TREE BOARD
MEETING AGENDA

Field Trip Departing from City Hall's Parking Lot

Monday, September 11, 2023
6:00 PM

1. Call to Order
2. Roll Call
3. Changes to Agenda
4. Approval of Minutes
   a. April 10, 2023 Meeting Minutes
   b. July 10, 2023 Meeting Minutes
5. Public Comment
6. Tree Board Potential Planting Sites Field Trip
7. Next Meeting Date - 10/09/2023
8. Adjourn

Meeting Information
The public is welcome to attend in person. The Field Trip will be leaving from City Hall's Parking Lot and visiting the following spaces for approximately 30 minutes each: Tumwater Valley Golf Course Driving Range and the Stormwater pond between Israel Road SW and Old Israel Rd SW.

Public Comment

The public is invited to attend the hearing and offer comment.

The public may also submit comments prior to the meeting by sending an email to: AJonesWood@ci.tumwater.wa.us. Please send the comments by 1:00 p.m. on the date of the meeting. Comments are submitted directly to the Commission/Board Members and will not be read individually into the record of the meeting.

If you have any questions, please contact Sustainability Coordinator Alyssa Jones Wood at (360) 754-4140 or AJonesWood@ci.tumwater.wa.us.

Post Meeting
Audio of the meeting will be recorded and later available by request, please email CityClerk@ci.tumwater.wa.us

Accommodations
The City of Tumwater takes pride in ensuring that people with disabilities are able to take part in, and

benefit from, the range of public programs, services, and activities offered by the City. To request an accommodation or alternate format of communication, please contact the City Clerk by calling (360) 252-5488 or email CityClerk@ci.tumwater.wa.us. For vision or hearing impaired services, please contact the Washington State Relay Services at 7-1-1 or 1-(800)-833-6384. To contact the City's ADA Coordinator directly, call (360) 754-4128 or email ADACoordinator@ci.tumwater.wa.us.

What is the Tree Board?

The Tumwater Tree Board is a citizen advisory board that is appointed by and advisory to the City Council on urban forestry issues, including drafting and revising a comprehensive tree protection plan or ordinance, or any other tree matter. Actions by the Tree Board are not final decisions; they are Board recommendations to the City Council who must ultimately make the final decision. If you have any questions or suggestions on ways the Tree Board can serve you better, please contact the Community Development Department at (360) 754-4180.

TUMWATER TREE BOARD MEETING
MINUTES OF VIRTUAL MEETING
April 10, 2023 Page 1

CONVENE: 7:03 p.m.

PRESENT: Chair Trent Grantham and Boardmembers Brent Chapman, Brodrick Coval, Michael Jackson, Tanya Nozawa, Hannah Ohman, and Jim Sedore.

Staff: Sustainability Coordinator Alyssa Jones Wood, Stormwater Program Lead David Kangiser, and Water Resources Specialist Grant Gilmore.

CHANGES TO AGENDA: There were no changes to the agenda.

APPROVAL OF TREE BOARD MEETING MINUTES DECEMBER 12, 2022:

MOTION: **Chair Grantham moved, seconded by Boardmember Sedore, to approve the minutes of December 12, 2022 as presented. A voice vote approved the motion.**

TREE BOARD MEMBER REPORTS: Boardmember Sedore reported he is working on a heritage tree nomination for a tree located on the Schmidt House property. The tree is a Japanese Magnolia. He is seeking approval of the nomination from Executive Director John Freedman of the Olympia Tumwater Foundation. Curator Karen Johnston is working with him on the securing approval. The draft of the nomination form was submitted to Mr. Freedman.

A website, *Monumental Trees*, documents the tallest, oldest, and widest trees at breast height in the world. The tree located on the Schmidt House property is as large as the largest tree listed on the website.

Boardmember Chapman inquired as to whether the consultant arborist would complete the measurements. Boardmember Sedore said the nomination has not been formally submitted pending final approval from Mr. Freedman.

Boardmember Sedore said he is meeting with a member of the Thurston Youth Climate Coalition to discuss Garry oak trees. A list of questions was provided to him seeking answers on the likelihood of Garry oak habitat becoming extinct and the steps necessary to maintain and restore Garry oak trees.

Coordinator Jones Wood advised that she provides updates to the Thurston Youth Climate Coalition every two months on the City's progress on climate mitigation implementation. The Thurston Youth Climate Coalition

was initially an action group as part of the Thurston Climate Action Team (TCAT). However, the group has branched out with less oversight from TCAT. A TCAT staff member attends meetings and provides support and coordination as needed. The group staged a die-in protest at local council meetings as well as the Tumwater Council meeting in January urging the cities to act on the climate crisis.

Boardmember Sedore reported the heritage tree nomination for a Garry oak located on the Walmart property has been submitted to the City. The remaining Garry oaks are located within residential areas. He plans to contact property owners of the Garry oak trees.

Boardmember Chapman invited the Board and staff to attend the Wednesday, April 12, 2023 10 a.m. Washington State Arbor Day celebration on Capitol Campus. The Governor will be speaking in addition to Hillary Franz, Commissioner of Public Lands. Forty children will sing and assist in planting a tree in an area across from the old General Administration Building.

COORDINATOR'S REPORT:

Coordinator Jones Wood welcomed new Boardmembers Hannah Ohman and Brodrick Coval.

