warren Red"	Pacific Sunset Maple	30 x 25	O	S-LSH	.5' / year	M	ND	DG	R-O	
<i>Cornus "Eddie's White Wonder"</i>	Eddie's White Wonder Dogwood	30 x 20	Up	S-LSH	.5' /year	M	W	G	R	Irrigation/rich, well drained soil
<i>Acer truncatum</i> x <i>A. Platanoides</i> "Keithsform"	Norwegian Sunset Maple	35 x 25	O	n/a	.5' / year	M	ND	DG	R-O	
<i>Cercis canadensis</i>	Eastern Redbud	30 x 30	R	S	1.5' /year	M	Pi-M	DG	TY	No wet soils/cultivars
<i>Crataegus phaenopyrum</i>	Washington Hawthorn	30 x 25	O	S	1' /year	D	W	DG	S-O-Y	Cultivars
<i>Fraxinus holotricha</i>	Balkan Ash	35 x 35	R	S	2' /year	L	G	G	Go	
<i>Betula pendula</i>	European Birch	40 x 25	Up-Pe	n/a	1' /year	O	ND	G	Y	
<i>Davidia involucreata</i>	Dove-tree	40 x 40	Py	LSH	<1' /year	M	W	BG	ND	Requires irrigation & rich, well drained soil/cultivars
<i>Fraximus excelsior "Globosa"</i>	Globe Ash	30'x30'	S	S	1' /year	M	ND	G	Y	
<i>Fraxinus oxycarpa</i>	Flame Ash	45 x 30	N	S	1' /year	M	ND	G	Pl-Pu	
<i>Fraxinus pennsylvanica "Patmore"</i>	Patmore Ash	45 x 35	R	S	1' /year	M	G	G	Y	
<i>Ginkgo biloba</i>	Gingko, Maidenhair Tree	45 x 35	Py	S	1' /year	L	n/a	G	Y	Male plant only. Cultivars are available.
<i>Koelreuteria paniculata</i>	Golden Rain Tree	30 x 30	I	S	1' /year	L	Y	G	Y	
<i>Magnolia kobus</i>	Kobus Magnolia	35 x 35	R	LSH	1' /year	M	W w/Pu	DG	Poor	Must be street tree trained
<i>Magnolia x Soulangeana</i>	Saucer Magnolia	30 x 15	Up	S	1' /year	M	W-Pi/Pu	DG	Y-Br	
<i>Oxydendron arboreum</i>	Sourwood	30 x 15	Py	S-LSH	<1' /year	M	G/Y	G	Y-R-Pu	Fragrant flw, attracts birds and bees, shallow roots, drained soil
<i>Parrotia persica</i>	Persian ironwood	30 x 20	O-R	S-LSH	1' /year	D	R Stament	G	R-O-Y	Deep, moist soil/residential only
<i>Pterocarya fraxinifolia</i>	Caucasian wingnut	40 x 40	S	S-LSH	1' /year	M	ND	DG	ND	
<i>Robinia x ambigua "Idahoensis"</i>	Purple Robe Locust	40 x 25	O	S	2' /year	M	Pi		Y	Spiny stems
<i>Styrax japonica</i>	Japanese Snowdrop	30 x 25	Py	S-LSH	1' /year	D	W	G	Y	Moist, well drained soil
<i>Tetracentron sinense</i>	Tetracentron	30 x 20	Up	LSH	<1' /year	D	Y-G	DG	R	Deep, moist soil/cultivars

* Mature size

Abbreviation Key

Shape: B (Broad), C (Columnar), I (Irregular), N (Narrow), O (Oval), Pe (Pendulous), Py (Pyramidal), R (Round), S (Spreading), Up (Upright), Umb (Umbrella), V (Vase)

Sun Requirements: S (Sun), PS (Part Sun), Sh (Shade), LSH (Light Shade), V (varies)

Canopy Density: D (Dense), F (Feathery), L (Light), M (Medium), O (Open), P (Pendulous), V (varies)

Flower Color: C (Cream), G (Green), M (Magenta), ND (Non-descript), R (Red), O (orange), Pi (Pink), Pu (Purple), V (varies), W (White), Y (Yellow)

Foliage Color: BL-G (Blue Green), BrG (Bright Green), DG (Dark Green), G (Green), GG (Gray Green), LG (Light Green), MG (Medium Green), PeG (Pea Green), Pu-G (Purple Green), V (varies)

Autumn Color: Bronze, Br (Brown), Co (Copper), Cr (Crimson), EG (Evergreen), G (Green), G (Gold), GY (Golden Yellow), Ma (Maroon), O (Orange), Pi (Pink), Pl-Pu (Plum Purple), Pu (purple), R (Red), S (Scarlet), TY (Tired Yellow), Y (Yellow), V (varies)

Not all trees on this list of approved street trees are appropriate for every location.

We recommended that applicants consult a landscape design professional before submitting a Street Tree Permit Application.

City of Bellingham
Parks and Recreation Department
List of Approved Street Trees

Medium Trees (>40' to 50' Ht.)

Not suitable for planting under overhead utilities. Suitable for planting strips greater than 5' in width, and in tree wells 5'x5', or greater.

Botanical Name	Common Name	*Ht x W (Feet)	Shape	Sun Req't	Growth Rate	Canopy Density	Flower	Foliage Color	Autumn Color	Comments
<i>Acer platanoides</i> "choose a cultivar"	Norway Maple	50 x 40	U-R	S	2'/year	M	ND	varies	varies	No narrow upright tree forms allowed/irrigation/cultivars
<i>Acer rubrum</i> "choose a cultivar"	Red Maple	50 x 50	varies	n/a	3'/year	M	R	varies	varies	No narrow upright tree forms allowed
<i>Arbutus menziesii</i>	Madrone	50 x 25	Up	S	.5' /year	M	C	G	EG	Requires special consideration by City, granular soil
<i>Carpinus betulus</i>	European Hornbeam	50 x 30	R-Up	S-LSH	1' /year	D	ND	DG	Y	
<i>Cercidiphyllum japonicum</i>	Katsuratree	50 x 30	O	S-LSH	2.5' /Year	M	ND	PG	Y-Pi	Needs irrigation, protect from hot sun and drying wind
<i>Fraxinus ornus</i>	Flowering Ash	50 x 50	R	S	1' /year	L	White	G	Y w/ Ma	
<i>Nyssa sylvatica</i>	Black Tupelo	50 x 30	I-R	S	1' /year	D	ND	DG	Cr w/ Pu	Deep moist soil/cultivars only
<i>Quercus muehlenbergii</i>	Chinkapin oak	50 x 50	R	S	>1'/year	M	ND	Y-G	R-O-Y	No proven urban tolerance
<i>Quercus garryana</i>	Oregon White Oak	50 x 50	R	S	<1' /year	M	ND	G	Y	Well drained soil, dry soil
<i>Quercus robur x alba</i> "Crimschmidt"	Crimson Spire Oak	45 x 15	C	S	1'/year	D	ND	DG toBl-G	R	Irrigate to establish. Mod to low irrig after establishment. Well drained slightly acidic soil. Good sonic and visual screen.

* Mature size

Abbreviation Key

Shape: B (Broad), C (Columnar), I (Irregular), N (Narrow), O (Oval), Pe (Pendulous), Py (Pyramidal), R (Round), S (Spreading), Up (Upright), Umb (Umbrella), V (Vase)

Sun Requirements: S (Sun), PS (Part Sun), Sh (Shade), LSh (Light Shade), V (varies)

Canopy Density: D (Dense), F (Feathery), L (Light), M (Medium), O (Open), P (Pendulous), V (varies)

Flower Color: C (Cream), G (Green), M (Magenta), ND (Non-descript), R (Red), O (orange), Pi (Pink), Pu (Purple), V (varies), W (White), Y (Yellow)

Foliage Color: BL-G (Blue Green), BrG (Bright Green), DG (Dark Green), G (Green), GG (Gray Green), LG (Light Green), MG (Medium Green), PeG (Pea Green), Pu-G (Purple Green), V (varies)

Autumn Color: Bronze, Br (Brown), Co (Copper), Cr (Crimson), EG (Evergreen), G (Green), G (Gold), GY (Golden Yellow), Ma (Maroon), O (Orange), Pi (Pink), Pl-Pu (Plum Purple), Pu (purple), R (Red), S (Scarlet), TY (Tired Yellow), Y (Yellow), V (varies)

Not all trees on this list of approved street trees are appropriate for every location.

We recommended that applicants consult a landscape design professional before submitting a Street Tree Permit Application.

City of Bellingham
Parks and Recreation Department
List of Approved Street Trees

Large Trees (>50' Ht.)

Not suitable for planting under overhead utilities. Suitable for planting strips and medians greater than 10' in width.

Botanical Name	Common Name	*Ht x W (Feet)	Shape	Sun Req't	Growth Rate	Canopy Density	Flower	Foliage Color	Autumn Color	Comments
<i>Acer saccharum</i>	Sugar Maple	75 x 50	R-O	S-LSH	1' /year	D	Y	DG	Pi-O-R	Only for planting strips over 30 in width, rich well drained soil
<i>Fagus grandifolia</i>	American Beech	70 x 50	O	S	<1' /year	D	ND	DG	ND	Moist, well drained soil
<i>Fagus sylvatica</i>	European Beech	55 x 40	Py	S	1' /year	D	ND	DG	ND	Tolerates wider range of soils/cultivars
<i>Fraxinus americana</i>	White Ash	70 x 70	Up-O	S	2' /year	M	ND	DG	Y w/ Ma	No dry, rocky soils/cultivars
<i>Fraxinus excelsior</i>	European Ash	70 x 70	R-B	S	2' /year	M	G	G	Go	Deep moist loamy soil/cultivars
<i>Fraxinus latifolia</i>	Oregon Ash	60 x 40	Up-I	S	3' /year	M	G	G	TY	
<i>Fraxinus pennsylvanica</i>	Green Ash	60 x 30	Py-I	S	3' /year	M	G-R/Pu	G	Y w/ Ma	Deep moist loamy soil/cultivars
<i>Gleditsia triacanthos</i> (thornless and fruitless only)	Honey Locust	60 x 60	I	S	2' /year	L	Y-G	LG	Y	No thorns
<i>Liquidambar styraciflua</i>	American Sweetgum "cultivars"	70 x 45	O-Up	S	3' /year	D	ND	DG	Ma-R-Y	Moist, rich, well drained soils, cultivars
<i>Liriodendron tulipifera</i>	Tulip Tree	80 x 50	Up	S	2' /year	D	Y-G	DG	GY	Moist, rich, well drained soils, cultivars
<i>Magnolia acuminata</i>	Cucumber Tree	70 x 45	R	S-LSH	2' /year	D	Y-G	DG	Br	Deep moist loamy soil/cultivars/residential only
<i>Magnolia grandiflora</i>	Southern Magnolia	70 x 40	Py	S-LSH	1' /year	D	W	DG	n/a	Deep moist loamy soil/cultivars/residential only
<i>Quesrcus coccinea</i>	Scarlet Oak	60 x 45	R-S	S	2' /year	M	R	G	S	Well drained soil
<i>Quercus palustris</i>	Pin Oak	60 x 30	Py	S	2' /year	M	ND	G	Bronze	
<i>Quercus robur</i>	English Oak	75 x 75	Py-R	S	1' /year	D	ND	DG	ND	Well drained soil
<i>Quercus rubra</i>	Red Oak	75 x 75	R	S	2' /year	M	ND	DG	R	Well drained soil
<i>Tilia tomentosa</i> cultivar	silver linden	65 x 30	varies	S	unk	varies	ND	GG	Y	
<i>Tilia cordata</i>	Little Leaf Linden	65 x 30	Up-O	S	2' /year	M	Y-G	DG	Y	Deep moist soil/cultivars only
<i>Ulmus americana</i> (Dutch Elm Disease Resistant only)	American Elm	70 x 35	varies	S	2' /year	M	G-R	DG	Y	
<i>Umeellularia californica</i>	Oregon Myrtle	70 x 50	R	S	1' /year	O	C-W	DG	n/a	Moist, well drained soil/cultivar
<i>Zelkova serrata</i>	Japanese Zelkova	80 x 60	varies	S	2' /year	D	ND	DG	Y-O-Br	Cultivars are available

* Mature size

Abbreviation Key

Shape: B (Broad), C (Columnar), I (Irregular), N (Narrow), O (Oval), Pe (Pendulous), Py (Pyramidal), R (Round), S (Spreading), Up (Upright), Umb (Umbrella), V (Vase)

Sun Requirements: S (Sun), PS (Part Sun), Sh (Shade), LSh (Light Shade), V (varies)

Canopy Density: D (Dense), F (Feathery), L (Light), M (Medium), O (Open), P (Pendulous), V (varies)

Flower Color: C (Cream), G (Green), M (Magenta), ND (Non-descript), R (Red), O (orange), Pi (Pink), Pu (Purple), V (varies), W (White), Y (Yellow)

Foliage Color: BL-G (Blue Green), BrG (Bright Green), DG (Dark Green), G (Green), GG (Gray Green), LG (Light Green), MG (Medium Green), PeG (Pea Green), Pu-G (Purple Green), V (varies)

Autumn Color: Bronze, Br (Brown), Co (Copper), Cr (Crimson), EG (Evergreen), G (Green), Go (Gold), GY (Golden Yellow), Ma (Maroon), O (Orange), Pi (Pink), PI-Pu (Plum Purple), Pu (purple), R (Red), S (Scarlet), TY (Tired Yellow), Y (Yellow), V (varies)

Not all trees on this list of approved street trees are appropriate for every location.

We recommended that applicants consult a landscape design professional before submitting a Street Tree Permit Application.

City of Bellingham
Parks and Recreation Department
List of Conditionally Approved Street Trees

Botanical Name	Common Name	Ht x W (Feet)		Sun Req't	Growth Rate	Canopy		Foliage Color	Autumn Color	Comments
		mature	Shape			Density	Flower			
<i>Abies grandis</i>	Grand Fir	100 x 40	Py	S-Sh	<1' /year	F	n/a	G	n/a	Moist humus soil
<i>Acer macrophyllum</i>	Big-leaf Maple	60 x 60	R	S-LSH	1' /year or less	D	Y-G	G	Y	Only for planting strips over 30' width
<i>Aesculus hippocastinum "Baumanni"</i>	Horsechestnut	70 x 60	Up-O-R	S	.5' /year	D	W-C	DG	Y	Only for planting strips over 30' width, Avoid dry areas
<i>Aesculus x carnea "Briottii"</i>	Red Horsechestnut	30 x 35	R	S	.5' /year	D	R	DG	ND	Resists drought better than other Horsechestnuts
<i>Acer rubrum "Armstrong"</i>	Armstrong red maple	10 x 60	N	S	1' /year	M	ND	G	R	Strongly narrow tree
<i>Betulus utilis var. jacquemantii</i>	Jacquemontii Birch	40 x 30	Up	S-LSH	1' /year	O	ND	DG	Y	
<i>Calocedrus decurrens</i>	Incense Cedar	70 x 35	Py	S	2' /year	D	n/a	DG	n/a	Dry
<i>Chamaecyparis nootkatensis</i>	Alaska Yellow Cedar	60 x varies	Py	S-Sh	<1' /year	P	n/a	DG	n/a	Moist humus soil
<i>Clerodendron trichotomum</i>	Harlequin Glorybower	12 x 10	I-R	S	1' /year	M	W	DG	none	May die back, residential use only
<i>Juglans nigra</i>	Black Walnut	100 x 100	Up	S	1' /year	D	n/a	DG	n/a	
<i>Metasequoia glyptostroboides</i>	Dawn Redwood	70 x 25	Py	S	3' /year	L	n/a	PeG	Bronze	Only for planting strips over 30' in width
<i>Malus sp.</i>	Flowering Crabapple	varies	varies	S	varies	M	varies	G	varies	
<i>Malus transitoria "Schmidtcutleaf"</i>	Golden Raindrops Crabapple	20x15	Vase	S	varies	M	W	G		Drought tolerant
<i>Picea Abies</i>	Norway Spruce	60 x 25	Py	S	2' /year	D-P	n/a	DG	n/a	Well Drained Soil
<i>Picea sitchensis</i>	Sitka Spruce	180 x 20	Py	S	1' /year	D-P	n/a	DG	n/a	Moist well drained soil
<i>Pinus contorta</i>	Shore Pine	50 x varies	R	S	<1' /year	D	n/a	G	n/a	Moist well drained soil
<i>Pinus latifolia</i>	Lodgepole Pine	110 x varies	Col	S	<1' /year	O	n/a	G	n/a	Well drained soil
<i>Pinus monticola</i>	Western White Pine	150 x 50	Up	S	1' /year	O	n/a	Bl-G	n/a	Well drained soil
<i>Pinus ponderosa</i>	Ponderosa Pine	100 x 30	Py	S	2' /year	M	n/a	G	n/a	Moist well drained soil
<i>Prunus sp.</i>	Flowering Cherry	varies	varies	S	varies	varies	varies	G	varies	
<i>Psuedotsuga menseisii</i>	Douglas Fir	250 x varies	Up	S	2' /year	M	n/a	G	n/a	Well drained soil
<i>Prunus sp.</i>	Flowering Plum	varies	varies	S	varies	varies	varies	Pu-G	varies	
<i>Pyrus sp.</i>	Flowering Pear	varies	varies	S	varies	D	W	G	varies	
<i>Rhamnus purshiana</i>	Cascara	50 x 30	Up	S-LSH	1' /year	O	White	G	Y-O	Moist, well drained soil, use in restoration areas
<i>Sorbus aucuparia "Mitchred"</i>	Cardinal Royal Mt. Ash	35 x 20	Up	S	2' /year	M	W	G	O-R	
<i>Sorbus spp</i>	Mountain Ash	20 x 20	R	S	2' /year	M	W	G	varies	
<i>Thuja plicata</i>	Western Red Cedar	200 x varies	Py	S-LS	2' /year	D-M	n/a	G	n/a	Moist humus soil
<i>Tsuga heterophylla</i>	Western Hemlock	150 x 50	Py	S-LS	1' /year	F	n/a	G	n/a	Moist humus soil
<i>Tsuga mertensiana</i>	Mountain Hemlock	30-100	Py	S	<1' /year	D	n/a	GG	n/a	Moist soil if in the sun

TREES NOT APPROVED FOR USE AS STREET TREES

Botanical Name	Common Name
<i>Acer psuedoplatanus</i>	Planetree Maple
<i>Acer negundo</i>	Box Elder
<i>Ailanthus altissima</i>	Tree of Heaven
<i>Albizia sp.</i>	Mimosa Tree
<i>Alnus rubra</i>	Red Alder
<i>Betulus alba</i>	White Birch, Weeping Birch
<i>Catalpa</i>	Catalpa
<i>Cratagus oxycantha, laevigata</i>	English Hawthorn
<i>Gingko biloba</i>	All female gingkos
<i>Juglans nigra</i>	Walnut
<i>Fruiting Malus sp.</i>	All fruiting apple
<i>Platanus sp.</i>	Planetree
<i>Populus sp.</i>	Poplar, Aspen
<i>Prunus "Amanagawa"</i>	Amanagawa Cherry
<i>Prunus x billreana</i>	Billreana Plum
<i>Fruiting Prunus sp.</i>	All fruiting cherry or plum
<i>Fruiting Pyrus sp.</i>	All fruiting pear
<i>Robinia pseudoacacia</i>	Black Locust
<i>Salix</i>	Willow
<i>Sophora japonica</i>	Pagoda Tree
<i>Tilia americana</i>	Basswood
<i>Ulmus pumila</i>	Siberian Elm

"Conditionally Approved" defined:

Trees on this list have characteristics that make them generally undesirable as street trees. These negative characteristics include, among others: susceptibility to disease and insect infestation, negative effects on nearby overhead or underground utilities, and inherently poor structure. However, we understand that certain trees on this list may be appropriate in certain conditions, such as: plantings in wide setbacks from paved surfaces, the need to match existing planting schemes, and tight planting spaces and volumes. Applicants who want to use trees from this list are strongly encouraged to contact the Parks and Recreation Department **before** submitting their street tree permit application for review and approval.