Staff with Thurston Regional Planning Council (TRPC) is tentatively scheduled to present the Carbon Sequestration White Paper to the Board at its October 9, 2023 meeting. All Board meetings until September will be a joint meeting with the Planning Commission. The City Council is also scheduled to receive the same presentation during its May 23, 2023 worksession.

Coordinator Jones Wood reported she submitted a grant proposal to the Department of Natural Resources (DNR) for $40,000 for a City property tree inventory. Included within the proposal is a maintenance plan. The plan will identify priority maintenance areas for scheduling during a four-year cycle as dictated by the Urban Forestry Management Plan, as well as producing cost estimates for the work.

Coordinator Jones Wood responded to suggestions to review the tree inventory and explained that the only inventory the City currently has is the street tree inventory. The City lacks a tree inventory of other City-owned properties. The proposal establishes a baseline of a tree inventory for all City properties to include all parks. The proposal implements several actions in the Urban Forestry Management Plan. She plans to request the hiring an urban forester or urban ecologist position in the next City's budget cycle.

At the next joint Board and Commission meeting, members will receive a draft of the Tree Preservation and Vegetation Protection Ordinance. The

draft will be published on the City's website on Wednesday prior to the joint meeting. The document is in a tracked changes format for comparison of existing language and proposed changes.

Coordinator Jones Wood mentioned three compost projects in progress by the City.

Boardmembers are scheduled to receive Tree Board business cards to identify each member as a Tree Board member. She asked for feedback on information to include on the business card. Boardmember Sedore recommended adding "Tumwater Tree Boardmember" as an identifier. Chair Grantham suggested ordering nametags for each member. Coordinator Jones Wood said she followed up with staff and learned that business cards are the least expensive option. The line item for the Tree Board in the budget was not funded in 2023. Funds from the Sustainability budget are being utilized for the Board.

Coordinator Jones Wood advised that she is attending a Thurston County Food Bank event at Mountain View Church and will hand out information during the distribution to promote the tree giveaway during the Arbor Day celebration and distribute Stream Team newsletters. During those types of events, she typically interacts with several hundred people from Tumwater or from the south county area. She also prepared seed packets and added a handout from the National Wildlife Federation on how to provide water for Monarch butterflies. She prepared 50 packs of seeds of milkweed and an additional 50 packets of Pacific Northwest pollinator wildflowers. The packets and the tree seedlings will be distributed during the Arbor Day event. Bags containing various an assortment of materials have been prepared for distribution during the event. Some materials include the old heritage tree map and last year's plant list replaced with this year's plant list. She also developed a postcard with a QR code to promote the new story map for heritage trees in the City. Additionally, a tree care pledge was developed to give to recipients of free trees. The pledge includes address information for possible follow-up later on the condition of the tree the person received.

Coordinator Jones Wood advised that staff drafted a property owner consent form for the heritage tree program. Staff also is reviewing ways the City can track heritage trees when the property changes ownership. One option would include a provision in TMC 16.08 by making it the responsibility of the property owner to share the information with the buyer about a heritage tree designation.

PUBLIC COMMENT: There were no public comments.

DISCUSSION - Coordinator Jones Wood indicated the Tree Board expressed an interest in

STORMWATER-TREE BOARD SYMBIOSIS:

utilizing stormwater sites as potential planting areas. She introduced stormwater staff members to share information on opportunities and limitations for utilizing stormwater sites for tree plantings.

Dave Kangiser reported he serves as the Stormwater Program Lead and is responsible for coordinating the City's NPDES permit requirements and spill response, as well as working on habitat restoration projects with a nexus to stormwater.

Grant Gilmore, Water Resources Specialist, said he works with Coordinator Jones Wood and Program Lead Kangiser in the Water Resources and Sustainability Department focusing on conservation, habitat restoration, and education and outreach. He is one of the founding members of the Washington Stormwater Center. Trees were mentioned as a focus for many efforts associated with stormwater and restoration.

Program Lead Kangiser said many stormwater features in the City may appear to be good locations for planting trees; however, stormwater facilities are engineered for specific infiltration rates with specific soils. Any planting within a stormwater facility would alter the infiltration rate. Some limited opportunities exist for tree plantings at stormwater facilities. One example of a stormwater facility that could accommodate tree plantings is located west of I-5 off Israel Road. Two stormwater facilities include both wet and dry ponds. The slope of the facilities could provide an opportunity to plant some trees. Infiltration rates are also very site-specific. For example, a pond with plantings could slow infiltration because of plant roots. Sometimes the types of trees create root runners that can compromise pond liners. Engineered structures are maintained by staff. Trees planted in stormwater facilities can create leaf litter that can alter the water quality. Deciduous trees tend to drop more leaf litter. Evergreen trees can alter the pH of water by dropped needles.

Boardmember Sedore pointed out that an increase in the trees planted within a subdivision will reduce stormwater flow to retaining ponds. Program Lead Kangiser said the City's NPDES permit is issued by the Department of Ecology to regulate stormwater and surface waters. The permit has many rules governing how the City operates its stormwater facilities. A new permit is due for release in 2024. One of the proposed changes to the new permit is tree retention. The proposal speaks to a specific date the City is required to document existing landscape canopy cover and riparian tree canopy for the permit coverage area. That information is required to be documented over time. New requirements speak to no later than a specific date, permitees shall adopt and implement tree canopy retention and restoration objectives to support stormwater management and water quality improvements in receiving water. The work of the Board has enabled some progress by the City to meet the new requirements. Although, the language is a draft, once the new permit is

issued, the requirements will be more specific. The updated tree inventory will be a major component.

Boardmember Sedore asked whether more trees planted near the perimeter of a stormwater facility could reduce the size of a retention pond. Chair Grantham replied that retention ponds are designed to handle water runoff from streets and other impervious surfaces.

Specialist Gilmore added that stormwater ponds are designed to retain a specific amount of impervious runoff from development. Stormwater ponds are designed and sized to receive a specific amount of water from all impervious surfaces. Not all stormwater ponds are equal as they are designed and engineered differently to accommodate the needs of the developer, the code, and water quality regulations, etc.

Boardmember Sedore spoke to a tour of the Kirsop Landing development last fall. Members noticed the hardscape roof downspouts fed into some type of stormwater system or stormwater was dissipated by the lawns. Program Lead Kangiser said the system is designed based on the soil type. Typically, a roof drain system does not require treatment prior to infiltration. Some sites include a collected system draining to a stormwater facility. Boardmember Sedore commented that in newer high-density development, it appears because of the number of roads and driveways development requires a stormwater pond. Program Lead Kangiser noted that Boardmember Sedore's subdivision, Foster Place, was constructed in 1975 when newer stormwater facilities were not in existence. Today, more stormwater treatment is required to accommodate increased density.

Boardmember Chapman expressed interest in learning more about best practices for vegetation surrounding stormwater ponds. For example, if trees were planted along the perimeter of a pond, his interest is in the type of species that would provide the greatest benefits.

Boardmember Sedore said he was approached by several residents last year questioning why the City was not planting more evergreen trees to reduce the impact of rainfall. He asked how deciduous trees versus evergreen trees handle stormwater runoff. Program Lead Kangiser said an approved planting list is included in the drainage manual outlining allowed species and planting locations. He offered to forward the information to the Board.

Boardmember Sedore commented that historically, he has witnessed the evolution of stormwater management in the City where today stormwater management is incorporated within the City's code and included in development plans. He questioned the use of incentives for developers and homeowners to manage stormwater versus the imposition of rules. With climate change, temperatures are increasing and it is important to motivate actions to promote an increase in canopy to help control temperatures rather

than imposing rules. Program Lead Kangiser said language within the City's drainage manual is somewhat lax in terms of tree retention. Rather than requiring specific actions, the language speaks to "should," enabling more latitude to the property owner or the developer. Language within the stormwater permit does not speak to replacement of trees or a specific number of trees to retain. The Community Development Department imposes tree retention requirements. However, he agreed the language should be specific and definite.

Boardmember Jackson spoke to the importance of prompting actions early within the development process. He cited the retention of three large maple trees near a local retention pond. During the development process, the developer had intended to remove the trees because of the required size of the retention pond. Although the maple trees provide a good canopy, they also drop too many leaves into the pond. However, he is not aware of any issues with the effectiveness of the retention pond. The trees were retained because City staff worked with the property owner from the start of the process and throughout the project.

Discussion ensued on proper maintenance of retention ponds and the quality of water in a mixed native forest versus a stormwater pond. Specialist Gilmore added that retention ponds are not designed to receive precipitation from one area because they are designed to receive water from a larger area. Natural forests receive waters and distribute more evenly with trees absorbing the water. Ponds treat water that was never treated. Engineered ponds are designed to treat water to an acceptable degree. The City does not test all retention ponds as water is infiltrating and traveling through the system.

Program Lead Kangiser cited a pond near the church off Israel Road. Water from the parking area infiltrates in the small pond, which is designed to treat that specific area. The soil mix within the pond is designed to treat water and contaminants from the parking area.

Boardmember Sedore commented on the complexity of creating more retention ponds without the benefit of trees with canopies to accommodate the increase in density with yards too small to infiltrate water.

Boardmember Chapman noted that the City also practices zero impact development where hardscaping is much less. Staff advised of recent research on other bio-filtration methods providing ways to combine both density and adequate stormwater treatment.

Specialist Gilmore advised the Board of ways of addressing the challenges by considering all wetlands, critical areas, streams, and riparian areas and considering opportunities for inventorying areas to plant. All those areas need restoration. Following an assessment of opportunity sites it might be

possible to work with private property owners to invite efforts to enhance sites that could result in creating wildlife corridors, enhancing trails, or improving conditions between systems. Staff is working to update ordinances to address development and how mature trees are considered on sites and potential opportunities retain those trees. He noted that each site is unique and has its own set of criteria. The goal is always to retain and plant Northwest native species. Planting opportunities should be considered as phase 1 of the process by planting trees of a specific size with an understanding of its rate of growth and water needs within the first several years and following up later by planting the understory. There are many opportunities around the City to increase tree canopy. Water Resources and Sustainability Department staff have expanded substantially in the last year and efforts by the team have been focused on the environment and increasing trees and tree canopy in the City. He urged the Board to identify any locations that could benefit from additional trees.

Boardmember Chapman questioned whether staffing resources would be available to map opportunity sites across the City. Planting all opportunity sites across the City could increase the tree canopy. Tree canopy is one of the major metrics for habitat, stormwater treatment, and ecosystem services.

Coordinator Jones Wood advised that the GIS position could provide some support after quantifying the volume of information.