Abbreviation Key

Shape: B (Broad), C (Columnar), I (Irregular), N (Narrow), O (Oval), Pe (Pendulous), Py (Pyramidal), R (Round), S (Spreading), Up (Upright), Umb (Umbrella), V (Vase)

Sun Requirements: S (Sun), PS (Part Sun), Sh (Shade), LSh (Light Shade), V (varies)

Canopy Density: D (Dense), F (Feathery), L (Light), M (Medium), O (Open), P (Pendulous), V (varies)

Flower Color: C (Cream), G (Green), M (Magenta), ND (Non-descript), R (Red), O (orange), Pi (Pink), Pu (Purple), V (varies), W (White), Y (Yellow)

Foliage Color: BL-G (Blue Green), BrG (Bright Green), DG (Dark Green), G (Green), GG (Gray Green), LG (Light Green), MG (Medium Green), PeG (Pea Green), Pu-G (Purple Green), V (varies)

Autumn Color: Bronze, Br (Brown), Co (Copper), Cr (Crimson), EG (Evergreen), G (Green), G (Gold), GY (Golden Yellow), Ma

Not all trees on this list of approved street trees are appropriate for every location.

We recommended that applicants consult a landscape design professional before submitting a Street Tree Permit Application.

Street Tree List: Kent, WA



DEVELOPMENT ASSISTANCE BROCHURE #14

City of Kent Street Trees

The City of Kent Engineering Department has prepared this brochure to supplement its adopted Construction Standards. The information below may clarify those standards, and offer practical advice on City of Kent procedures. The Director of Public Works has authority to give needed interpretations for Construction Standards, and this document also reflects those interpretations.

The Public Works and Parks Departments jointly approve Street Tree Plans associated with public street improvements in accordance with City Code Chapter 6.10.

There are many site constraints that may limit the species of street trees that can be planted in a specific location. The following are typical site constraints and/or standards associated with an urban street tree planting environment, and that must be considered before the City gives approval to plant a specific street tree species for a particular project:

1. Sidewalk width
2. Rooting space
(tree pit size, planting strip width)
3. Building setbacks (distances from trees)
4. Canopy or Building overhang
(distances from trees)
5. Signs, Windows, or Entryways
(placement, size, use, safety)

6. Street Lighting and/or
Pedestrian Scale Lighting
7. Soils
8. Pedestrian Clearance
9. Presence of Underground and
Overhead Utilities
10. Street Tree (root and crown growth,
maintenance, aesthetics, etc.)
11. Vehicle Parking
12. Horizontal and Vertical Site Distance Clearance
13. City of Kent Construction Standards
14. Kent Downtown Design Standards

Street Trees planted along new residential streets will be planted in the 5-foot wide planter strip constructed between the back of vertical cement concrete curb and the front of the cement concrete sidewalk. Street Trees planted along existing streets may be planted either in 5-foot wide planter strips or behind the sidewalks, as specified by Public Works.

The City of Kent Construction Standards contains Standard Details for Street Trees. See detail 6-8(a) for installation requirements or 6-8(b) for the minimum separation requirements from intersections, driveways, and street lights.

The following table provides both the list of approved street tree species, and some of the characteristics associated with each species at maturity:

Small Street Trees

Common Name	Scientific Name	Height (feet)	Width (feet)	Shape	Minimum Spacing (feet)
Crimson Sentry Maple	<i>Acer platanoides</i> 'Crimson Sentry'	30	12	Upright, oval	15
Norwegian Sunset Maple	<i>Acer truncatum</i> x <i>Acer platanoides</i> 'Keithsform'	30	25	Oval	30
Washington Hawthorn	<i>Crataegus phaenopyrum</i>	30	25	Upright oval	30
Tschonoskii Crabapple	<i>Malus transitoria</i> 'Tschonoskii'	30	14	Pyramidal	20
Yoshino Cherry	<i>Prunus x yedoensis</i> 'Yoshino'	30	30	Upright, spreading	35
Lavalle Hawthorn	<i>Crataegus x lavallei</i>	28	20	Irregular vase shape	30
Apollo Maple	<i>Acer saccharum</i>	25	10	Narrow to columnar	20
Flame Maple	<i>Acer ginnala</i> 'flame'	20	20	Round, spreading low branches	30
Flamingo Box Elder	<i>Acer negundo</i> 'Flamingo'	20	15	Oval to round	25
Japanese Hornbeam	<i>Carpinus japonicus</i>	20	25	Vase shape	30
Purple Prince Crabapple	<i>Malus</i> 'Purple Prince'	20	20	Rounded	25
Golden Raindrops Crabapple	<i>Malus transitoria</i> 'Schmidcutleaf'	20	15	Upright, vase shape	20
'Ivory Silk' Japanese Lilac Tree	<i>Syringia reiculata</i> 'Ivory Silk'	20	15	Upright, spreading	25
Leprechaun Ash	<i>Fraxinus pennsylvanica</i>	18	16	Dense, compact, round	25
Red Barron Crabapple	<i>Malus</i> 'Red Barron'	18	8	Narrow, columnar	20
Red Cascade Mountain Ash	<i>Sorbus Americana</i> 'Dwarfcrown'	18	8	Compact oval	20
Red Jewel Crabapple	<i>Malus</i> 'jewelcole'	15	12	Upright, pyramidal	25

Medium Street Trees

Common Name	Scientific Name	Height (feet)	Width (feet)	Shape	Minimum Spacing (feet)
Queen Elizabeth Maple	<i>Acer campestre</i> 'Evelyn'	35	25	Upright, branching, oval	30
Sensation Box Elder	<i>Acer negundo</i> 'Sensation'	30	25	Round	35
Red Sunset Maple	<i>Acer rubrum</i> 'Red Sunset'	45	30	Upright, oval	35
Pacific Sunset Maple	<i>Acer truncatum</i> x <i>Acer plantanoides</i> 'Warrenred'	30	15	Upright, spreading, rounded crown	25
Autumn Blaze Maple	<i>Acer x fremani</i> 'Feffersred'	45	35	Oval Round	40
Frans Fontaine Hornbeam	<i>Carpinus betulus</i> 'Frans Fontaine'	30	15	Columnar	20
Raywood Ash	<i>Fraxinus oxycarpa</i> 'Raywood'	30	20	Oval with dense crown	25
Maidenhair Tree	<i>Ginkgo biloba</i> 'Magyar'	60	25	Narrow pyramidal	30
Imperial Honeylocust	<i>Gleditsia triacanthos</i>	35	35	Rounded	45
Galaxy Magnolia	<i>Magnolia</i> 'Galaxy'	30	15	Upright, oval	20
Edith Bogue Southern Magnolia	<i>Magnolia grandiflora</i> 'Edith Bogue'	25	20	Vase shaped, becoming round	30
Columnar Sargent Cherry	<i>Prunus sargentii</i> 'Columnaris'	35	15	Columnar, narrow vase shaped	25
Spire Cherry	<i>Prunus x hillieri</i>	30	10	Upright columnar, narrowly vase shaped	25
Capital Callery Pear	<i>Pyrus calleryana</i> 'Capital'	45	15	Narrowly columnar	20
Chanticleer Callery Pear	<i>Pyrus Calleryana</i> 'Chanticleer'	40	20	Narrowly conical	25
Edgewood Pear	<i>Pyrus Calleryana</i> x <i>betulaefolia</i> 'Edgewood'	30	25	Oval to rounded	35
'Crimson Spire' Oak	<i>Quercus</i> 'Crimschmidt'	40	15	Columnar, tightly fastigiated	20
Skyrocket Oak	<i>Quercus robus</i> 'Fastigiata'	45	15	Narrow, fastigiated	25
Greenspire Linden	<i>Tilia cordata</i> 'Greenspire'	40	30	Uniform pyramidal form	35
Prospector Elm	<i>Ulmus wilsoniana</i> 'Prospector'	40	30	Vase shape	35
Green Vase Zelkova	<i>Zelkova serrata</i> 'Green Vase'	45	30	Vase shape	35
Musashino	<i>Zelkova serrata</i> 'Musashino'	45	20	Upright, vase shape	30

Bio-Swale Plantings

Common Name	Scientific Name	Height (feet)	Width (feet)	Shape	Minimum Spacing (feet)
Green Ash	<i>Fraxinus pennsylvanicus</i>	60	40	Oval	35
American Elm	<i>Ulmus Americana</i>	60	40	Oval	50
Freeman Maple	<i>Acer freemanii</i>	40	30	Rounded	35
Box Elder	<i>Acer Negundo</i>	40	25	Oval	30
Armstrong Maple	<i>Acer rubrum 'Armstrong'</i>	40	15	Narrow, fastigate	20
Gray Birch	<i>Betula populifolia</i>	30	25	Multi-stem	30
Northern Catalpa	<i>Catalpa speciosa</i>	60	35	Round, spreading	40
Common Hackberry	<i>Celtis occidentalis</i>	45	30	Rounded crown	35
Asian Fringe Tree	<i>Chionanthus retusus</i>	25	25	Rounded crown	30
Cockspur Hawthorn	<i>Crataegus crus-galli</i>	25	25	Round	30
Thornless Honeylocust	<i>Gleditsia Triacanthos VAR. inermis</i>	50	50	Rounded	60
Sweet Bay Magnolia	<i>Magnolia virginiana</i>	20	25	Rounded, spreading	30
Black Gum (or Black tupelo, Sour Gum)	<i>Nyssa sylvatica</i>	40	25	Oval	30

Street Tree List: Olympia, WA

City of Olympia Recommended Street Trees for Planting Strips								
Common Name	Scientific Name	Cultivar	Height (ft)	Width (ft)	Flowering	Fall Color	Shape*	Planting Strip Width (ft)
Amur Maackia	<i>Maackia amurensis</i>		25	20	Y	N	2	6
Ash, Prairie Spire	<i>Fraxinus pennsylvanica</i>	Rugby	45	20	N	N	6	8
Ash, Urbanite	<i>Fraxinus pennsylvanica</i>	Urbanite	50	40	N	N	4	8
Ash, Windy City	<i>Fraxinus americana</i>	Tures	45	35	N	Y	2	8
Bald Cypress	<i>Taxodium distichum</i>		55	30	N	Y	4	8
Beech, American	<i>Fagus grandiflora</i>		50	40	N	Y	1	8
Beech, European	<i>Fagus sylvatica</i>		90	60	N	Y	2	8
Birch, Jacquemont	<i>Betula jacquemontii</i>		40	30	N	Y	1	6
Black Gum, Tupelo	<i>Nyssa Sylvatica</i>		45	25	N	Y	2	8
Cherry, Snow Goose	<i>Prunus 'Snow Goose'</i>	Snow Goose	20	20	Y	Y	6	4
Chokecherry, Canada Red	<i>Prunus virginiana</i>	Canada Red	25	20	Y	Y	2	4
Coffeetree, Kentucky	<i>Gymnocladus dioicus</i>		60	40	N	N	1	8
Crabapple, Adirondack	<i>Malus 'Adirondack'</i>	Adirondack	18	10	Y	N	6	4
Crabapple, Golden Raindrops	<i>Malus 'Golden Raindrops'</i>	Golden Raindrops	20	15	Y	N	6	4
Crabapple, Prairifire	<i>Malus 'Prairifire'</i>		20	20	Y	Y	2	4
Crabapple, Royal Raindrops	<i>Malus 'Royal Raindrops'</i>		20	15	Y	N	6	4
Crabapple, Sugar Tyme	<i>Malus 'Sutyzam'</i>	Sutyzam	18	15	Y	N	1	4
Crabapple, Thunderchild	<i>Malus 'Thunderchild'</i>	Thunderchild	20	20	Y	N	6	4
Crabapple, Tschonoskii	<i>Malus tschonoskii</i>		35	20	Y	Y	6	6
Dogwood, Celestial	<i>Cornus rutgersensis</i>	Rutdan	20	20	Y	Y	6	6
Dogwood, Eddie's White Wonder	<i>Cornus x</i>	Eddie's White Wonder	25	20	Y	Y	2	4
Dogwood, Constellation	<i>Cornus rutgersensis</i>	Rutcan	25	20	Y	Y	6	6
Dogwood, Milky Way Select	<i>Cornus Kousa</i>	Milky Way Select	20	20	Y	Y	2	4
Elm, Allee	<i>Ulmus parvifolia</i>	Emer II	50	35	N	Y	5	8
Elm, Athena	<i>Ulmus parvifolia</i>	Emer I	30	35	N	Y	2	8
Elm, Bosque	<i>Ulmus parvifolia</i>	UPMTF	45	30	N	Y	6	8
Elm, Frontier	<i>Ulmus carpinifolia x parvifolia</i>	Frontier	40	30	N	Y	2	6
Elm, Homestead	<i>Ulmus 'Homestead'</i>	Homestead	55	35	N	Y	6	8

Elm, Pioneer	<i>Ulmus 'Pioneer'</i>	Pioneer	50	50	N	Y	2	8
Elm, Prospector	<i>Ulmus wilsoniana</i>	Prospector	40	30	N	N	5	8
Elm, Triumph	<i>Ulmus</i>	Morton Glossy	55	45	N	Y	1	8
Ginkgo, Fairmont	<i>Ginkgo biloba</i>	Fairmont	60	45	N	Y	6	6
Ginkgo, Princeton Sentry	<i>Ginkgo biloba</i>	Princeton Sentry	40	15	N	Y	4	6
Hackberry, Magnifica	<i>Celtis occidentalis x laevigata</i>	Magnifica	50	40	N	N	1	8
Hawthorn, Lavalle	<i>Crataegus x lavallei</i>		28	20	Y	N	5	6
Hawthorn, Toba	<i>Crataegus x mordensis</i>	Toba	20	20	Y	N	2	4
Hawthorn, Thornless Cockspur	<i>Crataegus crus-galli</i>	Inermis	25	25	Y	Y	2	6
Hawthorn, Washington	<i>Crataegus phaenopyrum</i>		25	20	Y	Y	1	6
Hawthorn, Winter King	<i>Crataegus viridis</i>	Winter King	20	25	Y	Y	5	4
Hophornbeam	<i>Ostrya virginiana</i>		40	25	N	N	6	8
Hornbeam, American	<i>Carpinus caroliniana</i>		25	20	N	Y	1	4
Hornbeam, Japanese	<i>Carpinus japonicus</i>		20	25	N	N	2	4
Ironwood, Persian	<i>Parrotia persica</i>		30	20	N	Y	4	6
Lilac, Japanese Ivory Silk	<i>Syringa reticulata</i>	Ivory Silk	20	15	Y	N	6	4
Locust, Bessoniana	<i>Robinia pseudoacacia</i>	Bessoniana	30	20	Y	N	1	6
Locust, Frisia	<i>Robinia pseudoacacia</i>	Frisia	40	25	Y	Y	1	8
Locust, Pink Flowering	<i>Robinia x ambigua</i>	Idahoensis	40	25	Y	N	1	8
Magnolia, Galaxy	<i>Magnolia liliflora x sprengeri</i>	Galaxy	30	15	Y	N	6	6
Magnolia, Oyama	<i>Magnolia sieboldii</i>		20	15	Y	N	2	4
Magnolia, Rustica Rubra	<i>Magnolia x soulangiana</i>	Rustica Rubra	20	20	Y	N	2	6
Maple, Red	<i>Acer rubrum</i>	Autumn Flame	35	35	N	Y	2	8
Maple, Crimson Sentry	<i>Acer platanoides</i>	Crimson Sentry	25	15	N	Y	4	4
Maple, Emerald Queen	<i>Acer platanoides</i>	Emerald Queen	50	40	N	Y	2	8
Maple, Greencolumn	<i>Acer nigrum</i>	Greencolumn	50	20	N	Y	6	8
Maple, Hedge	<i>Acer campestre</i>		30	30	N	N	2	6
Maple, Henry	<i>Acer henryi</i>		25	25	N	Y	1	6
Maple, Pacific Sunset	<i>Acer truncatum x platanoides</i>	Warrenred	30	25	N	Y	2	8
Maple, Paperbark	<i>Acer griseum</i>		25	20	N	Y	6	4
Maple, Red Striped-bark	<i>Acer capillipes</i>		30	30	N	Y	6	6
Maple, Rocky Mountain	<i>Acer glabrum</i>		25	15	N	Y	1	4
Maple, Rocky Mountain Glow	<i>Acer grandidentatum</i>	Schmidt	25	15	N	Y	1	6
Maple, Red	<i>Acer rubrum</i>	Schlesinger	70	50	N	Y	2	8