Boardmember Chapman noted that most of the roundabouts along Littlerock Road do not contain any trees. Most of the roundabouts in the cities of Olympia and Lacey contain trees. Not all trees need to be Douglas firs or big leaf maples.

Coordinator Jones Wood shared an aerial photograph of an area of top priority by the City. The area is located at the golf course along a fence line of 700 feet and eight feet wide. The area is top priority. Stormwater crews recently removed willow plants.

Program Lead Kangiser reported the site is a stormwater facility that was not functioning because of the amount of willow plants. The facility treats water before discharging to the Deschutes River. Stormwater entering the facility is from Cleveland Avenue. The facility was hydroseeded with proper grass. However, an opportunity exists between the fence and swale to plant trees.

Specialist Gilmore added that he is working on developing a plan to identify the number and type of trees for the site. The multi-phased approach is preferred because of the availability of trees. Staff is considering several hundred trees of different species. The site will likely be overplanted to account for any loss of trees. The site will be planted with understory plants later in the process. The site could serve as a model for implementing a

project. His focus is working with the Parks and Recreation Department and the golf course to widen the buffer along the golf course of at least 10 to 20 feet to convert the perimeter to a riparian buffer with various plantings. Because of his representation on the Stream Team he has the capacity to increase volunteer events in partnership with the Parks and Recreation Department. Stream Team is cooperatively sponsored and funded by the storm and surface water utilities of the cities of Lacey, Olympia and Tumwater and Thurston County. Stream Team fills a niche in the South Sound providing free quality environmental education programs and activities and hands-on action projects. Following the lessening of the pandemic, volunteer efforts are ramping upwards as well as education outreach, hands-on science experiences, and tree planting activities.

Program Lead Kangiser queried the Board on any interest in replanting other sites similar to recent plantings at the Palermo Wellfield site. There are many opportunities to replant developed sites around the City.

DISCUSSION – TUMWATER SCHOOL DISTRICT SUMMER PROGRAM:

Specialist Gilmore reported Tumwater School District has been a priority to build connections and relationships. A joint effort is underway to create a summer program with the Pacific Education Institute (PEI), Tumwater School District, and the City with possible engagement by South Sound Green. The program is a forestry and stream management program offered during the first week in August for five weeks of instruction and hands-on science activities totaling 180 hours. The program is open to grades 9 through 12 for 16 students. The subject matter includes forest practice law with a focus on wetland delineation, watershed management from the headwaters to the Sound, a mapping component, and opportunities to plant trees and implement an independent restoration project at Sapp Road Park. The program is under development and sponsors are seeking individuals who would like to offer their expertise in forest management and other related fields that would benefit the students. He invited the Board to consider contributing their time to educate students. The program will likely be competitive because many students have expressed interest in the program. If the program is successful, the program will be expanded regionally as there is an existing deficit in workforce development in forestry and environmental fields.

Boardmember Coval expressed interest in participating as his profession has a strong nexus with the program. PEI also works closely with South Puget Sound Salmon Enhancement Group. Additionally, the Department of Natural Resources created a new position of an Outdoor Education and Training Program Manager. The manager would likely be interested in the program. She is working on the agency's youth education and outreach program strategy and is collaborating with other programs across the state.

Boardmember Chapman asked whether participating students would receive environmental science credits. Specialist Gilmore said he believes credits

would be provided, as the course will be advanced. The school district will determine the credits. The group is developing and piloting the program. Information has been shared with school districts in Olympia and Thurston County. All Water Resources and Sustainability staff will be engaging with the students. Many science teachers are focused on forests, tree canopy, and how plants process water and chemicals.

Boardmember Jackson asked whether any fieldwork is anticipated. Specialist Gilmore said the curriculum includes a mix of classroom and fieldwork. Facilitating the program is the easy part as the school district has the available equipment and facilities; however, organizing and seeking volunteers to mentor and teach the students is much more difficult.

Boardmember Jackson said his company manages a tree farm near Millersylvania Park of approximately 1,000 acres with 364 acres of wetlands that abut Beaver Creek. The Board should continue to receive updates on the status of the program because it presents a good opportunity to become involved in forestry as the field lacks young people who are interested in forestry jobs. Specialist Gilmore suggested the company consider hosting a day of learning for the students in how the property is managed. He offered to follow up to coordinate efforts.

DISCUSSION – HERITAGE TREE NOMINATION AT 5800 LITTLEROCK ROAD:

Boardmember Sedore reported on a Garry oak tree located along the edge of the Walmart parking lot. Mary McQueen was the previous owner of the property. For years, roads and parking lots have been constructed around the tree. He understands the tree is located on City right-of-way. Tree experts examined the tree and recommended removing soil from the roots and the trunk of the tree added during the development of the Walmart parking lot. He has nominated the tree as a Heritage Tree to protect and retain the tree.

MOTION:

Boardmember Sedore moved, seconded by Boardmember Chapman, to recommend the City Council approve designating the Garry Oak at 5800 Littlerock Road as a Heritage Tree in the City of Tumwater. Motion carried unanimously.

Boardmember Chapman asked about the remediation work suggested by the consulting arborist. Coordinator Jones Wood reported she has discussed the issue with the Transportation and Engineering Department responsible for street trees. The department plans to hire a contractor to trim the tree and remove the material as recommended. Boardmember Chapman recommended the consulting arborist should be at the site during the pruning and material removal process to ensure the safety of the tree. Coordinator Jones Wood said she was unsure as to the status of the work but would coordinate the request with staff.

Boardmember Chapman inquired about the potential nomination of another

Garry oak north of the site. Boardmember Sedore said he is aware of three more Garry oak trees in the City.

Coordinator Jones Wood addressed questions concerning the heritage tree nomination process. Trees can be nominated by Tumwater residents, City staff, or the Tree Board. Two other trees have been nominated by residents but action was tabled until more information is available about the trees. Several trees were designated as heritage tree prior to creation of the program in the City's code.

Boardmember Sedore asked about the status of several Sycamore trees on the Department of Transportation property located off Capitol Boulevard. Chair Grantham replied that the City plans to widen the road and the trees would likely be removed. Boardmember Sedore expressed interest in learning how the designation of a heritage tree affects the construction project. Coordinator Jones Wood shared that recently, the City approved the method the Community Development Department receives data on heritage trees. A process was subsequently created to develop a point of interest map, which did not include current data on the new heritage tree program. Better data have been provided to cross-reference when the department reviews development plans.

OTHER BUSINESS: Boardmembers introduced themselves and shared information about their profession, length of service on the Board, and their respective interest in forestry.

NEXT MEETING DATE: The next meeting is a joint meeting with the Planning Commission on May 9, 2023.

ADJOURNMENT: **With there being no further business, Chair Grantham adjourned the meeting at 9:00 p.m.**

Prepared by Valerie L. Gow, Recording Secretary/President
Puget Sound Meeting Services, psmsoly@earthlink.net

TUMWATER TREE BOARD
MINUTES OF VIRTUAL MEETING
July 10, 2023 Page 1

CONVENE: 7:00 p.m.

PRESENT: Chair Trent Grantham and Boardmembers Brent Chapman, Brodrick Coval, Michael Jackson, Tanya Nozawa, Hannah Ohman, and Jim Sedore.

Staff: Sustainability Coordinator Alyssa Jones Wood.

CHANGES TO AGENDA: There were no changes to the agenda.

APPROVAL OF TREE BOARD MEETING MINUTES - MARCH 13, 2023:

MOTION: **Boardmember Sedore moved, seconded by Boardmember Coval, to approve the minutes of March 13, 2023 as presented. A voice vote approved the motion.**

TREE BOARD MEMBER REPORTS: Boardmember Chapman asked that the City follow-up on the status of newly planted tree along Littlerock Rock and 77th Way that appear to be dying from the lack of irrigation.

Coordinator Jones Wood said she would review the street tree list to determine if the trees are City-owned. If the trees are privately owned, the property owner has a three-year bond and must replace the trees. She will follow up with the Community Development Department on the status of ownership, location, and the health of the trees.

Boardmember Sedore reported he is working on potential nominations for heritage trees. His recent efforts have centered on the Fred Meyer Garry oak trees. The store's legal department claims the strip of land is not owned by Fred Meyer. It appears the land is owned by the Panda Express restaurant. He spoke to the facilities manager of the restaurant. Additionally, a local citizen who advocates for Garry oak trees sent a list of several Garry oak trees located on public right-of-way including trees on the Trosper Lake Park property. The park is undeveloped land located behind Tumwater Middle School off Littlerock Road. He spoke to Director Denney about retaining the Garry oaks when the property is developed in 2027.

Boardmembers Michael Jackson and Tanya Nozawa joined the meeting.

COORDINATOR'S REPORT: Coordinator Jones Wood referred to a memorandum from Manager Medrud regarding the pause on the updates of the urban forestry codes until staff reviews new requirements of the Washington Wildland-Urban Interface Code enacted by the state to address wildfire hazards and the interface between rural

and urban areas that could pose wildfire hazards. Community Development is reviewing the Code and is working with other cities, Thurston County, and the Department of Ecology, as critical areas appear not to be exempt from the Code. Following the review, the update process will be reinitiated on the amendments.

Boardmember Chapman asked whether the requirements are from the state or the federal government. Coordinator Jones Wood said the International Building Code was adopted as a Washington Administrative Code (WAC) and requires a larger amount of defensive space between buildings and vegetation. The Code also requires a certain distance between canopies in certain areas, which speaks to uncertainties associated with both groves and wildlife corridors.

Boardmember Sedore said the Code requires all residential, industrial, and commercial uses to provide 10 feet of space between buildings and trees with trees spaced 10 feet apart.

Coordinator Jones Wood shared information on additional uncertainties surrounding the new requirements, especially as it pertains to wildlife corridors.

Boardmember Sedore commented that the new requirements would eliminate most trees on most properties in the City.

Coordinator Jones Wood referred to a map included with the memorandum identifying areas in the City subject to the new code. The urban core of the City is not subject to the Code; this raises equity concerns and possibly more requirements for an area not subject to risk. The City is required to adopt the Code by October 2023.

Boardmember Sedore asked whether the Code is retroactive. Coordinator Jones Wood said the City's Building Official has interpreted the Code as retroactive, which speaks to removal of trees/vegetable not meeting the standards to maintain defensible space.

Chair Grantham asked whether irrigated property would be exempt. Coordinator Jones Wood said defensible space on properties with trees/vegetation must be irrigated. The approach for any amendments to the landscaping code to reduce mandatory irrigation was planting drought-tolerant native species may not be possible under the new Code. The Community Development Department is leading the review of the Code to identify any leeway/flexibility within the new requirements.