Maple, Tatarian	<i>Acer tataricum</i>		25	20	N	Y	1	4
Maple, Trident	<i>Acer buergeranum</i>		20	20	N	Y	2	4
Mountain Ash, Korean	<i>Sorbus alnifolia</i>		40	30	Y	Y	1	8
Mountain Ash, Red Cascade	<i>Sorbus americana</i>	Dwarfscrown	18	8	Y	Y	1	4
Oak, Bur	<i>Quercus macrocarpa</i>		55	45	N	N	1	8
Oak, Crimson Spire	<i>Quercus alba x robur</i>	Crimschmidt	45	15	N	Y	3	6
Oak, Oregon White	<i>Quercus garryana</i>		70	50	N	N	1	8
Oak, Pin	<i>Quercus palustris</i>		55	40	N	Y	4	8
Oak, Red	<i>Quercus rubra</i>		50	45	N	Y	2	8
Oak, Scarlet	<i>Quercus coccinea</i>	Scarlet	50	40	N	Y	1	8
Oak, Shingle	<i>Quercus imbricaria</i>		60	70	N	N	2	8
Oak, Shumard	<i>Quercus shumardii</i>		50	40	N	Y	6	8
Oak, Skymaster English	<i>Quercus robur</i>	Pyramich	50	25	N	N	4	6
Oak, Swamp White	<i>Quercus bicolor</i>		45	45	N	Y	2	8
Oak, White	<i>Quercus alba</i>		45	45	N	Y	2	8
Oak, Willow	<i>Quercus phellos</i>		80	45	N	Y	4	8
Pear, Aristocrat	<i>Pyrus calleryana</i>	Aristocrat	40	28	Y	Y	4	6
Pear, Capital	<i>Pyrus calleryana</i>	Capital	35	12	Y	Y	3	6
Pear, Edgewood	<i>Pyrus calleryana x betulaefolia</i>	Edgewood	30	25	Y	Y	2	6
Pear, Korean Sun	<i>Pyrus fauriei</i>	Westwood	12	15	Y	Y	2	6
Pear, Prairie Gem	<i>Pyrus ussuriensis</i>	MorDak	25	25	Y	Y	2	4
Pear, Redspire	<i>Pyrus calleryana</i>	Redspire	35	25	Y	Y	4	4
Pistacia, Chinese	<i>Pistache chinense</i>		60	50	N	Y	5	8
Plum, Thundercloud	<i>Prunus cerasifera</i>	Thundercloud	20	20	Y	N	2	6
Serviceberry, Cumulus	<i>Amelanchier x grandiflora</i>	Cumulus	25	15	Y	N	6	4
Serviceberry, Robin Hill	<i>Amelanchier x grandiflora</i>	Robin Hill	20	15	Y	Y	6	4
Serviceberry, Spring Flurry	<i>Amelanchier laevis</i>	JFS -Arb	35	20	Y	Y	6	4
Serviceberry, Autumn Brilliance	<i>Amelanchier x grandiflora</i>	Autumn Brilliance	20	15	Y	Y	6	4
Serviceberry, Princess Diana	<i>Amelanchier grandiflora</i>	Princess Diana	20	15	Y	Y	6	4
Silverbell, Mountain	<i>Halesia monticola</i>		40	25	Y	N	2	8
Smoketree, American	<i>Cotinus obovatus</i>		25	20	Y	Y	2	6
Sourwood	<i>Oxydendrum arboreum</i>		25	18	Y	Y	4	6
Stewartia, Japanese	<i>Stewartia pseudocamellia</i>		30	20	Y	Y	4	4
Tuliptree	<i>Liriodendron tulipifera</i>		60	30	Y	Y	1	8

Yellowwood	<i>Cladrastis kentukea</i>		30	40	Y	Y	2	8
Zelkova, Green Vase	<i>Zelkova serrata</i>	Green Vase	50	40	N	Y		8
Zelkova, Wireless	<i>Zelkova serrata</i>	Schmidtlow	25	40	N	Y	5	8
* Shape key: 1 = Oval, 2 = Rounded, 3 = Columar, 4 = Pyramidal, 5 = Vase shaped, 6 = Upright								

Street Tree List: Seattle, WA

Seattle Department of Transportation – Approved Street Tree List

Large Columnar Trees


Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Acer nigrum</i> 'Green Column' Green Column Black Sugar Maple	50	10	No	6	N/A		Good close to buildings
<i>Fraxinus americana</i> 'Empire' Empire Ash	50	25	No	6	N/A		Use for areas adjacent to taller buildings when ash tree is desired species
<i>Ginkgo biloba</i> 'Princeton Sentry' Princeton Sentry Ginkgo	40	15	No	6	N/A		Very narrow growth.
<i>Nyssa sylvatica</i> Tupelo	60	20	No	6	N/A		Handsome chunky bark – Great Plant Pick
<i>Quercus</i> 'Crimschmidt' Crimson Spire Oak	45	15	No	6	N/A		Hard to find in the nursery trade
<i>Quercus frainetto</i> Italian Oak	50	30	No	6	N/A		Drought resistant – beautiful green, glossy leaves in summer. Great Plant Pick
<i>Quercus robur</i> 'fastigiata' Skyrocket Oak	40	15	No	6	N/A		Columnar variety of oak
<i>Taxodium distichum</i> 'Mickelson' Shawnee Brave Bald Cypress	55	20	No	6	N/A		Deciduous conifer - tolerates city conditions

Large Trees

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Acer saccharum</i> 'Bonfire' Bonfire Sugar Maple	50	40	No	6	N/A		Fastest growing sugar maple
<i>Acer saccharum</i> 'Commemoration' Commemoration Sugar Maple	50	35	No	6	N/A		Resistant to leaf tatter. Great Plant Pick
<i>Acer saccharum</i> 'Green Mountain' Green Mountain Sugar Map	45	35	No	6	N/A		Reliable fall color. Great Plant Pick
<i>Acer saccharum</i> 'Legacy' Legacy Sugar Maple	50	35	No	5	N/A		Limited use - where sugar maple is desired in limited planting strip area. Great Plant Pick
<i>Aesculus flava</i> Yellow Buckeye	60	40	No	6			Least susceptible to leaf blotch – large fruit – fall color is varied, but quite beautiful
<i>Cercidiphyllum japonicum</i> Katsura Tree	40	40	No	6	N/A		Needs lots of water when young – can produce large surface roots. Great Plant Pick
<i>Fagus sylvatica</i> Green Beech	50	40	No	6	N/A		Silvery-grey bark
<i>Fagus sylvatica</i> 'Asplenifolia' Fernleaf Beech	60	50	No	6	N/A		Beautiful cut leaf. Great Plant Pick
<i>Fraxinus latifolia</i> Oregon Ash	60	35	No	6	N/A		Only native ash in PNW

Seattle Department of Transportation – Approved Street Tree List

Large Trees, Continued
















Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Fraxinus pennsylvanica</i> 'Patmore' Patmore Ash	45	35	No	6	N/A		Extremely hardy, may be seedless
<i>Fraxinus pennsylvanica</i> 'Urbanite' Urbanite Ash	50	40	No	6	N/A		Tolerant of city conditions
<i>Ginkgo biloba</i> 'Magyar' Magyar Ginkgo	50	25	No	6	N/A		more upright and narrow than 'Autumn Gold'
<i>Gymnocladus dioica</i> 'Espresso' Espresso Kentucky Coffee	50	35	No	6	N/A		Very coarse branches - extremely large bi-pinnately compound leaves
<i>Liquidambar styraciflua</i> 'Rotundiloba' Rotundiloba Sweetgum	45	25	No	8	N/A		Only sweetgum that is entirely fruitless. Smooth rounded leaf lobes
<i>Liriodendron tulipifera</i> Tulip Tree	60	30	No	8	N/A		Fast-growing tree – can get very large in open conditions
<i>Metasequoia glyptostroboides</i> Dawn Redwood	50	25	No	6	N/A		Fast growing deciduous conifer. Great Plant Pick
<i>Platanus x acerifolia</i> 'Bloodgood' Bloodgood London Planetre	50	40	No	8	N/A		More anthracnose resistant than other varieties – large tree that needs space
<i>Platanus x acerifolia</i> 'Yarwood' Yarwood London Planetree	50	40	No	8	N/A		High resistance to powdery mildew
<i>Quercus bicolor</i> Swamp White Oak	60	45	No	8	N/A		Interesting shaggy peeling bark
<i>Quercus coccinea</i> Scarlet Oak	60	40	No	6	N/A		Best oak for fall color
<i>Quercus garryana</i> Oregon Oak	50	40	No	8	N/A		Native to Pacific Northwest. Great Plant Pick
<i>Quercus imbricaria</i> Shingle Oak	60	50	No	6	N/A		Nice summer foliage - leaves can persist throughout the winter
<i>Quercus muhlenbergii</i> Chestnut Oak	60	50	No	6	N/A		coarsely toothed leaf
<i>Quercus robur</i> English Oak	60	40	No	8	N/A		Large, sturdy tree. Acorns do not need dormant cold period to germinate, so can be invasive.
<i>Quercus rubra</i> Red Oak	60	45	No	8	N/A		Fast growing oak – large tree that needs space
<i>Quercus velutina</i> Black Oak	60	50	No	8	N/A		More drought tolerant than red oak
<i>Taxodium distichum</i> Bald Cypress	55	35	No	8	N/A		A deciduous conifer, broadly spreading when mature – columnar when young. Great Plant Pick

Seattle Department of Transportation – Approved Street Tree List

Large Trees, Continued

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Ulmus</i> 'Homestead' Homestead Elm	60	35	No	6	N/A		Complex hybrid - close in form to American elm - Resistant to Dutch elm disease
<i>Ulmus</i> 'Frontier' Frontier Elm	50	35	No	6	N/A		Resistant to Dutch elm disease
<i>Zelkova serrata</i> 'Greenvase' Green Vase Zelkova	45	40	No	6	N/A		Attractive exfoliating bark provides Winter appeal. Dark green leaves turn orange-red and purple in Fall. Great Plant Pick
<i>Zelkova serrata</i> 'Village Green' Village Green Zelkova	40	40	No	6	N/A		Green Vase, Mussichino and Halka are improved forms. Great Plant Pick

Medium / Large Trees

















Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Acer campestre</i> Hedge Maple	50	30	No	5	N/A		Contrary to its name, this is not a small tree – nice overall shape and structure
<i>Acer campestre</i> 'Evelyn' Queen Elizabeth Hedge Maple	40	30	No	5	N/A		More upright branching than the species.
<i>Acer freemanii</i> 'Autumn Blaze' Autumn Blaze Maple	50	40	No	6	N/A		Cross between red and silver maple – fast growing with good fall color
<i>Acer miyabei</i> 'Morton' State Street Maple	40	30	No	6	N/A		Similar to, but faster growing and larger than Hedge maple
<i>Acer platanoides</i> 'Emerald Queen' Emerald Queen Norway Maple	50	40	No	6	N/A		One of the fastest growing cultivars of Norway maple – Do NOT plant within 1000' of greenbelts – can be invasive
<i>Acer platanoides</i> 'Parkway' Parkway Norway Maple	40	30	No	6	N/A		Somewhat tolerant of verticillium wilt - Do NOT plant within 1000' of greenbelts – can be invasive
<i>Acer pseudoplatanus</i> 'Atropurpureum' Spaethii Maple	40	30	No	5	N/A		Leaves green on top purple underneath.
<i>Acer rubrum</i> 'Scarsen' Scarlet Sentinel Maple	40	25	No	6	N/A		Leaves are darker green and larger than those of other Red Maples, and they hold up well in summer heat.
<i>Aesculus x carnea</i> 'Briotii' Red Horsechestnut	30	35	No	6			Resists heat and drought better than other horsechestnuts
<i>Betula jacquemontii</i> Jacquemontii Birch	40	30	No	5	N/A		White bark makes for good winter interest – best for aphid resistance, but does have issues with Bronze Birch Borer
<i>Corylus colurna</i> Turkish Filbert	40	25	No	5	N/A		Tight, formal, dense crown - not for areas with high pedestrian traffic as tree can have significant debris from nut production. Great Plant Pick
<i>Fraxinus americana</i> 'Autumn Applause' Autumn Applause Ash	45	25	No	6	N/A		Purple fall foliage - Compact tree - reportedly seedless
<i>Fraxinus pennsylvanica</i> 'Cimmzam' Cimmaron Ash	50	30	No	6	N/A		More upright than 'Patmore' with more bronze/cinnamon fall color
<i>Ginkgo biloba</i> 'Autumn Gold' Autumn Gold Ginkgo	45	35	No	6	N/A		Narrow when young

Seattle Department of Transportation – Approved Street Tree List

Medium / Large Trees, Continued






























Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Liquidambar styraciflua</i> 'Moraine' Moraine Sweetgum	40	25	No	8	N/A		Light green foliage. More compact than other varieties of sweet gum. Brittle branches
<i>Nothofagus antarctica</i> Antarctic Beech	50	35	No	5	N/A		Rugged twisted branching and petite foliage – difficult to find in the nursery trade
<i>Tilia americana</i> 'Redmond' Redmond Linden	50	30	No	8	N/A		Pyramidal, needs extra water when young
<i>Tilia cordata</i> 'Greenspire' Greenspire Linden	40	30	No	6	N/A		Symmetrical, pyramidal form – sometimes has structural issues due to tight branch attachments
<i>Ulmus parvifolia</i> 'Emer II' Allee Elm	45	35	No	5	N/A		Exfoliating bark and nice fall color – Resistant to Dutch Elm Disease

Medium Columnar Trees

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Acer platanoides</i> 'Columnar' Columnar Norway Maple	45	15	No	5	N/A		Good close to buildings – Do NOT plant within 1000' of greenbelts – can be invasive
<i>Acer rubrum</i> 'Bowhall' Bowhall Maple	40	20	No	6	N/A		An upright, pyramidal form that is significantly wider than 'Armstrong' or 'Columnare'
<i>Carpinus betulus</i> 'Fastigiata' Pyramidal European Hornbeam	40	15	No	5	N/A		Broadens when older. Great Plant Pick
<i>Fagus sylvatica</i> 'Dawyck Purple' Dawyck Purple Beech	40	12	No	6	N/A		Purple foliage.
<i>Liriodendron tulipifera</i> 'Fastigiatum' Columnar Tulip Tree	40	10	No	6			Good next to buildings – can have problems with tight branch angles. Great Plant Pick
<i>Malus</i> 'Tschonoskii' Tschonoskii Crabapple	30	15	Yes	5			Sparse green fruit, pyramidal
<i>Oxydendron arboreum</i> Sourwood	35	12	No	5			Consistent and brilliant fall color. Great Plant Pick
<i>Prunus sargentii</i> 'Columnaris' Columnar Sargent Cherry	35	15	No	8			Upright form. The cherry with the best fall color. Can suffer from brown rot in spring.
<i>Prunus x hillieri</i> 'Spire' Spire Cherry	30	10	Yes	6			One of the few 'wire friendly' columnar cherries. Can suffer from brown rot in spring.
<i>Pyrus calleryana</i> 'Cambridge' Cambridge Pear	40	15	No	5			Narrow tree with better branch angles and form than the species – brittle limbs may still be a problem with breakage due to ice or wet snow

















Seattle Department of Transportation – Approved Street Tree List

Medium Trees

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Acer grandidentatum</i> 'Schmidt' Rocky Mt. Glow Maple	25	20	Yes	5	N/A		Intense red fall color - Limited availability in nursery trade
<i>Acer rubrum</i> 'Karpick' Karpick Maple	40	20	No	6	N/A		Finer texture than other narrow forms of columnar maple
<i>Acer truncatum</i> x <i>A. platanoides</i> 'Keithsform' Norwegian Sunset Maple	35	25	No	5	N/A		Reliable fall color - nice reddish orange
<i>Acer truncatum</i> x <i>A. platanoides</i> 'Warrensred' Pacific Sunset Maple	30	25	Yes	5	N/A		Limited use under higher wires
<i>Betula albosinensis</i> var <i>septentrionalis</i> Chinese Red Birch	40	35	No	5	N/A		White and pink peeling bark. Great Plant Pick
<i>Carpinus caroliniana</i> American Hornbeam	25	20	Yes	5	N/A		Outstanding fall color (variable – yellow, orange, red) – nice little tree. Great Plant Pick
<i>Cladrastis kentukea</i> Yellowwood	40	40	No	5			White flowers in spring, resembling wisteria flower – blooms profusely only every 2 to 4 years – yellow/gold fall color
<i>Cornus controversa</i> 'June Snow' Giant Dogwood	40	30	No	5			Frothy, 6-inch clusters of white flowers in June – Great Plant Pick
<i>Cornus</i> 'Eddie's White Wonder' Eddie's White Wonder Dogwood	30	20	Yes	5			A hybrid of <i>C. florida</i> and <i>C. nuttallii</i>
<i>Crataegus crus-galli</i> 'Inermis' Thornless Cockspur Hawthorne	25	30	Yes	5			Red persistent fruit
<i>Crataegus phaenopyrum</i> Washington Hawthorne	25	20	Yes	5			Thorny – do not plant in high use areas
<i>Crataegus</i> x <i>lavalii</i> Lavalle Hawthorne	25	20	Yes	5			Thorns on younger trees. Great Plant Pick
<i>Davidia involucrata</i> Dove Tree	40	30	No	5		N/A	Large, unique flowers in May. Great Plant Pick
<i>Eucommia ulmoides</i> Hardy Rubber Tree	50	40	No	6	N/A	N/A	Dark green, very shiny leaves – insignificant fall color
<i>Fagus sylvatica</i> 'Rohanii' Purple Oak Leaf Beech	50	30	No	6	N/A	N/A	Attractive purple leaves with wavy margins. Great Plant Pick
<i>Halesia monticola</i> Mountain Silverbell	45	25	No	5			Attractive small white flower
<i>Halesia tetraptera</i> Carolina Silverbell	35	30	No	5			Attractive bark for seasonal interest
<i>Koelreuteria paniculata</i> Goldenrain Tree	30	30	Yes	5			Midsummer blooming – slow growing. Great Plant Pick
<i>Magnolia denudata</i> Yulan Magnolia	40	40	No	5		N/A	6" inch fragrant white flowers in spring. Great Plant Pick
<i>Magnolia grandiflora</i> 'Victoria' Victoria Evergreen Magnolia	25	20	Yes	5		N/A	Evergreen magnolia – can be damaged in years with wet, heavy snow. Great Plant Pick
<i>Magnolia kobus</i> 'Wada's Memory' Wada's Memory Magnolia'	30	20	Yes	5			Does not flower well when young. Great Plant Pick


Seattle Department of Transportation – Approved Street Tree List

Medium Trees, Continued

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Ostrya virginiana</i> Ironwood	40	25	No	5	N/A		Hop like fruit – slow growing
<i>Phellodendron amurense</i> 'Macho' Macho Cork Tree	40	40	No	5	N/A		This variety is fruitless – fall color can be varied. High drought tolerance
<i>Prunus cerasifera</i> 'Krauter Vesuvius' Vesuvius Flowering Plum	30	20	Yes	5		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings
<i>Pterostyrax hispida</i> Fragrant Epaulette Tree	40	30	No	5			Pendulous creamy white flowers – fragrant – difficult to find in the nursery trade
<i>Pyrus calleryana</i> 'Aristocrat' Aristocrat Pear	40	30	No	5			One of the tallest flowering pears – good branch angles, but wood is brittle. Reported as invasive in other areas.
<i>Pyrus calleryana</i> 'Glen's Form' Chanticleer or Cleveland Select Pear	40	20	No	5			Selected variety of callery pear – good spring flowering. . Reported as invasive in other areas
<i>Pyrus calleryana</i> 'Redspire' Redspire Pear	35	25	No	5			Selected variety of callery pear – good spring flowering. . Reported as invasive in other areas
<i>Quercus illex</i> Holly Oak	40	30	No	5	N/A	N/A	Evergreen oak - Underside of leaf is silvery-white. Often has a prominent umbrella form
<i>Rhamnus purshiana</i> Cascara	30	20	Yes	5	N/A		Native tree – fall color depends on exposure – purplish fruit feeds many native birds
<i>Robinia x ambigua</i> Pink Idaho Locust	35	25	No	5			Fragrant flowers. Sterile variety. Drought tolerant. Some varieties will sucker profusely.
<i>Sophora japonica</i> 'Regent' Japanese Pagodatree	45	40	No	6			Has a rapid growth rate and tolerates city conditions, heat, and drought.
<i>Sorbus aucuparia</i> 'Mitchred' Cardinal Royal Mt. Ash	35	20	No	5			A vigorous tree with upright branches and a very symmetrical habit. On King County's invasive watch list.
<i>Sorbus x hybridia</i> Oakleaf Royal Mt. Ash	30	20	Yes	5			It has leaves which are similar to English oak, and interesting bark for seasonal features.
<i>Styrax japonica</i> Japanese Snowbell	25	25	Yes	5			Reliable and easy to grow, it has plentiful, green ½” inch seeds. Flowers similar to lily in the valley. Great Plant Pick
<i>Tilia cordata</i> 'De Groot' De Groot Littleleaf Linden	30	20	Yes	5	N/A		One of the smaller stature littleleaf lindens.
<i>Tilia cordata</i> 'Chancole' Chancellor Linden	35	20	No	6	N/A		Pyramidal when young. Fragrant flowers that attract bees.
<i>Ulmus parvifolia</i> 'Emer I' Athena Classic Elm	30	35	No	5	N/A		High resistance to Dutch Elm Disease. Drought resistant. Cinnamon colored exfoliating bark for seasonal interest.