Boardmember Sedore asked whether the new code affects current proposed developments in the City. Coordinator Jones Wood said the requirements would not be effective until adopted by the City.

Boardmember Sedore asked whether the City has placed a moratorium on development until staff can resolve the issues surrounding the new Code. Coordinator Jones Wood indicated she was not aware of any moratorium.

Coordinator Jones Wood reported the Parks and Recreation Department has indicated interest in continuing to combine Arbor Day/Earth Day events each year.

Coordinator Jones Wood reported that four interns from The Evergreen State College have been working in the Water Resources and Sustainability department to support efforts on urban trees and vegetation. One intern cross-referenced the City's approved street tree list with resources and research on heat and hardiness vulnerability for climate change. Another intern is working on a demonstration garden design on the City Hall campus. Funding is provided for the garden for water conservation and bioremediation. Last quarter, four interns have worked in the department. This quarter, another intern will interview the top 10 residential water consumers to investigate the reason for such high water usage. The interview will be a qualitative open-ended interview conducted remotely. The results will assist the City in producing a more tailored water conservation messaging campaign. The homeowner interviews are voluntary.

Boardmember Sedore inquired about the status of the annual review of the street tree list. Coordinator Jones Wood advised that the pause in the urban forestry updates also applies to the street tree list.

Coordinator Jones Wood responded to requests for information on the research the intern utilized for heat and hardiness vulnerabilities of trees. She offered to forward the information to the Board. The intern was able to locate a study on urban trees in Puget Sound recently completed by a non-profit organization in the Seattle area.

Boardmember Sedore asked whether the intern included National Wildlife Foundation's recommended plants listed on its website. Coordinator Jones Wood explained that the intern cross-referenced the City's existing list as proposed recently by the consultant. Boardmember Sedore noted that entering the zip code in the Foundation's website produces a list of recommended plants for an area. It is an easy to use reference that the City should consider when the Board reviews the street tree list. Coordinator Jones Wood said the current version is an updated proposed street tree list that includes native trees.

Boardmember Coval asked about the value of inviting the interns to attend the Board's next meeting to present information on their current work. Coordinator Jones Wood said only one intern is working with her at this time and she could extend an invitation to attend the next meeting. The intern is completing their summer internship remotely from Texas.

Boardmember Chapman asked about the maintenance responsibility for the demonstration garden. Coordinator Jones Wood said the Parks and Recreation Department may maintain the garden. The department has been involved throughout the process.

Coordinator Jones Wood updated the Board on the Thurston Climate Mitigation Plan. The plan includes a section on agriculture, prairies, and forests. Four actions are related to those areas as well as some agriculture-related actions. Actions include reforestation programs, native municipal canopy, tree preservation, tree canopy preservation, and prairie preservation. The three entities responsible for implementing the plan include an elected official entity comprised of one elected official from the four jurisdictions (Lacey, Olympia, Tumwater, and Thurston County), a community advisory workgroup comprised of 15 community members from various organizations, and a staff team comprised of one staff member from each jurisdiction. Staff identified one regional priority with suggested priorities related to trees and forest. Staff identified a major priority of focus for each jurisdiction and two tree-related actions for the elected officials to champion and move forward. One action is rural tree canopy targets with target outcomes. Thurston County is completing a tree canopy assessment that will be analyzed to help identify forested areas of high risk of conversion and opportunities for conservation and restoration. Data will be applied to establish targets for tree canopy at the regional level focusing on rural Thurston County where the majority of carbon sequestration occurs. The action will be led by the county. Other actions advanced for regional focus in 2024 include state forestlands management advocacy with two proposed outcomes of legacy forest protection and a dedicated funding source for purchasing, protection of legacy stands, or DNR enrolling more of its land in its carbon project. Elected officials will work with DNR and other agencies to advance the actions regionally.

Boardmember Sedore asked whether the timber industry is represented on the community advisory workgroup. Coordinator Jones Wood identified members serving on the workgroup. Members include Thurston Conservation District, Puget Sound Energy, Intercity Transit, a tribal representative, different stakeholder groups identified by the elected official committee, such as representatives from the building industry, realtors, transportation, rural lands/agriculture, and others. At this time, no forestry or timber-related interests are represented on the workgroup. The Thurston Climate Action Team tree group has requested adding a position representing forestry. At this time there is no dedicated position for forestry.

Boardmember Coval said his business was contacted about serving as a representative; however, the business declined because of time constraints.

Coordinator Jones Wood said the committee currently has two vacant positions. The staff team is developing a recruitment strategy. Members of

the workgroup serve a one-year term. She described ongoing recruitment efforts and the intent to advocate for a forestry representative.

Coordinator Jones Wood reported on the loss of a large limb from the Meeker Garry oak tree located off Old Highway 99. The tree is located within City right-of-way and staff is working with Kevin McFarland to investigate why the limb fell and assess the overall health of the tree. Mr. McFarland is completing a Level 3 assessment using sonic tomography to detect decay and cavities in the tree. Some decay was identified by Mr. McFarland with efforts ongoing by the City to ensure the health of the tree.

Boardmember Jackson mentioned the car that crashed into the retaining wall and hit the tree approximately 10 years ago. The accident left a large gap in the tree, which has nearly closed over the last 10 years.

PUBLIC COMMENT:

There were no public comments.