Seattle Department of Transportation – Approved Street Tree List


Small Columnar Trees

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Maackia amurensis</i> Amur Maackia	30	20	Yes	5		N/A	Interesting exfoliating bark – flowering in June or July - varies in intensity from year to year
<i>Malus</i> 'Adirondack' Adirondack Crabapple	20	10	Yes	5			Very resistant to apple scab – one of the narrowest crabapples – persistent reddish ¼” fruit. Great Plant Pick
<i>Malus</i> 'Red Barron' Red Barron Crabapple	20	10	Yes	5			Deep pink blossom and persistent red berries for seasonal interest
<i>Prunus serrulata</i> 'Amanogawa' Amanogawa Flowering Cherry	20	8	Yes	6			Pinkish flower bud, changing to white flower.
<i>Sorbus americana</i> 'Dwarfcrone' Red Cascade Mountain Ash	20	10	Yes	5			Nice winter form - Red berries in clusters





































Small Trees

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Acer buegerianum</i> Trident Maple	30	30	Yes	5	N/A		Somewhat shrublike – must train to a single stem – interesting bark. Great Plant Pick
<i>Acer circinatum</i> Vine Maple	25	25	Yes	5	N/A		Avoid using on harsh sites – native tree. Great Plant Pick
<i>Acer ginnala</i> 'Flame' Flame Amur Maple	25	20	Yes	5			Clusters of small cream colored flowers in spring – very fragrant. Nice fall color. Informal branch structure.
<i>Acer griseum</i> Paperbark Maple	30	20	Yes	5	N/A		Peeling cinnamon colored bark for seasonal interest. Great Plant Pick
<i>Acer palmatum</i> Japanese Maple	20	25	Yes	5	N/A		Many varieties available – select larger varieties for street planting
<i>Acer platanoides</i> 'Globosum' Globe Norway Maple	20	20	Yes	5	N/A		Very rounded crown and compact growth
<i>Acer triflorum</i> Three-Flower Maple	25	20	Yes	5	N/A		Multi seasonal interest with tan, exfoliating bark and red, orange/red fall color. Great Plant Pick
<i>Amelanchier grandiflora</i> 'Princess Diana' Princess Diana Serviceberry	20	15	Yes	4			Good for narrower planting strips
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance' Autumn Brilliance Serviceberry	20	15	Yes	4			Good for narrower planting strips – reliable bloom and fall color
<i>Arbutus</i> 'Marina' Strawberry Tree	25	20	Yes	5		N/A	Substitute for Pacific madrone – can suffer severe damage or death due to cold weather - evergreen
<i>Asimina triloba</i> Paw Paw	30	20	Yes	5		N/A	Burgundy flower in spring before leaves – difficult to find in nursery trade
<i>Carpinus japonica</i> Japanese Hornbeam	20	25	Yes	5	N/A		Wide spreading, slow growing – fall color is not outstanding. Great Plant Pick

Seattle Department of Transportation – Approved Street Tree List

<i>Cercis canadensis</i> Eastern Redbud	25	30	Yes	5			Deep pink flowers on bare twigs in spring
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Small Trees, Continued

Scientific & Common Name	Mature Height	Spread	Under Wires?	Min Strip Width	Flower Color	Fall Color	Comments
<i>Cercis siliquastrum</i> Judas Tree	25	30	Yes	5			Deep pink flowers on bare twigs in spring – drought resistant
<i>Cornus alternifolia</i> Pagoda Dogwood	25	25	Yes	5			Small white flowers in flat clusters – fall color is varied. Great Plant Pick
<i>Cornus kousa</i> 'Chinensis' Kousa Dogwood	20	20	Yes	4			Does not do well on harsh, dry sites. Great Plant Pick
<i>Cotinus obovatus</i> American Smoke Tree	25	25	Yes	4			Showy pinkish panicles of flowers in the spring – reddish purple leaves on some varieties. Great Plant Pick
<i>Lagerstroemia 'tuscarora'</i> Tuscarora Hybrid Crape Myrtle	20	20	Yes	4			Light cinnamon brown bark lends year round interest – drought resistant – likes a warm site
<i>Magnolia</i> 'Elizabeth' Elizabeth Magnolia	30	20	Yes	5		N/A	Yellowish to cream colored flower in spring. Great Plant Pick
<i>Magnolia</i> 'Galaxy' Galaxy Magnolia	25	25	Yes	5			Showy pink flowers. Great Plant Pick
<i>Magnolia x loebneri</i> Loebner Magnolia	20	20	Yes	5			Flower is 'star' shaped rather than tulip like – white to pinkish white in March or April. Great Plant Pick
<i>Malus</i> 'Golden Raindrops' Golden Raindrops Crabapple	20	20	Yes	5			Disease resistant – persistent yellow fruit in fall and winter. Great Plant Pick
<i>Malus</i> 'Donald Wyman' Donald Wyman Crabapple	25	25	Yes	5			Large white blossom – nice green foliage in summer
<i>Malus</i> 'Lancelot' ('Lanzam') Lancelot Crabapple	15	15	Yes	4			Red flower buds, blooming white – red persistent fruit
<i>Parrotia persica</i> Persian Parrotia	30	20	No	5			Blooms before it leafs out – drought tolerant - Varied fall color - reds, oranges and yellows. Great Plant Pick
<i>Prunus</i> 'Frankthrees' Mt. St. Helens Plum	20	20	Yes	5		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings
<i>Prunus</i> 'Newport' Newport Plum	20	20	Yes	5		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings
<i>Prunus</i> 'Snowgoose' Snow Goose Cherry	20	20	Yes	5			This selection sports abundant white flowers and healthy green, disease-resistant foliage
<i>Prunus cerasifera</i> 'Thundercloud' Thundercloud Plum	30	20	No	5		N/A	Burgundy colored leaves – tree best used as an accent rather than in mass plantings – can produce significant fruit
<i>Prunus x yedoensis</i> 'Akebono' Akebono Flowering Cherry	25	25	Yes	6			Has masses of large, semi-double, pink flowers – most widely planted cherry in Pacific Northwest
<i>Sorbus alnifolia</i> Korean Mountain Ash	35	30	No	5			Simple leaves and beautiful pink/red fruit. Great Plant Pick
<i>Stewartia monodelpha</i> Orange Bark Stewartia	30	20	Yes	5			Extraordinary cinnamon colored bark – avoid hot, dry sites. Great Plant Pick
<i>Stewartia psuedocamellia</i> Japanese Stewartia	25	15	Yes	5			Patchwork bark, white flower in spring. Great Plant Pick

Seattle Department of Transportation – Approved Street Tree List

<i>Styrax obassia</i> Fragrant Styrax	25	20	Yes	5			Smooth gray bark and fragrant white flowers. Great Plant Pick
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Street Tree List: Vancouver, WA

**City of Vancouver
Street Tree Selection**

Minimum 4' Planting Strip Width

Call (360) 487-8332 for a site inspection before planting a street tree.
Updated 2012

Common Name	Scientific Name	Cultivar	Height (in FT)	Width (in FT)	Shape	Features/Considerations	Drought Tolerant	Overhead Utilities OK	Soil Type
Trident Maple	<i>Acer buergeranum</i>		25	20	round	red in fall	✓	✓	all
Hedge Maple	<i>Acer campestre</i>	Queen Elizabeth	30	30	rounded	low maintenance; yellow in fall	✓	✓	all
Rocky Mountain Glow Maple	<i>Acer grandidentatum</i>	Schmidt	25	15	oval	orange/red in fall	✓	✓	well drained
Paperbark Maple	<i>Acer griseum</i>		25	20	upright/round	peeling brown bark; red in fall	✓	✓	all
Henry Maple	<i>Acer henryi</i>		25	25	Broadly oval/round	Trifoliate, green with a bronze tint in spring; red in fall		✓	all
Pacific Sunset Maple	<i>Acer tuncatum x platanoides</i>	Warrenred	30	25	upright spreading	vigorous grower; yellow-orange to bright red in fall	✓		all
Spring Flurry Serviceberry	<i>Amelanchier laevis</i>	JFS-Arb	35	20	Upright oval	white flowers, edible fruit; strong central leader	✓		all
Autumn Brilliance Serviceberry	<i>Amelanchier x grandiflora</i>	Autumn Brilliance	20	15	upright, spreading	white flowers, edible fruit; red in fall		✓	all
Princess Diana Serviceberry	<i>Amelanchier x grandiflora</i>	Princess Diana	25	15	gracefully spreading	white flowers, edible fruit		✓	all
American Hornbeam	<i>Carpinus caroliniana</i>		25	20	oval	smooth gray trunk; yellow to orange in fall		✓	all
Eastern Redbud	<i>Cercis canadensis</i>		25	35	horizontal	purple-pink flowers; yellow in fall		✓	all
Glorybower	<i>Clerodendrum trichotomum</i>		20	20	rounded	fragrant flowers in summer; blue berries in fall	✓	✓	all
June Snow Dogwood	<i>Cornus contorversa</i>	June Snow	30	40	layered/spreading	large white flowers; red fall color, fast growing			well drained
Eddie's White Wonder Dogwood	<i>Cornus</i>	Eddie's Wh. Wond.	25	20	upright/pyramidal	White flowers; red in fall; transplants readily		✓	all
Heart Throb Dogwood	<i>Cornus kousa</i>	Schmred	20	20	rounded	long lasting pink flowers; deep red fall color		✓	well drained
Celestial Dogwood	<i>Cornus kousa x florida</i>	Rutdan	20	20	upright spreading	disease resistant; white flowers		✓	all
Stellar Pink Dogwood	<i>Cornus kousa x florida</i>	Rutgan	20	20	upright spreading	disease resistant; pink flowers		✓	all
Venus Dogwood	<i>Cornus kousa x nutalli</i>	KN 30-8	25	20	Upright oval	very large white flowers; vigorous growth		✓	well drained
Thornless Cockspur Hawthorn	<i>Crataegus crus-galli</i>	Inermis	25	25	rounded	no thorns; orange fall color	✓	✓	all
Black Hawthorn	<i>Crataegus douglasii</i>		20	15	oval	native/wildlife, shade tolerant	✓	✓	all
Crimson Cloud Hawthorn	<i>Crataegus laevigata</i>	Crimson Cloud	25	18	shrubby/round	red flowers; fruit with star-shaped area in center	✓	✓	all
Washington Hawthorn	<i>Crataegus phaenopyrum</i>		25	20	oval/rounded	white flowers; red fruit; orange/red in fall	✓	✓	all
Lavalle Hawthorn	<i>Crataegus x lavallei</i>		28	20	irregular/vase	white flowers; orange fruit	✓	✓	all
Golden Desert Ash	<i>Fraxinus excelsior</i>	Aureafoia	20	20	rounded	golden twigs	✓	✓	all
Flowering Ash	<i>Fraxinus ornus</i>		30	15	pyramidal/round	yellow in fall	✓		all
Goldenrain Tree	<i>Koelreuteria paniculata</i>		30	30	rounded	yellow floral clusters; summer flowering	✓	✓	all
Amur Maackia	<i>Maackia amurensis</i>		25	20	vase	white flower clusters	✓	✓	all
Butterflies Magnolia	<i>Magnolia acuminata x denudata</i>	Butterflies	20	20	upright/pyramidal	showy yellow flowers		✓	well-drained
Edith Bogue Magnolia	<i>Magnolia grandiflora</i>	Edith Bogue	30	15	tightly pyramidal	broadleaf evergreen tree; large creamy white flowers			well drained
Galaxy Magnolia	<i>Magnolia liliflora x sprengeri</i>	Galaxy	30	15	pyramidal to oval	deciduous; strong central leader	✓		well drained
Merrill Magnolia	<i>Magnolia x loebneri</i>	Merrill	25	25	oval/rounded	white/pink flowers at early age			all
Golden Raindrops	<i>Malus spp.</i>	Golden Raindrops	20	15	vase	deep cut leaves; golden fruit	✓	✓	all
Prairiefire Crabapple	<i>Malus spp.</i>	Prairiefire	20	20	upright/rounded	disease resistant; pink flowers; red foliage	✓	✓	all
Robinson Crabapple	<i>Malus spp.</i>	Robinson	25	25	upright rounded	fast growing; pink flowers; red fruit	✓	✓	all
Sugar Tyme Crabapple	<i>Malus spp.</i>	Sutyzam	18	15	oval	pink buds; white flower	✓	✓	all
Zumi Calocarpa Crabapple	<i>Malus x zumi</i>	Calocarpa	20	25	Rounded/spreading	disease resistant; white flowers; red fruit	✓	✓	all
Tschonoskii Crabapple	<i>Malus tschonoskii</i>		28	14	narrowly oval	white flowers; greenish fruit	✓	✓	all
American Hophornbeam	<i>Ostrya virginiana</i>		35	25	upright oval	hop-like fruit; yellow in fall	✓		all
Persian Parrotia	<i>Parrotia persica</i>		30	20	rounded	early flowers; mix of fall color			well drained
Thundercloud Plum	<i>Prunus cerasifera</i>	Thundercloud	20	20	upright/rounded	light pink flowers; purple leaves	✓	✓	all
Cascade Snow Cherry	<i>Prunus</i>	Berry	25	20	upright spreading	disease resistant; white flowers		✓	all
Snow Goose Cherry	<i>Prunus</i>	Snow Goose	20	20	upright/wide	disease resistant; white flowers; widens w/ age		✓	all
Capital Pear	<i>Pyrus calleryana</i>	Capital	35	12	columnar	white flowers; red in fall	✓		all
Redspire Pear	<i>Pyrus calleryana</i>	Redspire	35	25	pyramidal	white flowers; red in fall	✓		all
Cascara	<i>Rhamnus purshiana</i>		25	28	oval	native/wildlife; shade tolerant; yellow-purple in fall		✓	all
Japanese Stewartia	<i>Stewartia pseudocamellia</i>		30	20	pyramidal/oval	white flowers; peeling bark; avoid high heat/drought	✓	✓	moist acidic
Japanese Snowbell	<i>Styrax japonicus</i>		25	25	rounded	bell shaped flowers; yellow in fall	✓	✓	well drained
Ivory Silk Japanese Tree Lilac	<i>Syringa reticulata</i>	Ivory Silk	20	15	upright/rounded	creamy panicles; heavy flowering			all
Emerald Sunshine Elm	<i>Ulmus propinqua</i>	JFS-Bieberich	35	25	vase	fast growing; urban tolerant; yellow in fall	✓		all
City Sprite Zelkova	<i>Zelkova serrata</i>	JFS-KW1	24	18	compact oval/vase	bright green foliage; low maintenance	✓	✓	all

City of Vancouver Street Tree Selection

Minimum 6' Planting Strip Width

*Refer to 4' tree list for additional trees for use under power lines

Call (360) 487-8332 for a site inspection before planting a street tree.

Updated 2012

Common Name	Scientific Name	Cultivar	Height (in FT)	Width (in FT)	Shape	Features/Considerations	Drought Tolerant	Overhead Utilities OK*	Soil Type
Armstrong Maple	<i>Acer rubrum</i>	Armstrong	45	15	narrow	fast growing; yellow-orange in fall			all
Bowhall Maple	<i>Acer rubrum</i>	Bowhall	40	15	narrow	great fall color	✓		all
Redpointe Maple	<i>Acer rubrum</i>	Frank Jr.	45	30	broadly pyramidal	strong central leader; urban tolerant; bright red in fall	✓		all
October Glory Maple	<i>Acer rubrum</i>	October Glory	40	35	broadly oval	outstanding fall color; bright red	✓		all
Green Mountain Maple	<i>Acer saccharum</i>	Green Mountain	45	35	broadly oval	heat tolerant; reddish-orange fall color	✓		all
Norwegian Sunset Maple	<i>Acer truncatum x platanoides</i>	Keithsform	35	25	upright/oval	uniform canopy; orange/red in fall	✓		well drained
Red Horse Chestnut	<i>Aesculus x carnea</i>	Briotti	30	35	rounded	long rosy cluster; small variety; spiky nuts	✓		all
European Hornbeam	<i>Carpinus betulus</i>	Fastigiata	35	25	upright/oval	catkins turn brown in November; yellow in fall	✓		all
Japanese Hornbeam	<i>Carpinus japonicus</i>		30	25	rounded vase	white/yellow flowers; red in fall	✓	✓	all
Hackberry	<i>Celtis occidentalis</i>		45	35	broadly arching	very urban tolerant; rarely lifts sidewalks	✓		all
Katsura Tree	<i>Cercidiphyllum japonicum</i>		40	40	pyramidal/rounded	heart shaped leaves; red-orange in fall			all
Yellowwood	<i>Cladrastis kentukea</i>		30	40	round	fragrant summer flowers; yellow in fall	✓		all
Autumn Applause Ash	<i>Fraxinus americana</i>	Autumn Applause	40	25	oval	maroon fall color; colors early			all
Autumn Purple Ash	<i>Fraxinus americana</i>	Junginger	45	40	rounded	fall color varies from yellow orange to deep purple			all
Cimmaron Ash	<i>Fraxinus pennsylvanica</i>	Cimmzam	45	30	upright oval	excellent summer foliage; rusty red in fall	✓		all
Marshall Ash	<i>Fraxinus pennsylvanica</i>	Marshall	50	40	broadly oval	tough/adaptable; yellow in fall	✓		all
Summit Ash	<i>Fraxinus pennsylvanica</i>	Summit	45	25	narrowly oval	yellow in fall	✓		all
Autumn Gold Ginkgo	<i>Ginkgo biloba</i>	Autumn Gold	35	30	columnar	seedless male; yellow in fall	✓		all
Princeton Sentry Ginkgo	<i>Ginkgo biloba</i>	Princeton Sentry	40	15	columnar	seedless male; yellow in fall	✓		all
Skyline Honeylocust	<i>Gleditsia triacanthos</i>	Skycole	45	35	broadly pyramidal	tolerant of pollution; golden in fall	✓		all
Shademaster Honeylocust	<i>Gleditsia triacanthos</i>	Shademaster	45	35	vase	upright branching; yellow in fall	✓		all
Mountain Silverbells	<i>Halesia monticola</i>		40	25	conical/rounded	white bell shaped flowers; yellow fall color			all
Yulan Magnolia	<i>Magnolia denudata</i>		35	30	pyramidal	creamy flowers; use on non-windy site			all
Fruitless Mulberry	<i>Morus alba</i>	Kingens	35	40	rounded	fruitless	✓		all
Sour Gum / Black Tupelo	<i>Nyssa sylvatica</i>		35	20	pyramidal	red yellow in fall			all
Red Range Tupelo	<i>Nyssa sylvatica</i>	Haymanred	35	20	broadly pyramidal	glossy foliage resistant to leaf spot; bright red in fall	✓		all
European Hophornbeam	<i>Ostrya carpinifolia</i>		40	25	rounded	nutlets in hop-like bunches	✓		all
Macho Cork Tree	<i>Phellodendron amurense</i>	Macho	40	30	vase shaped	seedless; yellow in fall			all
Kwanzan Flowering Cherry	<i>Prunus serrulata</i>	Kwanzan	30	20	vase/rounded	pink, double flowers; hardiest <i>P. serrulata</i> ; orange in fall			all
Aristocrat Pear	<i>Pyrus calleryana</i>	Aristocrat	40	28	pyramidal	open formal appearance; red fall			all
Sawtooth Oak	<i>Quercus acutissima</i>		40	40	rounded	clean foliage; yellow/brown in fall			well drained
Forest Green Oak	<i>Quercus frainetto</i>	Schmidt	50	30	oval	strong central leader	✓		all
Crimean Linden	<i>Tilia x euchlora</i>		40	35	broadly pyramidal	glossy foliage; yellow in fall	✓		all
Redmond Linden	<i>Tilia americana x euchlora</i>	Redmond	35	25	densely pyramidal	rapid grower; develops caliper at a young age			all
Legend Linden	<i>Tilia americana</i>	DTR 123	40	30	broadly pyramidal	strong central leader; glossy leaves	✓		all
Greenspire Linden	<i>Tilia cordata</i>	Greenspire	40	30	pyramidal	strong/uniform; yellow in fall	✓		all
Sterling Silver Linden	<i>Tilia tomentosa</i>	Sterling	45	35	pyramidal	dark green/silver underside; fewer aphids	✓		all
Frontier Elm	<i>Ulmus</i>	Frontier	40	30	arching vase	disease resistant; fast grower; reddish-purple in fall	✓		all
Prospector Elm	<i>Ulmus wilsoniana</i>	Prospector	40	30	vase shaped	disease resistant; urban tolerant; yellow in fall	✓		all
Wireless Zelkova	<i>Zelkova serrata</i>	Schmidlow	25	35	spreading vase	ideal for use under power lines	✓	✓	all
Village Green Zelkova	<i>Zelkova serrata</i>	Village Green	40	38	vase shaped	clean appearance; red in fall			all