BRIEFING: URBAN FORESTRY MANAGEMENT PLAN – CITY-OWNED TREE INVENTORY AND MAINTENANCE PLAN SCOPE OF WORK:

Coordinator Jones Wood reported on the receipt of a grant award from the Department of Natural Resources (DNR) of $40,000 with a City match of $20,000 from the Tree Fund to complete six actions in the Urban Forestry Management Plan. The grant scope of work includes updating the existing street tree inventory dataset. She encouraged the Board to assist in the work or identify any volunteers that might be interested. The City released a solicitation for a consultant. One company responded to the solicitation. The tasks include updating the street tree inventory, completing a point-based inventory of other City properties not heavily forested, and completing a sample-based approach inventory of other heavily forested areas (excluding the golf course), developing a four year maintenance schedule, and budget estimates for maintenance.

Boardmember Sedore asked about any mechanism that the City uses to maintain the inventory. Coordinator Jones Wood said the inventory would be updated based on new development applications; however, the inventory is not connected to the City's work order system or the GIS system at this time. The City is phasing to a new system over the next several years that will include those abilities. During the update to the Arbor Day Foundation on the number of trees removed to maintain the City's USA Tree City designation, staff could be contacted about documenting the number of trees removed, the species, and the locations.

Boardmember Sedore shared that he spoke to a staff member during the Arbor Day event who indicated records of trees removed are available. Coordinator Jones Wood said she does not have access to the records but would follow up with staff.

Boardmember Sedore questioned the City's process of confirming the

plantings of new development based on the submittal of landscape plans. Coordinator Jones Wood explained that the inventory only pertains to trees located on City property. Developers are responsible for maintaining plantings within the first three years for private development.

Discussion ensued on the lack of inventory for private properties. Coordinator Jones Wood explained that the City has plans on file for all new development but lacks the resources for inputting the information.

Coordinator Jones Wood added that the scope of work for the grant also includes development of a Community and Urban Forest Maintenance Report. Associated tasks include providing a summary of methodology and inventory results, reporting on results of iTree analysis, development of a maintenance prioritization and strategy, a cost estimate for maintenance work, and a planting strategy for improving tree canopy equity.

The City applied for an Inflation Reduction Act Urban Forestry grant of approximately $400,000 with a required 50% match by the City. The funding would be used to hire an urban forester as well as fund some incentive programs geared towards low and moderate income homesholds to include tree assessment assistance, small grants for low and moderate-income households with non-City-owned street trees requiring maintenance, a tree giveaway program for low and moderate income households and other areas of the City in need of plantings, and placement of heat sensors at locations throughout the City to measure the increase in tree canopy. Announcement of the federal grant award is not anticipated until November.

Boardmember Sedore asked for a description of the analysis for the new inventory. Coordinator Jones Wood said the analysis uses a sample-based approach documenting the method of sampling to determine the number of trees within a specific space. Boardmember Sedore questioned whether the City will complete an analysis on the inventory. Coordinator Jones Wood explained that the inventory will identify potential planting areas and needed maintenance. At this time the inventory is not intended for any further analysis. The data will be in an excel format. Boardmember Sedore commented that the effort might be conducive for an intern who is interested in biostatistics. Coordinator Jones Wood advised that her department is moving to the campus of South Puget Sound Community College and the intent is to create an internship program with the college and continue the internship program with The Evergreen State College.

DISCUSSION: HERITAGE TREE NOMINATION AT 330 SCHMIDT PLACE:

Coordinator Jones Wood reviewed the process for nominating a heritage tree. The nomination of the Japanese Bigleaf Magnolia tree located at 330 Schmidt Place was submitted by Boardmember Sedore.

Boardmember Sedore reported the City contracted with an urban forester who assessed the tree on June 29, 2023 and estimated the tree is 83 years old. He

and the urban forester disagree on the species of the tree and he plans to follow up with the urban forester as to why he believes it is a saucer magnolia tree, which should be clarified before forwarding a recommendation to the Council. The tree may be the largest of its species in the world based on the Monumental Tree database. If there is agreement on the species of the tree, he plans to submit data to the Monumental Tree database to document that the tree is the largest Japanese Bigleaf Magnolia tree in the world.

MOTION: **Boardmember Sedore moved, seconded by Chair Grantham, to recommend the City Council approve designating the Japanese Bigleaf Magnolia tree located at 330 Schmidt Place, pending confirmation of the tree species, as a Heritage Tree in the City of Tumwater.**

Boardmember Sedore added that the tree is not native and is an exotic tree. He questioned whether the tree falls within the parameter of the City's heritage tree definition. Coordinator Jones Wood said the code does not specify that a tree must be a native tree.

Boardmember Sedore explained the significance of accurately defining the tree species. If the species of tree is identified as a saucer magnolia, the species is not rare or large and is a more common tree. He believes the tree is not a saucer magnolia. Typically, saucer magnolia trees have multiple stems.

MOTION: **A voice vote approved the motion unanimously.**

DRAFT MEETING SCHEDULE: Coordinator Jones Wood reviewed changes to the meeting schedule caused by the delay in the urban forestry amendments. The revised schedule reflects monthly Monday meetings and no joint meetings with the Planning Commission pending input from Manager Medrud. Coordinator Jones Wood reviewed a future field trip of potential planting areas in the City.

NEXT MEETING DATE: The Board agreed to cancel the August 7, 2023 meeting.