**City of Vancouver
Street Tree Selection**

Minimum 8' Planting Strip Width

***Refer to 4' tree list for additional trees for use under power lines**

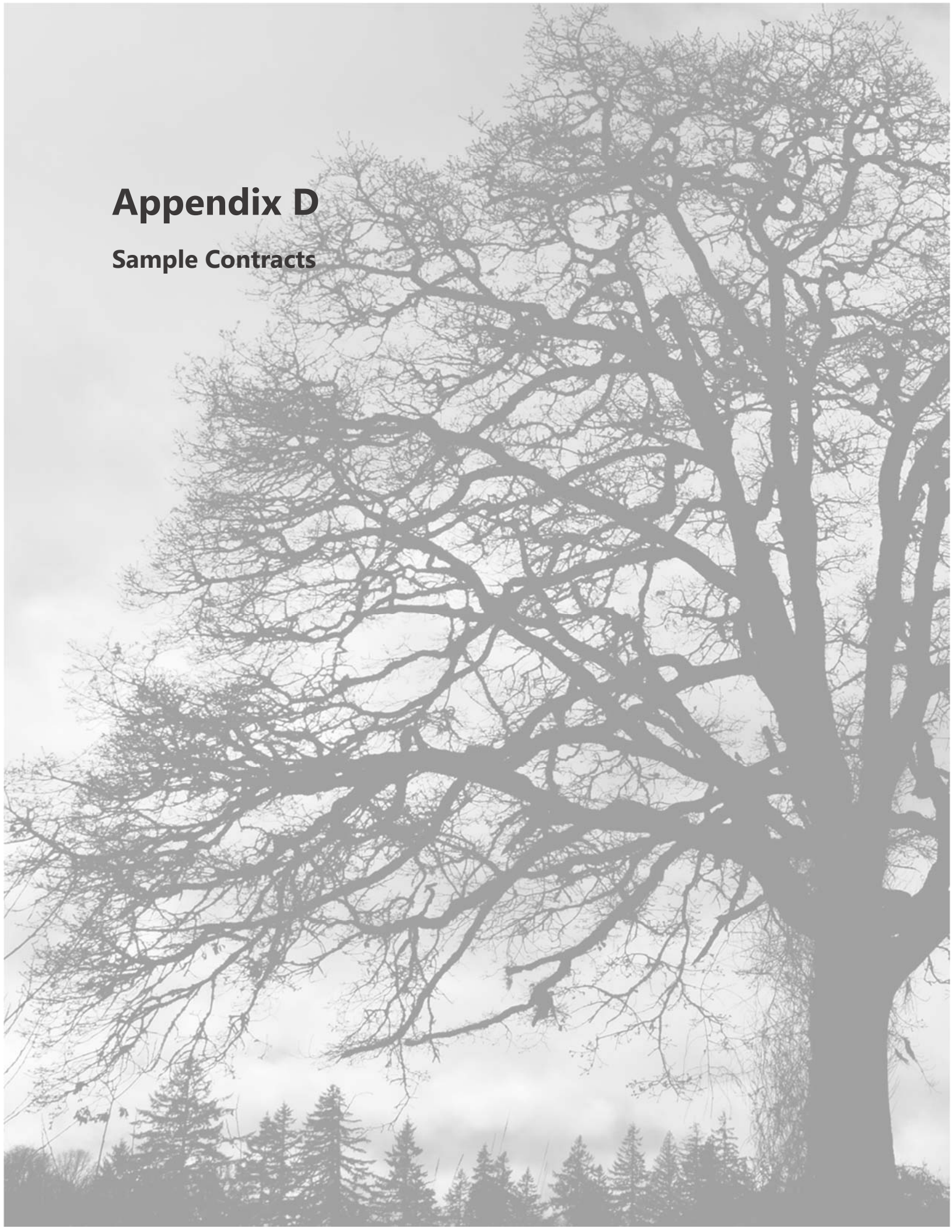
Call (360) 487-8332 for a site inspection before planting a street tree.

Updated 2012

Common Name	Scientific Name	Cultivar	Height (in FT)	Width (in FT)	Shape	Features/Considerations	Drought Tolerant	Overhead Utilities OK*	Soil Type
Autumn Blaze Maple	<i>Acer x freemani</i>	Jeffersred	50	40	broadly oval	fast growing; brilliant long-lasting fall color	✓		all
State Street Maple	<i>Acer miyabei</i>	Morton	50	35	rounded	red in fall	✓		all
Crimson King Maple	<i>Acer platanoides</i>	Crimson King	40	35	oval/rounded	purple leaves; reddish bronze in fall			all
Emerald Queen Maple	<i>Acer platanoides</i>	Emerald Queen	50	40	oval/upright	tolerant of pollution			all
Summershade Maple	<i>Acer platanoides</i>	Summershade	42	40	broad/rounded	fast growing; yellow in fall			all
Spaethii Maple	<i>Acer pseudoplatanus</i>	Atropurpureum	40	30	oval/upright	green/purple leaves			all
Red Sunset Maple	<i>Acer rubrum</i>	Franksred	45	35	upright/oval	vigorous/symmetrical; orange/red in fall	✓		all
Schlesinger Maple	<i>Acer rubrum</i>	Schlesingeri	45	35	vase shaped	orange/red in fall	✓		all
Bonfire Maple	<i>Acer saccharum</i>	Bonfire	50	40	broadly oval	fast growing; orange-red in fall	✓		all
Commemoration Maple	<i>Acer saccharum</i>	Commemoration	50	35	oval/rounded	fast growing; develops good caliper as a young tree			all
Legacy Maple	<i>Acer saccharum</i>	Legacy	50	35	oval	glossy leaves; orange-red in fall	✓		all
Heritage River Birch	<i>Betula nigra</i>	Cully	40	30	broadly pyramidal	pinkish tan exfoliating bark; yellow in fall			all
Magnifica Hackberry	<i>Celtis</i>	Magnifica	50	40	broadly oval/vase	fast grower; good insect resistance; yellow in fall	✓		all
Hardy Rubber Tree	<i>Eucommia ulmoides</i>		55	45	conical/globose	yellowish in fall	✓		all
American Beech	<i>Fagus americana</i>		50	40	broadly oval	slow growing; striking grey bark	✓		all
European Beech	<i>Fagus sylvatica</i>		50	35	slightly rounded	leaves persistent through winter; striking bark			well drained
Fernleaf Beech	<i>Fagus sylvatica</i>	Asplenifolia	50	40	Broadly oval	dark green cutleaf foliage; golden brown in fall			well drained
Rivers Purple Beech	<i>Fagus sylvatica</i>	Riversii	50	40	broadly oval	deep purple foliage; striking grey bark			well drained
Oregon Ash	<i>Fraxinus latifolia</i>		50	30	upright oval	native tree; drought and flood tolerant	✓		all
Kentucky Coffeetree	<i>Gymnocladus dioicius</i>		65	50	ovate	bluish green leaflets; yellow in fall	✓		all
Rotundiloba Sweetgum	<i>Liquidambar styraciflua</i>	Rotundiloba	45	25	pyramidal	fruitless; unique rounded lobes; orange to purple in fall	✓		all
Tulip Tree	<i>Liriodendron tulipifera</i>		60	30	oval	yellow flowers; yellow in fall			all
Dawn Redwood	<i>Metasequoia glyptostoboides</i>		60	25	conical	fast growing; deciduous conifer; urban tolerant	✓		all
Bloodgood London Planetree	<i>Platanus x acerifolia</i>	Bloodgood	50	40	broadly pyramidal	exfoliating bark; somewhat disease resistant	✓		all
Swamp White Oak	<i>Quercus bicolor</i>		45	45	rounded	adapted to wet soils	✓		well drained
Scarlet Oak	<i>Quercus coccinea</i>		50	40	upright/oval	red in fall	✓		all
Oregon White Oak	<i>Quercus garryana</i>		65	50	oval	native; slow grower; yellow in fall	✓		all
Pin Oak	<i>Quercus palustris</i>		55	40	pyramidal	strong leader; retains leaves in winter; orange/red in fall	✓		well drained
Willow Oak	<i>Quercus phellos</i>		60	40	rounded/oval	very urban tolerant; transplants easily	✓		all
Shingle Oak	<i>Quercus imbricaria</i>		50	40	broadly oval	transplants readily; beautiful summer foliage	✓		well drained
Red Oak	<i>Quercus rubra</i>		50	45	rounded	fast growing/large; red in fall			well drained
Shumard Oak / Texas Red	<i>Quercus shumardii</i>		50	40	upright/oval	red in fall	✓		well drained
Bald Cypress	<i>Taxodium distichum</i>		55	30	pyramidal/oval	deciduous conifer; wet/dry sites; urban tolerant	✓		all
Accolade Elm	<i>Ulmus</i>	Morton	70	60	arching vase	disease resistant; fast grower; graceful arching habit	✓		all
Homestead Elm	<i>Ulmus</i>	Homestead	50	35	arching vase	tolerant to urban conditions; fast grower; yellow in fall			all
Pioneer Elm	<i>Ulmus</i>	Pioneer	50	50	rounded	disease resistant; vigorous grower	✓		all
Triumph Elm	<i>Ulmus</i>	Morton Glossy	55	45	upright oval/vase	disease resistant; glossy green foliage	✓		all
Valley Forge Elm	<i>Ulmus americana</i>	Valley Forge	70	70	broad vase	disease resistant; traditional American Elm form	✓		all
Green Vase Zelkova	<i>Zelkova serrata</i>	Green Vase	50	40	vase shaped	clean appearance; red in fall	✓		all

Appendix D

Sample Contracts



Salt Lake City, UT

Tree Purchase Contract

(provided by SuperTrees, Inc. of Canby, OR)

AGREEMENT

1. Contractor shall provide certain landscape trees for City's Urban Forestry Program as described in Exhibit "A" for the term commencing as of the date of this Agreement and continuing for up to 5 years. All financial commitments by City shall be subject to the appropriation of funds approved by the City Council and the limitations on future budget commitments provided under applicable Utah law.
2. For services provided to City, Contractor shall be paid as specified under Exhibit "B" (Price Schedule).
3. For such consideration, Contractor shall furnish all materials, supervision, labor and equipment to complete the requirements of this Agreement.
4. Contractor shall obey all federal, state, county, and municipal laws, ordinances, regulations, and rules applicable to its operations.
5. City may, without prejudice to any right or remedy, terminate this Agreement for cause in the event Contractor fails to fulfill, in a timely or satisfactory manner, any of the terms and conditions set forth in this Agreement.
6. If this Agreement is canceled or terminated, City shall pay Contractor on the basis of actual services satisfactorily performed.
7. Contractor is not an employee of City for any purpose whatsoever. Contractor is an independent contractor at all times during the performance of the services specified herein.
8. This Agreement shall be enforced in and governed by the laws of the state of Utah.

EXHIBIT "A"

SCOPE OF WORK

LANDSCAPE TREES

GENERAL:

1. Contractor, if doing business under an assumed name shall be registered with the Utah State Division of Corporations and Commercial Code.
2. Contractor shall assume full responsibility for damage to City property caused by Contractor's employees or equipment as determined by designated City personnel.
3. Contractor shall be solely responsible for the safety of Contractor's employees and others relative to Contractor's work, work procedures, material, equipment, transportation, signage, and related activities and equipment.
4. Contractor shall possess and keep in force all licenses and permits required to perform services under this Agreement.
5. No guarantee of the actual service and product requirement is implied or expressed by this Agreement. Service requirements shall be determined by actual need.
6. Contractor is not responsible for trees damaged (after accepted delivery) as a result of natural disasters, insufficient or improper owner maintenance, weather, inclement conditions, vandalism, disease, and other causes City determines to be outside Contractor's control.

LANDSCAPE TREES AND DELIVERY:

Contractor shall supply trees ordered by the City's Urban Forestry program manager or designee. The annual order may vary from year to year regarding specific species and quantities of trees ordered. The responsibilities of Contractor shall include, but not be limited to the following minimum requirements:

Order, Delivery and Payment

1. Contractor shall work directly with the Urban Forestry program manager or designee to coordinate the annual order placement each autumn and shall agree to an acceptable delivery schedule for the following spring.
2. City may order trees other than in the autumn schedule.
3. Contractor shall deliver the trees to a designated City site or yard and shall transport trees so they are protected from injury and drying out during transit.

Salt Lake City, UT

Tree Purchase Contract

(provided by SuperTrees, Inc. of Canby, OR)

4. City shall be accountable for payment only for live trees delivered in healthy, good condition.

Tree Specifications

1. Each tree shall have an attached tag printed with the tree name as specified in City's written order.
2. All trees shall have the typical form or shape characteristic of the species and have a structure conducive for street trees.
3. Roots shall be healthy and free of girdled or kinked roots. Trees shall be free of suckers.
4. All trees shall be established in containers or balled and wrapped with burlap.

Damaged Trees and Rejection. City shall inspect stock at delivery and may reject any of the following:

1. Tree deliveries that are not scheduled.
2. Trees with damaged leaders, trunks, or major branches.
3. Trees with damaged or dried out roots or broken root balls.
4. Tree quality, size, and form are inconsistent with species.

Unable to fill order

If the Contractor is unable to supply the trees committed to City, another source of supply may be utilized or a suitable substitution agreed upon.

EXHIBIT "B"

PRICE SCHEDULE

LANDSCAPE TREES

GENERAL:

1. Prices stated include all costs associated with the performance of the services specified. No other charges shall be allowed. Prices are stated in U.S. dollars.
2. City is exempt from sales, use, and federal excise taxes on these products and services.
3. Prices stated shall be firm for the initial 2-year term of this Agreement, after which price adjustments may be made.
4. City shall pay Contractor for all products and services provided by Contractor pursuant to this Agreement. Contractor shall submit a written invoice, in duplicate, for services rendered and City shall pay the invoiced fee within thirty days after receipt. Contractor shall list the City contract number on all invoices, quotes, correspondence, and documentation relating to this contract.

PRICING:

1. Firm fixed delivered unit price shall apply to all trees delivered in accordance with the specifications referred to in Exhibit "A".
2. Orders placed 2 years or more in advance of delivery, shall receive a negotiated discount or special pricing.

Species and Variety	Size and Attributes	Unit Price per Tree

PERSONAL SERVICES CONTRACT

BETWEEN: The City of Eugene, an Oregon
Municipal Corporation (City)

AND: Heritage Seedlings, Inc. (Contractor)
a corporation organized and existing under the laws of
the State of Oregon

CONTRACT NO.: 2015 - 05419

Tax ID Number: _____

Expiration Date: December 31, 2018

RECITALS

- A. Contractor is engaged in the business of seed and plant production and has expertise in native seed production.
- B. City desires to engage Contractor to provide the Services described in this agreement and Contractor is willing to provide such Services on the terms and conditions set forth herein.
- C. The contract described herein was awarded under the exemption or procedure authorized by Administrative Order 44-14-08, Public Contracting Rules 2014 Section 137-047-0275.

AGREEMENT

1. Incorporation of Exhibits; Definitions; Contractor's Representations and Warranties.

- 1.1 **Exhibits.** The contract between the parties (the "Contract") includes and incorporates into this document (this "Agreement") all of the following:
 - 1.1.1 **Exhibit A** summarizes certain federal, state and municipal laws that apply to government contracts. The provisions of **Exhibit A** are statements of law and may not be modified.
 - 1.1.2 **Exhibit B** is to be used by the parties to set forth special provisions that are not included in the standard forms, or to delete or modify a provision of this Agreement or another exhibit. If **Exhibit B** is signed by the parties, its provisions will take priority over all conflicting provisions, except for the provisions of **Exhibit A**.
 - 1.1.3 **Other Exhibits.** The Contract also includes and incorporates the following exhibits. The provisions of this Agreement will have priority over all conflicting provisions of the following exhibits.

Exhibit C Scope of Services

1.2 **Definitions.** With the exception of proper nouns, capitalized terms not otherwise defined herein shall have the following meanings.

1.2.1 **“Agreement”** means this document, entitled Personal Services Contract and ending with the signatures of all parties.

1.2.2 **“Contract”** means the written statement of the parties’ mutual and respective agreements, promises, undertakings and rights as set forth in this Agreement and all incorporated exhibits.

1.2.3 **“Services”** means all of the products, properties and services to be provided by Contractor under this Contract, as described in Exhibit C.

1.3 **Contractor’s Representations and Warranties.** Contractor makes the following representations and warranties to City:

1.3.1 Contractor and Contractor’s personnel are and will at all times hereunder be fully qualified by all necessary education, training, experience, licensure and certification to perform the Services.

1.3.2 As of the date of execution hereof, there are no claims or suits or proceedings, or threats thereof, seeking to enjoin the execution of the Contract by Contractor or the effect of which could prevent Contractor from performing or having the authority to perform the Services.

1.3.3 Neither the execution of the Contract nor the performance of the Services will constitute a breach or violation of any other contract, agreement, or law by which Contractor is bound or to which Contractor or any of its personnel who will perform the Services are subject.

2. **Services.**

2.1 **Commencement.** Contractor shall begin to provide the Services immediately, upon execution of this Agreement.

2.2 **Key Personnel.** Contractor has agreed that certain key personnel shall be assigned to perform certain parts of the Services, as described below: Removal of these key personnel from the specified tasks without the prior approval of City will be a material breach of the Contract: none.

2.3 **Security.** If the Services will be performed on City property, Contractor will comply with all of City’s security policies and procedures.

3. **Term.**

3.1 **Initial Term.** The initial term of the contract shall expire, unless terminated or renewed, on the expiration date shown in the caption of this agreement.

- 3.2 **Renewal.** Upon completion of the initial terms of service, the City may elect to extend the contract for up to five (5) additional one-year terms by mutual agreement of the parties. .
4. **Compensation.** City will make payments within thirty (30) days of receipt of a properly submitted invoice. Electronic invoices are preferred and shall be sent to ap@ci.eugene.or.us. Non-electronic invoices can be sent to City of Eugene, Accounts Payable, PO Box 11110; Eugene, OR 97440. Please reference Account **#9335**.
5. **Termination.** Notwithstanding any other provisions hereof to the contrary, the Contract may be terminated as follows:
- 5.1 The parties, by mutual written agreement, may terminate the Contract at any time.
- 5.2 Either party may terminate the Contract if the other party is in breach of any provision hereof which breach continues for more than 30 days after a notice describing the breach has been given unless, in the case of a breach which cannot be cured within such 30-day period, the breaching party immediately initiates and diligently prosecutes a plan of curative action that is acceptable to the non-breaching party. Notwithstanding the foregoing, termination for a recurring breach may be made if the breach is uncured within seven days after the second notice in any twelve-month period and immediately, without opportunity for cure, in the third or any subsequent notice of breach in any twelve-month period.
- 5.3 The City may terminate the Contract on any date specified in a notice if funding for the Services becomes unavailable or if the City determines that termination of the Contract is required by the public interest.
- 5.4 City may terminate the Contract immediately and without prior notice upon Contractor's failure to have in force any insurance required by the Contract, if Contractor breaches the City's security requirements, if Contractor fails to maintain any certificate or license required for performance of the Services, or as provided in Exhibit A.
- 5.5 Contractor may terminate the Contract without liability to City by providing at least ninety (90) days' prior written notice.
6. **Remedies.**
- 6.1 In the event of a termination of the Contract by City because of a breach by Contractor, City may complete the Services either by itself or by contract with other persons, or any combination thereof. Contractor shall be liable to City for any costs or losses incurred by City arising out of or related to the breach, including costs incurred in selecting other contractors, time-delay losses, attorney fees and the like, less the remaining unpaid balance of the consideration provided in the Contract. City may withhold payment of sums due Contractor for Services performed to the date of termination until City's costs and losses have been determined, at which time City may offset any such amount due Contractor against the costs and losses incurred by City.

- 6.2 The foregoing remedies provided to City for breach of the Contract by Contractor shall not be exclusive. City shall be entitled to exercise any one or more other legal or equitable remedies available because of Contractor's breach with or without termination.
- 6.3 In the event of breach of the Contract by City, Contractor's remedy shall be limited to termination of the Contract and payment for Services performed to the date of termination less any offset to which City is entitled.
7. **Records/Inspection.** Contractor shall maintain records of its charges to City under the Contract for a period of not less than three years following Contractor's completion of the Contract. Upon reasonable advance notice, City or its authorized representatives may from time to time inspect, audit and make copies of any Contractor's records that relate to the Contract. If any audit by City discloses that payments to the Contractor were in excess of the amount to which Contractor was entitled under the Contract, Contractor shall promptly pay to City the amount of such excess. If the excess charged by Contractor for any audited period is greater than two percent of the amount that should have been charged for that period, Contractor shall also reimburse City its reasonable costs incurred in performing the audit.
8. **Indemnification:** Contractor shall indemnify and hold City, and its officers, agents and employees, harmless from and against all claims, actions, liabilities, costs, including attorney fees and other costs of defense, arising out of the acts, errors or omissions, whether alleged or actual, of Contractor, its subcontractors, agents and employees in performing or failing to perform the Services, failing to strictly comply with any provision of the Contract or any other actions or failures to act by Contractor and Contractor's employees, agents, and subcontractors. In the event any such action or claim is brought against City, Contractor shall, if City so elects and upon tender by City, defend the same at Contractor's sole cost and expense, promptly satisfy any judgment adverse to City or to City and Contractor, jointly, and reimburse City for any loss, cost, damage or expense, including attorney fees, suffered or incurred by City. City shall notify Contractor, within a reasonable time, of any claim, threat of claim or legal action.
9. **Insurance:** Contractor shall have and maintain the insurance policies specified below. Each policy of insurance shall be written as a primary policy, not contributing with or in excess of any coverage which City may carry. A copy of each policy or a certificate satisfactory to City shall be delivered to City prior to commencement of the Services. The adequacy of all insurance policies for compliance with this Section 9 shall be subject to approval by City's Risk Manager. Failure to maintain any insurance coverage required by the Contract shall be cause for immediate termination of the Contract by City.

Unless otherwise specified, each policy shall be written on an "occurrence" form with an admitted insurance carrier licensed to do business in the state of Oregon; and shall contain an endorsement entitling City to not less than 30 days prior written notice of any material change, non-renewal or cancellation. In the event the statutory limit of liability of a public body for claims arising out of a single accident or occurrence is increased above the combined single limit coverage requirements specified below, City shall have the right to require that Contractor increase the coverage limits of all liability policies by the amount of the increase in the statutory limit.

- 9.1 **Commercial General Liability.** Contractor shall maintain a broad form commercial general liability insurance policy with coverage of not less than \$2,000,000 combined single limit per occurrence, with an annual aggregate of \$3,000,000, for bodily injury, personal injury or property damage. Such policy shall contain a contractual liability endorsement to cover Contractor's indemnification obligations under the Contract. The policy shall also contain an endorsement naming City as an additional insured, in a form satisfactory to City, and expressly providing that the interest of City shall not be affected by Contractor's breach of policy provisions.
- 9.2 **Workers' Compensation Insurance:** Contractor shall comply with the Oregon Workers' Compensation law by qualifying as a carrier-insured employer or as a self-insured employer and shall strictly comply with all other applicable provisions of such law. Contractor shall provide City with such further assurances as City may require from time to time that Contractor is in compliance with these Workers' Compensation coverage requirements and the Workers' Compensation law. Contractor is a subject employer that will comply with ORS 656.017.
- 9.3 **Automobile Liability:** Contractor shall maintain an automobile liability insurance policy reflecting limits of not less than \$2,000,000 combined single limit per occurrence for bodily injury, personal injury or property damage. The coverage shall include both hired and non-owned auto liability. The policy shall also contain an endorsement naming City as an additional insured, in a form satisfactory to City, and expressly providing that the interest of City shall not be affected by Contractor's breach of policy.
- 9.4 **Professional Liability:** Contractor shall maintain a professional liability insurance policy reflecting limits of not less than \$2,000,000 for claims for professional acts, errors or omissions arising from the Work. The policy may be written on a "claims made" form. The policy shall contain an endorsement entitling the City not less than 60 days prior written notice of any materials change, nonrenewal or cancellation of such policy. Contractor shall maintain the professional liability insurance coverage for at least one year after completion of the Work.
10. **Subcontracting.** Contractor was selected for its special knowledge, skills and expertise, and shall not subcontract the Services, in whole or in part, without City's prior written approval, which may be withheld for any reason. Contractor shall require any approved subcontractor to agree, as to the portion subcontracted, to comply with all obligations of Contractor specified in the Contract. Notwithstanding City's approval of a subcontractor, Contractor shall remain obligated for full performance of the Contract and City shall incur no obligation to any subcontractor. Contractor shall indemnify, defend and hold City harmless from all claims of subcontractors.
11. **Assignment.** Contractor shall not assign the Contract, in whole or in part, or any right or obligation hereunder, without City's prior written approval, which approval shall not be subject to a reasonableness standard. If Contractor is a corporation or partnership, a change in ownership of Contractor resulting from a voluntary transfer of stock or partnership interests, or a transfer upon death or disability of any owner, shall not constitute an assignment unless the transferor is one of the key personnel specified in Section 2.2 of this Agreement.

12. **Independent Contractor.** Whether Contractor is a corporation, partnership, other legal entity or an individual, Contractor is an independent contractor. If Contractor is an individual, Contractor's duties will be performed with the understanding that Contractor is a self-employed person, has special expertise as to the services which Contractor is to perform and is customarily engaged in the independent performance of the same or similar services for others. The manner in which the services are performed shall be controlled by Contractor; however, the nature of the services and the results to be achieved shall be specified by City. Contractor is not to be deemed an employee or agent of City and has no authority to make any binding commitments or obligations on behalf of City except to the extent expressly provided herein.
13. **Confidential Information.** To be considered "Confidential Information" under the Contract, information must be clearly marked as "confidential information," in a manner that will be obvious immediately upon access. Each party will limit its use of Confidential Information to the purpose for which it was disclosed by the other party and will use a reasonable level of care to prevent the intentional or inadvertent misuse, theft or inappropriate disclosure of such information. Contractor understands that all records held by the City are public records and subject to public disclosure unless a statutory exemption applies, and agrees that City shall have no liability for the disclosure of any Confidential Information under a court order in response to a public records request. Contractor also understands and agrees that the Contract documents and all records of Contractor's fees and charges may not be considered Confidential Information, and are public records for which no exemption to public disclosure applies.
14. **Compliance with Laws.** Contractor shall comply with all applicable Federal, State and local laws, rules, ordinances and regulations at all times and in the performance of the Services, including all applicable provisions of Exhibit A.
15. **Ownership of Work Product.**
- 15.1 All tangible or electronic copies of compilations, reports, plans, drawings, techniques, formulas, works of art, literature or music, or other personal property produced or created specifically for City under the Contract ("Work Products") shall be delivered to the City prior to the completion or termination of the Services and shall be the sole and exclusive property of the City.
- 15.2 In addition to ownership of the Work Products, City shall also be the owner of all copyrights, if any, existing in any Work Product under the federal copyright act except for those rights of attribution and integrity described in 17 USC 106A.
- 15.3 Unless expressly provided to the contrary herein, Contractor waives all rights of attribution and integrity with respect to any work of visual art except the right to prevent the use of his or her name as the author of the work of visual art in the event of a distortion, mutilation or other modification of the work which would be prejudicial to his or her honor or reputation.
- 15.4 With the exception of Work Products that incorporate City's databases or City's confidential information, Contractor may retain and display copies of any Work Product for marketing or demonstration purposes, and Contractor shall have the right to make derivative products based on a Work Product, but Contractor may not sell or commercially exploit any Work Product or reproduction of a Work Product.

- 15.5 Nothing in this Section 15 is intended to appropriate to City any personal property not created for City under the Contract or any property used or incorporated into a Work Product that was owned by Contractor or a third party prior to its use for the Services or that is merely a minor development or enhancement of Contractor's pre-existing proprietary process, formula or technology.
- 15.6 City shall remove Contractor's name and trademarks, if any, from any copy of a Work Product that is modified except when modified by Contractor, and Contractor shall have no responsibility for any modification of a Work Product that is not made under Contractor's supervision.

16. **Notices.** Any notice permitted or required by the Contract shall be deemed given when personally delivered or upon deposit in the United States mail, postage fully prepaid, certified, and with return receipt requested, to the persons and addresses shown below. In addition, if directions for telephonic transmission ("FAX") are set forth below, notices may be delivered by FAX. Notices sent by certified mail will be deemed delivered three business days after placement in the mail and notices sent by FAX will be deemed delivered when successful transmission is electronically confirmed. Except as expressly provided in the Contract, required notices must be signed by the person designated to receive notices, or that person's designee or attorney.

Contractor: Lynda Boyer
Heritage Seedlings, Inc.
4194 71st Ave. SE
Salem, OR 97301

City: Diane Steeck
Public Works/Parks and Open Space
1820 Roosevelt Blvd., Eugene, OR 97402
541-682-4927 phone; 541-682-4882 fax
Diane.m.Steeck@ci.eugene.or.us

Each party shall notify the other of any change in the name, address or FAX instructions to be used for delivery of notices.

17. **Dispute Resolution.**

- 17.1 **Continued Performance.** Unless the Contract is terminated, neither party shall suspend performance of its obligation hereunder pending the resolution of a dispute.
- 17.2 **Negotiation/Mediation.** The parties shall attempt to resolve all disputes by negotiation and voluntary mediation. The parties shall share equally in all common costs of mediation.
- 17.3 **Litigation/Arbitration.** Litigation of a claim that cannot be resolved by negotiation or voluntary mediation shall be initiated by filing a complaint in the Lane County Circuit Court that contains a stipulation to arbitration under ORS 36.410. The claim and all cross and counter-claims filed in response to the complaint shall be submitted to the Court Arbitration Program set forth in ORS 36.400 to 36.425, Chapter 13 of the Oregon Uniform Trial Court Rules and the Lane County Circuit Court supplemental

local rules concerning arbitration. Either party may seek, and shall be entitled to, an order directing the other party to submit to arbitration as provided herein and to judgment for its costs, expenses and attorney fees in obtaining and enforcing the order.

In any litigation, the entire text of any order or permit issued by a governmental or regulatory authority, as well as any documents referenced or incorporated therein by reference, shall be admissible for the purpose of contract interpretation.

17.4 **Construction of Contract.** This Contract shall not be construed against either party regardless of which party drafted it. Other than as modified by agreement, the applicable rules of contract construction and evidence shall apply. This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflict of laws.

17.5 **Forum.** Any litigation between the City and the Contractor that arises from or relates to this Contract shall be brought and conducted solely and exclusively within the Lane County Circuit Court; provided, however, if a dispute must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon, Eugene Division. In no event shall this Subsection be construed as a waiver by the City of Eugene of any form of defense or immunity, whether sovereign immunity, governmental immunity or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR, BY EXECUTION OF THE CONTRACT HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION.

17.6 **Attorneys' Fees.** If any suit, action, arbitration or other proceeding is instituted upon this Contract or to enforce creditor's rights or otherwise pursue, defend or litigate issues related to or peculiar to federal bankruptcy law (including, but not limited to, efforts to obtain relief from an automatic stay), or any other controversy arises from this Contract the prevailing party shall be entitled to recover from the other party and the other party agrees to pay the prevailing party, in addition to costs and disbursements allowed by law, such sum as the court, arbitrator or other adjudicator may adjudge reasonable as an attorneys' fee in such suit, action, arbitration or other proceeding, and in any appeal. Such sum shall include an amount estimated by the court, arbitrator or adjudicator, as the reasonable costs and fees to be incurred in collecting any monetary judgment or award or otherwise enforcing each award, order, judgment or decree entered in such suit, action or other proceeding.

The award of costs and expenses after trial de novo following arbitration under ORS 36.400 et seq. shall be made as provided for in ORS 36.425. The award of costs and expenses after appeal from a judgment entered after trial de novo shall be to the prevailing party designated as such by the appeals court.

18. **Integration.** The Contract embodies the entire agreement of the parties concerning the Services. There are no promises, terms, conditions or obligations other than those contained herein. The Contract shall supersede all prior communications, representations or agreements, either oral or written, between the parties. The Contract shall not be amended except in writing, signed by both parties.

19. **Survival.** Any duty, liability or obligation of a party which arises under this Contract, including without limitation, obligations with respect to indemnification, shall survive the termination or expiration of this Contract and shall be legally enforceable until satisfied by performance or payment, or until enforcement is legally precluded by lapse of time.

20. **No Third-Party Beneficiaries.** There are no third-party beneficiaries of this Contract. The parties agree and intend that this Contract shall be enforceable only by the parties and their duly authorized representatives.

In witness whereof, the parties have, through their duly authorized representatives, executed this Agreement on the dates set forth below.

City of Eugene

By: _____
Kurt Corey, P.E.
Public Works Director

Date: _____

Contractor

Certifications of Contractor: Pursuant to ORS 305.385, Contractor hereby certifies that it is not in violation of any tax laws as defined in ORS 305.380. If Contractor is other than one or more individuals who have signed below, the individual(s) signing on behalf of Contractor hereby further certifies and swears under penalty of perjury and warrants to City that: (a) the full legal name and status of Contractor are as set forth in the caption to this Agreement, and (b) s/he is authorized to execute and deliver this Agreement and the Contract to City of behalf of, and as the act of Contractor.

By: _____
Lynda Boyer
Heritage Seedlings, Inc.

Date: _____

EXHIBIT A

CITY OF EUGENE - STANDARD CONTRACT PROVISIONS Contracts Subject to ORS Chapter 279B Goods and Services including Personal Services OTHER THAN Architects, Engineers, Land Surveyors on Public Improvements

The following provisions, if applicable, are hereby included in and made a part of the attached contract between the City of Eugene and the Contractor named thereon as provided for in the Eugene Code, 1971, the Eugene Public Contracting Rules, the revised statutes of the State of Oregon, and Federal laws, rules, regulations, and guidelines. THE CONTRACTOR AND EVERY SUBCONTRACTOR SHALL INCLUDE THESE PROVISIONS IN EVERY SUBCONTRACT SO THAT THESE PROVISIONS WILL APPLY TO, AND BE BINDING ON EVERY SUBCONTRACTOR. Failure to comply with any of the applicable provisions below shall be a material breach of the contract and may result in debarment of the Contractor or subcontractor from City contracts for up to three (3) years.

1. Fair Employment Practice Provisions (Eugene Code, 1971, Section 4.625 and Eugene Public Contracting Rule 137-046-0500(2))

1.1 Non-Discrimination Requirements. During the performance of this contract, the Contractor and each subcontractor agrees to comply with sections 4.613 to 4.655 of the Eugene Code, 1971, and as follows:

(a) The Contractor and each subcontractor agrees that it will not discriminate against any employee or applicant for employment because of an individual's race, religion, color, sex, national origin, marital status, familial status, age, sexual orientation or source of income, a juvenile record that has been expunged pursuant to ORS 419A.260 and 419A.262, or because an individual is a person with a disability which, with reasonable accommodation by the employer does not prevent the performance of the work involved, unless based upon a bona fide occupational qualification reasonably necessary to the normal operation of the employer's business.

(b) The Contractor and all subcontractors employing 15 or more individuals will develop and implement an affirmative action plan to insure that applicants are employed, and that employees are treated during employment, without regard to their race, color, sex, age or national origin. Such plan shall include, but not be limited to the following: employment, upgrading, demotion, transfer, recruitment, recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.

(c) The Contractor and each subcontractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Human Rights Commission setting forth the provisions of this nondiscrimination clause.

1.2 Reporting. The Contractor and each subcontractor will, prior to commencement and during the term of the contract, provide to the City such documentation, and permit any inspection of records as may be required or authorized by rules adopted by the city manager to determine compliance with subsection 1.1 above.

1.3 Violations. If upon an investigation conducted pursuant to rules adopted by the city manager in accordance with section 2.019 of the Eugene Code, 1971 there is reasonable cause to believe that the Contractor or any subcontractors of the Contractor have failed to comply with any of the terms of subsections 1.1 or 1.2, a determination thereof shall be made by the city manager. Such determination may result in the suspension, cancellation or termination of the principal contract in whole or in part and/or the withholding of any funds due or to become due to the Contractor, pending compliance by the Contractor and/or its subcontractors, with the terms of subsections 1.1 and 1.2. Such determination may further result in debarment of the Contractor in accordance with the adopted rules.

1.4 Failure to Comply. Failure to comply with any terms of subsections 1.1 and 1.2 above shall be a material breach of the contract.

1.5 Inclusion of Fair Employment Practices Provisions in Contracts with Subcontractors. The contractor shall include the provisions of subsections 1.1 through 1.4 above in contracts with subcontractors so that the provisions will be binding upon each subcontractor.

1.6 Contractor Defined. As used in this section 1, "contractor" means all persons, wherever situated, but excluding local, state or federal units of government or their officials, from whom the City purchases Goods and/or Services costing \$2,500 or more in any fiscal year.

2. ORS 279A.120 Nonresident Contractors.

2.1 As used in this section, "nonresident contractor" means a contractor that: (A) has not paid unemployment taxes or income taxes in the state of Oregon during the 12 calendar months immediately preceding submission of the bid for the contract, (B) does not have a business address in this state and (C) stated in the bid for the contract that it was not a "resident bidder" under ORS 279A.120.

2.2 If the Contractor is a nonresident contractor and the contract price exceeds \$10,000, the Contractor shall promptly report to the Department of Revenue on forms to be provided by the Department of Revenue the total contract price, terms of payment, length of contract and such other information as the Department of Revenue may require before the Contractor may receive final payment on the public contract. The City may not award a Public Improvement Contract or a Public Works Contract to a nonresident bidder that is an educational service district. The City shall satisfy itself that the requirement of this subsection has been complied with before the City issues a final payment on a public contract.

3. ORS 279B.220 and Eugene Rule 137-046-0500(5) Conditions concerning payment, contributions, liens, withholding.
The Contractor shall:

- (a) Make payment promptly, as due, to all persons supplying to the contractor labor or material for the performance of the work provided for in the contract.
- (b) Pay all contributions or amounts due the Industrial Accident Fund from the contractor or subcontractor incurred in the performance of the contract.
- (c) Not permit any lien or claim to be filed or prosecuted against the state or a county, school district, municipality, municipal corporation or subdivision thereof, on account of any labor or material furnished.
- (d) Pay to the Department of Revenue all sums withheld from employees under ORS 316.167.

4. ORS 279B.225 Condition concerning salvaging, recycling, composting or mulching yard waste material. If the contract will include lawn and landscape maintenance the Contractor shall salvage, recycle, compost or mulch yard waste material at an approved site, if feasible and cost-effective.

5. ORS 279B.230 and Eugene Rule 137-046-0500(6) Condition concerning payment for medical care and providing workers' compensation.

5.1 The Contractor shall promptly, as due, make payment to any person, copartnership, association or corporation furnishing medical, surgical and hospital care services or other needed care and attention, incident to sickness or injury, to the employees of the contractor, of all sums that the contractor agrees to pay for the services and all moneys and sums that the contractor collected or deducted from the wages of employees under any law, contract or agreement for the purpose of providing or paying for the services.

5.2 All subject employers working under the contract are either employers that will comply with ORS 656.017 or employers that are exempt under ORS 656.126.

6. ORS 279B.235 and Eugene Rule 137-046-0500(7) Condition concerning hours of labor. The contractor shall pay employees for overtime work performed under the public contract in accordance with ORS 653.010 to 653.261 and the Fair Labor Standards Act of 1938 (29 U.S.C. 201 et seq.).

6.1 Personal Services Contracts. In the case of Personal Services Contracts, the employee shall be paid at least time and a half for all overtime worked in excess of forty (40) hours in any one (1) week, except for individuals under Personal Services Contracts who are excluded under ORS 653.010 to 653.261 or under 29 U.S.C. 201 et seq. from receiving overtime.

6.2 Contracts for Services. In the case of contracts for services, persons employed under the contracts shall receive at least time and a half pay for work performed on the legal holidays specified in a collective bargaining agreement, in ORS 279B.020(1)(b)(B) to (G), or in ORS 279C.540 (1)(b)(B) to (G) and for all time worked in excess of ten (10) hours in any one (1) day or in excess of forty (40) hours in any one (1) week, whichever is greater.

7. ORS 279B.240 Exclusion of recycled oils prohibited. Lubricating oil and industrial oil may include recycled oils or oils that are not manufactured from virgin materials.

8. ORS 279A.110 Discrimination in subcontracting prohibited; remedies.

8.1 The Contractor may not discriminate against a subcontractor in the awarding of a subcontract because the subcontractor is a minority, women or emerging small business enterprise certified under ORS 200.055.

8.2 By entering into the contract, the Contractor certifies that it has not discriminated and will not discriminate, in violation of subsection 8.1, against any minority, women or emerging small business enterprise in obtaining any required subcontract.

9. Eugene Rule 137-046-0500(1) Right to Audit Records.

9.1 Cost or Pricing Data. The Purchasing Agent may, at reasonable times and places, audit the books and records of any Person who has submitted cost or pricing data in connection with a contract to the extent that such books and records relate to such cost or pricing data. Any Person who receives a contract for which cost or pricing data are required, shall maintain the books and records that relate to the cost or pricing data for three (3) years from the date of final payment under the contract, unless a shorter period is authorized by the Purchasing Agent in writing.

9.2 Contract Audit. The Purchasing Agent shall be entitled to audit the books and records of the contractor or any subcontractor to the extent that the books and records relate to the performance of the contract. The contractor and each subcontractor shall maintain books and records for a period of three (3) years from the date of final payment under the contract or subcontract, as applicable, unless a shorter period is authorized by the Purchasing Agent in writing.

10. Eugene Rule 137-046-0500(3) Right to Inspect Plant.

10.1 Time for Inspection. The Purchasing Agent may, at reasonable times, inspect the part of the plant or place of business of the contractor or any subcontractor that is related to the performance of any contract awarded.

10.2 Contractual Provisions. The City may inspect supplies and Services at the contractor's or subcontractor's facility and perform tests to determine whether they conform to the contract requirements.

10.3 Procedures for Trial Use and Testing. The Purchasing Agent may establish operational procedures governing the testing and trial use of equipment, materials, and the application of resulting information and data to Specifications or Procurement.

10.4 Location. When an inspection is made in the plant or place of business of a contractor or subcontractor, such contractor or subcontractor shall provide without charge all reasonable facilities and assistance for the safety and convenience of the person performing the inspection or testing.

10.5 Time of Testing or Inspection. Inspection or testing of supplies and Services performed at the plant or place of business of any contractor or subcontractor shall be performed at reasonable times during normal business hours.

10.6 Inspection of Construction Projects. Onsite inspection of construction shall be performed in accordance with the provisions of the contract.

11. Eugene Rule 137-046-0500(4) Termination in the Public Interest.

11.1 Termination Provisions. The City may terminate the contract for any reason considered by the City to be in the public interest. Reasons for termination in the public interest include but are not limited to:

- (a) The contractor cannot complete the work for reasons beyond the control of either the contractor or the City;
- (b) Necessary materials are not available;
- (c) A lack of funds;
- (d) A phenomenon of nature of catastrophic proportions or intensity;
- (e) Executive orders of the President related to national defense;
- (f) Congressional or state acts related to funding or changes in applicable laws; or
- (g) The presence of other circumstances or conditions such that it is impracticable within a reasonable time to complete the work.

11.2 Payment When Contract Is Terminated. When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual items of work completed under the contract, or by mutual agreement, for items of work partially completed. No claim for loss of anticipated profits will be allowed.

11.3 Payment for Construction Services. The City may provide in a contract for construction services, detailed provisions under which the contractor shall be entitled, as a matter of right, to compensation upon termination of the contract on account of any reason considered to be in the public interest.

12. Eugene Rule 137-046-0500(8) Governing Law; Jurisdiction

12.1 Governing Law. This contract shall be governed, construed, and enforced in accordance with the laws of the state of Oregon, unless otherwise approved by the City Attorney or designee.

12.2 Jurisdiction. Contractor agrees and consents to the exclusive jurisdiction of the courts of the state of Oregon for all purposes regarding the contract and further agrees and consents that venue of any action brought under the contract shall be exclusively in Lane County, Oregon, unless otherwise approved by the City Attorney or designee.

Exhibit B

Special Provisions

The provisions of this Exhibit, if any, shall be controlling over any conflicting provisions of the Contract except for those provisions that concern applicable federal, state or local laws, rules or regulations.

- A. Amendments to Agreement.
- B. Amendments to Exhibit C, Scope of Services:
- C. Amendments to Exhibit D, Compensation.
- D. Other Special Provisions.

Exhibit C

Scope of Services

Seed production specifications

- a. Seed production beds are growing at Heritage Seedlings, Inc., created from source seed supplied by the City from local Eugene area sources. Each year by October 1, the City and the Contractor will jointly agree on the seed production species and acres to be grown for the coming year. This list will be provided in writing to both parties. The list for the 2014-2015 growing year is included as Table 1.
- b. Native seed for seed production beds will be provided by the City of Eugene and delivered to the Contractor by October 1 annually or when reasonably requested by the contractor to plant for the coming seed production year (October to September). Unless mutually agreed to by the City and Contractor, wild-collected (G0) seed provided to Contractor will have been tested, at City expense, by a reputable Oregon seed testing facility for total viability (tetrazolium (TZ) test).
- c. After seed is provided to the Contractor, it is the Contractor's responsibility to protect seed from contamination, molding, excessive heat, excessive cold, fire, or other conditions that will result in lowered seed viability or seed loss. It shall be the Contractor's responsibility to pay for the cost of seed, if negligent handling results in seed spoilage or seed loss.
- d. Unused seed shall be returned to the City within three months of the beginning of the germination process, unless otherwise agreed by the City and Contractor.
- e. Scarification and stratification of seed and/or other special pre-planting treatment(s) shall be the responsibility of the contractor.
- f. Seeds of each species shall be planted in monocultures within planting beds that range from 0.05 to approximately 0.10 acre (4,356 sq. feet) in size. Acres planted of a given species will be decided annually as indicated in (a) above.
- g. Planting beds for this contract shall be isolated by at least 990 feet (0.19 miles) from planting beds of other accessions of the same species, or from species in the same genus with which the species in this contract may potentially hybridize. Specific species may be grown near other accessions if mutually agreed to by the City and Contractor.
- h. Planting beds shall be prepared and maintained in a manner to ensure good germination and plant growth. Seed bed preparation and maintenance shall include actions such as (1) weed management, (2) management of seed and plant pathogens and predators, (3) watering, (4) fertilization, and (5) protection from contamination, as appropriate for the successful seed germination and establishment of the plants.

i. The list of 29 species to be grown-out in 2014-2015 is provided in Table 1, below.

Table 1. List of species for the 2014-2015 growing year. An “x” in the TZ and Purity columns indicate that these tests will typically be ordered for these beds or species.

Sp #	Species, bed seeding yr [generation]	bed size (acres)	Location	TZ	Purity
1	<i>Achillea millefolium</i> '13 [G1]	0.05	42A	x	x
2	<i>Achnatherum lemmonii</i> 07 seed & 09 plugs [G0]	0.05	24B	x	x
2	<i>Achnatherum lemmonii</i> 07 seed & 09 plugs [G0]	0.05	19B		
3	<i>Allium amplexans</i> 07 [G0]	0.05	22A	x	
4	<i>Camassia quamash</i> [bulbs & seed 06] [G0]	0.1	25	x	x
5	<i>Camassia leichtlinii</i> [bulbs 06 & seed 07] [G0]	0.1	27	x	x
6	<i>Carex tumulicola</i> '10 [G0]	0.05	8/9B	x	x
7	<i>Clarkia purpurea/amoena</i> mix '10 [now volunteers]	0.05	3A	x	x
8	<i>Collomia grandiflora</i> '10 [now volunteers]	0.05	S13	x	x
9	<i>Eriophyllum lanatum</i> ODOT '13 [G1]	0.1	82nd 27, 53	x	x
9	<i>Eriophyllum lanatum</i> '13	0.1	28, W22		
10	<i>Festuca roemerii</i> 08 [G0, G1]	0.1	4A, 6A	x	x
11	<i>Fragaria virginiana</i> [Cravo can yard]	0.05	Cravo		
12	<i>Grindelia integrifolia</i> '11 [G0] (ground cloth)	0.05	7	x	x
12	<i>Grindelia integrifolia</i> '13 [G1] ODOT	0.1	W15	x	x
12	<i>Grindelia integrifolia</i> '14 [G1] ODOT [crop '15]	0.1	N4	x	x
13	<i>Linanthus bicolor</i> [1 cloth] [plugs] 3,000 plants	0.08	51A	x	x
14	<i>Lomatium nudicaule</i> '05 [G0]	0.1	10	x	x
15	<i>Lomatium utriculatum</i> '08 [G0]	0.05	11B	x	x
16	<i>Luzula comosa</i> [plugs] [adding plugs spring '15]	0.1	2/3B	x	x
17	<i>Madia elegans</i> 08 [plugs G0, seeded G1] [now volunteers]	0.1	51/52B	x	x

Sp #	Species, bed seeding yr [generation]	bed size (acres)	Location	TZ	Purity
18	<i>Microseris laciniata</i> 05/08 [G0]	0.15	1, 48A	x	x
18	<i>Microseris laciniata</i> '13 [G0 and little G1 I think] ODOT	0.1	W12		
19	<i>Perideridia oregoniana</i> 05 [G0]	0.05	6B	x	x
20	<i>Plectritis congesta</i> '10 [now volunteers]	0.1	S14	x	x
21	<i>Potentilla gracilis</i> 05/08 [G0]	0.2	15, 45	x	x
21	<i>Potentilla gracilis</i> '13 ODOT	0.1	W14		
22	<i>Prunella vulgaris v lanceolata</i> '13 [G1 and G0]	0.05	41A	x	x
22	<i>Prunella vulgaris v lanceolata</i> '13 [G1]	0.1	W13	x	x
23	<i>Pyrrocoma racemosa</i> 07 [G0]	0.05	13B	x	X
24	<i>Ranunculus occidentalis</i> 2011 (6 cloth) [plugs added fall '13]	0.1	43/44A	x	x
25	<i>Ranunculus orthorhyncus</i> '11 [G0] [plugs added fall '13] [adding plugs fall 15]	0.1	33/34A	x	x
26	<i>Sidalcea malviflora</i> 04-09 combined	0.15	14, 48B,5A	x	x
27	<i>Sisyrinchium idahoense</i>	0.05	W2	x	x
28	<i>Triteleia hyacinthina</i>	0.05	26A	x	
29	<i>Wyethia angustifolia</i>	0.1	29	x	
	Total acres in production 2014-15	3.03			
	Acres in greenway (+35% of prod. area)	1.061			
	Acreage to invoice	4.091			
	Price/acre	\$8,500			
	Subtotal (price/acre x acres to invoice)	\$34,773.50			
Other Costs for 2014-2015:					
	Purity Seed Tests [paid per test] unit cost	\$40	TBD upon harvest		
	TZ Seed Tests [paid per test] unit cost	\$50	TBD upon harvest		
	Plug grow-out/planting of <i>Linanthus</i>	\$400			
TNC pays 25% of total, but not to exceed \$10,000		\$34,774 + Other Costs x 0.10			
City pays 75% of total, or total less TNC's \$10,000		\$34,774 + Other Costs - TNC's amount			

- j. In the event that a particular species does not germinate or establish due to Contractor error or negligence, the City will not pay the unit price for work on that species.

- k. If there is a crop failure in a given seed production bed resulting in no seed yield from that bed for the year's harvest, the City shall pay Contractor \$2,840 per acre of such species planted in that bed, provided that the crop failure was the result of one or more severe weather events (e.g. extended flooding) or other extreme events (e.g., wildfire) beyond the reasonable control of the Contractor. If the crop failure in a given bed (or portion of a bed) is due to the negligence of Contractor, no payment shall be due to Contractor under this Contract with respect to that bed (or portion of a bed).
- l. The City reserves the right to request a species be removed from seed production due to anticipated poor production resulting from inadequate plant germination or plant loss due to extreme winter weather. City shall make such request no later than April 15, and agrees to pay no more than \$4,000 per acre for species requested to be removed from production on or before that date.

Seed bed maintenance, seed harvesting, seed cleaning

- a. Planting beds shall be maintained to be free of weed seed.
- b. Seed of each species shall be harvested annually at the appropriate time(s) to maximize seed harvest.
- c. Seed shall be cleaned mechanically or manually. The cleaned seed shall be suitable for use in a Truax 812 no-till drill without further seed cleaning.
- d. Seed shall be stored in single-species containers.
- e. Seed shall be tested for purity and total viability (TZ test) at a reputable Oregon seed laboratory, such as Oregon State University Seed Laboratory or Agri Seed Testing, Inc. The City agrees to pay test costs of the amount specified in the payment schedule, below. Single-page purity and TZ results shall be provided to the City electronically and shall be summarized in an end-of-season spreadsheet submitted prior to or with the year's invoice.
- f. Seed shall be accepted by City only if it is $\geq 99.9\%$ free of nonnative species, and 99% free of other native species (i.e., $\geq 99\%$ of the seed is the desired species), as indicated by the purity test. If any species does not meet the desired purity level, the City may require additional cleaning by the Contractor at Contractor's expense. If viability falls below 70% for any species, the City and Contractor should confer on additional bed management measures in future years, such as predator control, that would need to be implemented by the Contractor.
- g. The single-species seed containers shall be labeled with the species scientific name or accepted 6-letter code, the harvest year, the weight, and an indication it is from West Eugene Wetland source.
- h. Seed shall be stored by Contractor dry and contained in bags that maintain viability (mesh in open air environments, plastic in humid refrigerated environments), until pick-up by City.
- i. Contractor shall have seed of all but the late maturing species (e.g., *Eriophyllum*, *Grindelia*, *Pyrrocoma racemosa*) dried, cleaned, tested, and ready to be picked up by the City by September 20th of each year of this Contract.

Special Conditions

- a. Location of Growing Facility – Plants shall be grown at a nursery facility or farm within two and a half hours (2.5 hrs) driving time from Eugene, Oregon, at an elevation less than 1000 feet above sea level.
- b. Quality Control by Contractor – The Contractor shall maintain a Quality Control Program to ensure that the requirements of the Contract are met as specified. The Program shall include, but is not limited to:
 - An Inspection Report (consisting of a bed summary and current map) provided to the City's Contract Manager in November and July during each year of the grow-out phase. The report shall include, at a minimum, (1) a description of germination and plant growth progress for each species; (2) a summary of issues or problems, such as disease, and corrective actions taken; and (3) a summary or projection of harvest amount per species.

Performance Schedule

- a. **Completion Date:** The completion date is on or before December 31, 2018.
- b. **Renewal:** The contract may be renewed for five (5) additional one-year periods by mutual agreement of City and Contractor.

Operating Permits

The Contractor shall be responsible for obtaining any necessary permits and licenses, and for complying with any applicable Federal, State, and municipal laws, codes, and regulations.

Inspection

- a. The City will make inspections of the seed production areas under this contract at key points annually during the contract. The purpose of the inspection will be to monitor performance quality and progress in cooperation with the Contractor. Scheduling of the inspections will occur at times mutually agreed upon by the City and Contractor.
- b. If any of the services do not conform to contract requirements, the City may require the Contractor to perform the services again in conformity with contract requirements, at no increase in contract amount. When the defects in services cannot be corrected by re-performance, the City may (1) require the Contractor to take necessary action to ensure that future performance conforms to the contract requirements, and (2) reduce the contract price to reflect the reduced value of the services performed.
- c. If the Contractor fails to promptly perform the services again or to take the necessary action to ensure future performance in conformity with contract requirements, the City may: (1) by contract or otherwise, perform the services and charge to the Contractor any cost incurred

by the City that is directly related to the performance of such service, or (2) terminate the contract for default.

Payment

a. Payment will be made according to the following schedule:

1. Annual payments: A single annual payment will be made following successful bed maintenance, seed harvest, seed cleaning, testing, and seed delivery in the Fall of 2015, 2016, 2017, and 2018.

Contract pricing is based on acres in production:

Base payment/year/acre: \$8,500/acre

Acreage computed as: Acres in Production (bed total) + Greenway Acres (35% of bed total)

2. Seed Test Fees: The City will pay for seed tests at a cost of \$50 for viability (TZ) and \$40 for purity for each species for which a test is indicated. In some cases, the seed lab will indicate that lots with high levels of inert ingredients require additional cleaning time and cost. In these cases, the Contractor will contact the City to determine if the City wishes to proceed with the more costly test or abandon the purity test for that year and species.
3. Other payments: If additional Contractor tasks, such as the placement of a seed production bed on groundcloth, or the grow-out of plugs for bed in-fill, are mutually agreed to by the City and the Contractor, then the following costs will apply:

Groundcloth, purchase and installation (3 ft wide): \$5,929/acre

Groundcloth, purchase and installation (2 ft wide): \$7,703/acre

Plug planting: \$20/labor hour

- b. All invoices must reference account **#9335 and** should be submitted to both the City's contract lead (Diane Steeck) and to Accounts Payable. Electronically submitted invoices are preferred and should be submitted to:

Diane Steeck (9335), City of Eugene, at Diane.M.Steeck@ci.eugene.or.us

And to Accounts Payable at AP@ci.eugene.or.us

Non-electronic invoices can be mailed to:

Accounts Payable

City of Eugene

PO Box 11110

Eugene, OR 97440

- c. Except as otherwise set forth herein, requests for any additional payments under this contract shall be made to the City in writing. The request shall be made and a response from the City shall be received before the additional expense is incurred or additional work is undertaken.

Deliverable Products

- a. The City shall own all seed harvested and cleaned from this contract. However, if the City determines that it does not need the entire quantity of seed produced, the City (with mutual agreement of the Contractor) has the option of allowing the Contractor to retain a portion of the seed at no cost to the Contractor.
- b. Contractor shall have seed of all species ready to be picked up by City by September 20th of each year of this Contract, beginning September 20, 2015.
- c. All deliverable seed, other than those hand harvested (see Table 1 – no asterisk) shall be certified by a reputable Oregon seed lab as 99.9% pure and have a viability (TZ) test, unless the City and Contractor have mutually agreed that such a test is unnecessary (for instance, in the case of a very small harvest).
- j. The single-species seed containers shall be labeled with the species scientific name or accepted 6-letter code, the harvest year, the weight, and an indication it is from West Eugene Wetland source

AMENDMENT NO. SIX TO
City of Eugene Contract No. 2005-05408

This Amendment is made to the Trade Services Contract dated October 1, 2004, between the City of Eugene (City) and Heritage Seedlings Inc. (Contractor).

The City and Contractor mutually agree to amend the contract referenced above, to revise terms related to seed production and to add those related to production of plugs (one-year old plants for outplanting).

Section 2 is replaced with the following,

"2. Term. The City and Contractor agree to extend this contract through December 31, 2013, with the option to renew one additional time for a one-year period."

Exhibit B Sections 7(a) and 7(b), and Exhibit C, which were last amended in 2011 (Amendment Five) and which define costs for seed produced, are replaced by the following and now read,

"a. Payment for the 2012-2013 seed production year will be made by the City, on a price-per-acre basis, with the acres agreed upon by the City and Contractor below, based on a mutually agreed upon species list and the acres needed for their seed production.

(1) After pick-up of the 2013 seed harvest from Heritage Seedlings, Inc., and receipt of invoice, the City shall pay the contractor based on the total acreage of production beds which were properly planted, cared for, harvested, and cleaned, plus a greenway/staging area charge amounting to 35% of the acreage of production beds.

For the 2012-2013 seed production year:

Acres in production:	2.975
Greenway (35% of production area):	1.041
Total acres to invoice:	4.01625
At \$8,000/acre:	\$32,130.00
City share of amount (50%):	\$16,065.00

(2) The City and The Nature Conservancy partner on this seed production program. The City's share shall be half the total cost determined using the above formula.

(3) If there is a crop failure in a given seed production bed for a given species resulting in no seed yield from that bed for the year's harvest, the City shall pay Contractor \$2,840 per acre of such species planted in that bed, provided that

the crop failure was the result of one or more severe weather events (e.g. extended flooding) or other extreme events (e.g., wildfire) beyond the reasonable control of the Contractor. If the crop failure in a given bed (or portion of a bed) is due to the negligence of Contractor, no payment shall be due to Contractor under this Contract with respect to that bed (or portion of a bed).

(4) City reserves the right to request a species be removed from seed production due to anticipated poor production resulting from inadequate plant germination or plant loss due to extreme winter weather. City shall make such request no later than April 15th, 2012, and agrees to pay \$4,000 per acre for species requested to be removed from production on or before that date. “

Exhibit B is also amended to add the following provisions and payment information related to plant production:

“Plug, plant, and bare-root grow-out:

1. The contractor shall provide the following species, quantities, and plant material types, at the identified cost, in fall 2013 with a delivery target date of November 1, 2013.

Plug species and numbers:

Species abbreviations and plant material type	# Units	Cost/Unit	Cost
SIDMALV (plug)	1600	\$0.85	\$1,360.00
ERILAN (plug)	1600	\$0.75	\$1,200.00
LOMNUD (bare-root)	400	\$0.85	\$340.00
ALIAMP (bulb)	1000	\$0.45	\$450.00
FESROE (plug)	400	\$0.85	\$340.00
LUZCOM (plug)	500	\$0.90	\$450.00
TOTAL COST OF NON-SEED PLANT MATERIALS	5500		\$4,140.00

Table 1. Plant species, plant material type, quantities, and cost for grow-out and delivery fall 2013.

2. Plugs grown by the Contractor, shall conform to the following:

a. **Schedule.** The grow-out period begins as soon as the Contractor is given notice to proceed and seed is provided by the City. The target delivery date is November 1, 2013.

b. **Genetic stock.** All plugs shall be grown from seed provided by the City of Eugene and delivered to the Contractor. Unused seed shall be stored by the contractor in a way that maintains viability and shall be returned to the City within two weeks of when the Contractor determines further seed is not necessary.

c. **Seed for grow-out.** Upon receipt of seed, it is the responsibility of the Contractor to estimate sufficient seed quantity to produce the number of plants, per species, requested in this contract and to notify the City of insufficient quantities.

d. **Maintain seed viability.** After the seed is provided to the Contractor, it is the Contractor's responsibility to protect the seed from contamination, molding, excessive heat, excessive cold, fire, or other conditions that will result in lowered seed viability or seed loss.

e. **Seed treatments.** Scarification and stratification of seed and/or other special pre-planting treatment(s) shall be the responsibility of the Contractor.

f. **Planting medium.** Seed shall be planted in sterilized medium and be given proper controlled environmental conditions to ensure good seed germination and growth.

g. **Delivery.** The City's Contract Manager shall notify the Contractor of the desired pick-up dates two weeks prior to that date. The City Contract Manager will pick up the plants at Heritage Seedlings, Inc., unless other arrangements are approved by both parties.

h. **Size.** Moderately sized plugs shall be produced that are healthy, first-class representatives of their species or variety, free from disease and insect pests, with top growth that is well developed and free of major defects, sun, wind or frost injury. Roots shall extend to the bottom of the containers.

i. **Plug trays.** Plugs shall be delivered in plug trays that produce medium plugs (either of two different tray sizes : 1.0"x 3.5" or 1.0" x 3.0")

j. **Acclimatization.** In order to acclimatize the plant materials to field conditions and to lessen the shock associated with transplanting, plants shall be 'hardened-off" (i.e. tempered for field conditions) by gradually introducing to an uncontrolled environment two weeks prior to delivery. Other preparations may be necessary to ensure that plants are prepared for the field upon pick-up.

k. **Inspections.** Two inspections of plant grow-out progress will be made by the City Contract Manager or designee, including pre-delivery approval of all plant materials. The purpose of the inspections will be to monitor performance quality and progress. The City may elect to forego one inspection at the City's discretion.

l. **Invoices.** All invoices shall be itemized by species, quantity and unit price as reflected in Table 1. Invoices must be coded: Attn: Diane Steeck, 9630 and should be emailed to AP@ci.eugene.or.us with a copy to Diane Steeck at diane.m.steck@ci.eugene.or.us

m. **Plant Substitution .** Substitution of plant species will only be permitted among those identified in Table 1 and only after evidence that the Contractor has attempted and failed to grow-out the target numbers defined in the contract. Substitution must be approved in writing (email acceptable) by the City. Any request for substitution in writing to the City should be made at least 30 days prior to the target delivery date.”

All other terms and conditions of this Contract remain in full force and effect.

CITY OF EUGENE

CONTRACTOR

Jon R. Ruiz
City Manager

Mark Krautmann
Heritage Seedlings, Inc.

MEMORANDUM OF UNDERSTANDING West Eugene Wetlands Plant Materials Program

This Memorandum of Understanding (“MOU”) is entered into, by, and between the City of Eugene, a municipality of the State of Oregon (CITY), The Nature Conservancy, a District of Columbia non-profit corporation (TNC), and the U.S. Bureau of Land Management, Eugene District (BLM).

Recitals:

1. CITY, TNC, and BLM have worked cooperatively on wetland restoration and management in west Eugene since 1991. All are members of the West Eugene Wetlands Partnership and all are signatories to the March 1994 Wetland Executive Team “Statement of Partnership” and the 1995 Memorandum of Agreement for the Wetland Executive Team.
2. CITY, TNC, and BLM all own land within the West Eugene Wetlands complex.
3. CITY, TNC, and BLM all need plant materials (e.g., seeds, bulbs, and propagated plants) from a wide variety of wetland and upland plants that are native to the West Eugene Wetlands area in order to successfully enhance and restore their lands.
4. The Wetland Executive Team adopted a “Wetland Plant Supply Strategy” for the West Eugene Wetlands in May, 1996.
5. CITY, TNC, and BLM have individually implemented many elements of the Wetland Plant Supply Strategy since 1996. Specific tasks undertaken by the CITY, TNC, or BLM include: seed collection, seed cleaning, seed mixing, executing contracts for seed, plug, and bulb grow-out, seed database management, and experimenting with propagation techniques.
6. CITY produced, with assistance from BLM and TNC staff, a “West Eugene Wetlands Seed Collection Manual” in May 2003.
7. BLM funded a consultant to produce, with assistance from BLM and TNC staff, the “West Eugene/Southern Willamette Valley Restoration Seed Development Project. Phase 3 - 2002 Survey of upland prairie and oak savanna sites within greater Eugene area and information regarding native seed collection and propagation”.
8. In January, 2004, staff from the CITY, TNC, and BLM began the interagency SPROUTS (seeds, plugs, rhizomes, or underground tubers) committee to develop and implement strategies to make the West Eugene Wetland Wetlands Program plant materials program more ecologically effective and economically efficient.
9. CITY, TNC, and BLM all have a need to obtain more species of seed, and a greater abundance of each species, than has historically been available from each entity’s individual efforts, which have heavily relied on annual collection from remnant plant populations.

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10. CITY, TNC, and BLM agree that an agricultural-scale, grow-out program is desirable to obtain greater diversity and abundance of West Eugene Wetlands plant materials (e.g., seeds, bulbs, propagated plants).
11. In 2004, CITY executed a contract with a private seed nursery to produce seed of native West Eugene Wetlands species for the next five to 10 years. The contract specifications allow additional species to be added to the contract each year.
12. TNC wishes to begin a similar contract with the same private seed nursery to produce seed of native West Eugene Wetlands species.
13. CITY, TNC, and BLM agree that jointly funding and implementing the plant materials program is in the best interest of all parties.
14. CITY, TNC, and BLM wish to continue their close working relationship by jointly funding and implementing a plant materials program for the West Eugene Wetlands.
15. CITY, TNC, and BLM agree that the interagency SPROUTS committee will lead the effort to identify, develop, and refine strategies for the jointly funded plant materials program for the West Eugene Wetlands, and to coordinate the tasks described below.

Agreements:

1. CITY agrees, subject to available funds and resources, to the following:
 - a. CITY shall continue its contract for seed grow-out with the private seed nursery.
 - b. CITY shall fund an equal number of species, or equal area of seed bed grow-out, in its grow-out contract as TNC does in its contract.
 - c. CITY shall coordinate with TNC and BLM on plant materials program.
 - i. CITY shall coordinate with TNC and BLM on planning, funding, and staffing seed collection activities. Seed collection may be necessary to get new species into the grow-out contracts or to obtain additional seed for use on current year enhancement projects.
 - ii. CITY shall coordinate with TNC and BLM to prioritize areas to plant each year with the seed produced in the grow-out contracts.
 - iii. CITY shall coordinate with TNC and BLM to identify appropriate space for storing seed and the materials and supplies used in the seed supply program.
 - iv. CITY shall coordinate with TNC and BLM on maintaining a plant materials database.
 - d. CITY shall coordinate with TNC and BLM to determine an equitable means of exchanging or selling seed and other plant materials based on the prioritized list of sites to be planted each year.
 - e. CITY shall attempt to contribute staffing or funding to assist TNC and BLM with plant materials program.
 - f. CITY shall attempt to establish a contract with TNC to compensate TNC use of TNC's equipment for seed bed preparation and seeding at the hourly equipment rental and operator rates established by TNC each fiscal year.

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2. TNC agrees, subject to available funds and resources, to the following:
 - a. TNC shall attempt to establish a contract with the same private seed nursery with which the CITY has a contract.
 - b. TNC shall fund an equal number of species, or equal area of seed bed grow-out, in the grow-out contract as the CITY does in its contract.
 - c. TNC shall coordinate with the CITY and BLM on plant materials program.
 - i. TNC shall coordinate with the CITY and BLM on planning, funding, and staffing seed collection activities. Seed collection may be necessary to get new species into the grow-out contracts or to obtain additional seed for use on current year enhancement projects.
 - ii. TNC shall coordinate with the CITY and BLM to prioritize areas to plant each year with the seed produced in the grow-out contracts.
 - iii. TNC shall coordinate with the CITY and BLM to identify appropriate space for storing seed and the materials and supplies used in the seed supply program.
 - iv. TNC shall coordinate with the CITY and BLM on maintaining a plant materials database.
 - d. TNC shall coordinate with the CITY and BLM to determine an equitable means of exchanging or selling seed and other plant materials based on the prioritized list of sites to be planted each year.
 - e. TNC shall attempt to contribute staffing or funding to assist the CITY and BLM with plant materials program.
 - f. TNC shall attempt to establish a contract with the CITY to compensate the CITY for use of the CITY's equipment for seed bed preparation and seeding at the hourly equipment rental and operator rates established by the CITY each fiscal year.

3. BLM agrees, subject to available funds and resources, to the following:
 - a. BLM shall coordinate with the CITY and TNC on plant materials program.
 - i. BLM shall coordinate with the CITY and TNC on planning, funding, and staffing seed collection activities. Seed collection may be necessary to get new species into the grow-out contracts or to obtain additional seed for use on current year enhancement projects.
 - ii. BLM shall coordinate with the CITY and TNC to prioritize areas to plant each year with the seed produced in the grow-out contracts.
 - iii. BLM shall coordinate with the CITY and TNC to identify appropriate space for storing seed and the materials and supplies used in the seed supply program.
 - iv. BLM shall coordinate with the CITY and TNC on maintaining a plant materials database.
 - b. BLM shall coordinate with the CITY and TNC to determine an equitable means of exchanging or selling seed and other plant materials based on the prioritized list of sites to be planted each year.
 - c. BLM shall attempt to contribute staffing or funding to assist the CITY and TNC with plant materials program.
 - d. This MOU is neither a fiscal nor a funds obligation document between BLM and the other parties. Any endeavor to transfer anything of value involving reimbursement or contribution of funds between BLM and the parties to this MOU will be handled in accordance with applicable laws, regulations, and procedures including those for Government procurement and printing. Such endeavors will be outlined in separate

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documents that shall be made in writing by representatives of the parties and shall be independently authorized by appropriate statutory authority. This MOU does not provide such authority. Specifically, this MOU does not establish authority for noncompetitive award to the cooperator of any contract or other agreement.

Other Terms and Conditions:

1. Indemnification: Each party to this MOU shall assume the risk of, be liable for, and pay all damages, loss, cost, and expense of its officers, officials, employees, and agents arising out of any action performed or not performed while acting in good faith within the scope of this agreement.
2. Term and Modifications: This MOU shall be effective when executed by all parties and shall expire on September 30, 2015. The MOU may be extended or amended with mutual agreement of the CITY, TNC, and BLM by the issuance of a written modification, signed and dated by all parties prior to any changes being performed.
3. Termination: Nothing in this MOU shall obligate any party to spend funds or expend resources. Any such obligation shall be set forth by separate written agreement between the parties sought to be obligated. Each party to this MOU may terminate its participation in this MOU upon ninety (90) days prior written notice delivered to the other parties.
4. Project Contacts: The parties designate the following as representatives for this project and for administration of this MOU.

CITY OF EUGENE
Eric Wold
Wetlands Program Supervisor
Parks and Open Space Division
1820 Roosevelt Blvd
Eugene, OR 97402
(541) 682-4888

THE NATURE CONSERVANCY
Jason Nuckols
Willamette Valley Preserves Manager
The Nature Conservancy
87200 Rathbone Road
Eugene, OR 97402
(541) 343-1010, ext. 301

BUREAU OF LAND MANAGEMENT
Sally Sovey
Natural Resource Staff Administrator
Eugene District BLM
2890 Chad Drive
Eugene, OR 97408
(541) 683-6600

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5. No Partnership or Agency: No party to this MOU is to be considered a party, agent, or employee of the other parties for any purpose, and this MOU shall not create a partnership, joint venture, or principal-agent relationship between any of the parties. No party shall have any right, power, or authority, to create any obligation, express or implied, on behalf of any other party.

Kurt Corey
Public Works Director
City of Eugene

Date

Cathy Macdonald
Director of Conservation Programs
The Nature Conservancy

Date

Mark Buckbee
District Manager (Acting)
Eugene District, U.S. Bureau of Land Management

Date