MOTION: **Chair Grantham moved, seconded by Boardmember Coval, to cancel the August 7, 2023 Tree Board meeting. A voice vote approved the motion unanimously.**

ADJOURNMENT: **With there being no further business, Chair Grantham adjourned the meeting at 8:05 p.m.**

Prepared by Valerie L. Gow, Recording Secretary/President
Puget Sound Meeting Services, psmsoly@earthlink.net

olf Course Planting Proposal

Planting Area: Aproximatly 9,300 sq ft
Site Features: well drained, Sloped 1-2%
Proposed Plant Types:

- Douglas fir (Pseudotsuga menziesii) - 20, 10 gallon
- Western red cedar (Thuja plicata) - 20, 10 gallon
- Vine maple (Acer circinatum) - 30, 5 gallon
- Sword fern (Polystichum munitum) - 75, 5 gallon

Notes:
Phase 1 planting - Tree spacing @ 20ft on center, vine maples interspersed.
Phase 2 planting - Understory to plant Sword fern @ 5ft on center.
Other species should be considered based on input and objectives of the site. Site has potential to host several plot types for observation and data collection.

Special note: Planting recommended in early fall, irrigation is available for this site.

Palermo Planting Proposal

Planting Area: Aproximatly 5,000 sq ft
Site Features: well drained, Sloped 2-5%
Plant Types:

- Douglas fir (Pseudotsuga menziesii) - 15, 10 gallon
- Western red cedar (Thuja plicata) - 15, 10 gallon
- Vine maple (Acer circinatum) - 15, 5 gallon
- Sword fern (Polystichum munitum) - 50, 5 gallon

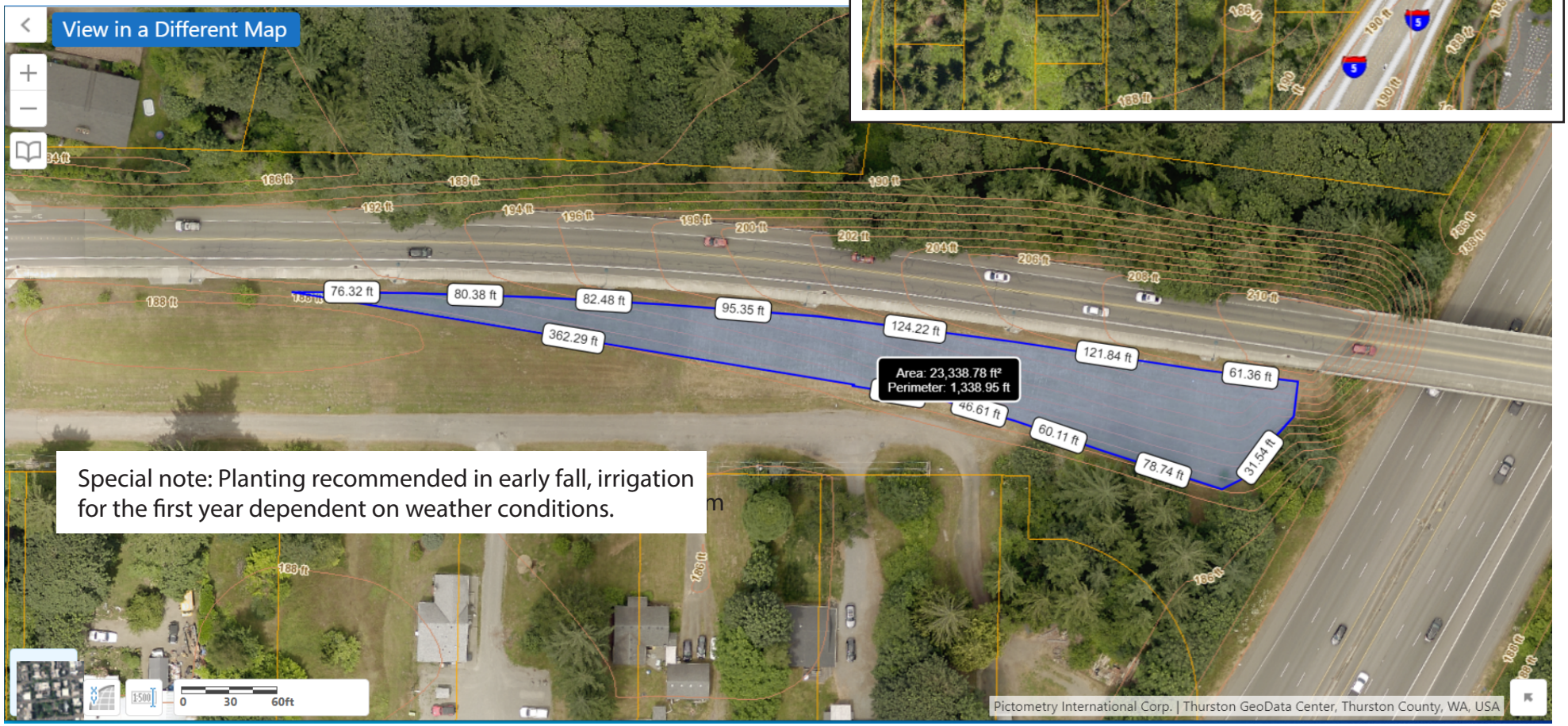
Notes:
Phase 1 planting - Tree spacing @ 20ft on center, vine maples interspersed.
Phase 2 planting - Understory to plant Sword fern @ 5ft on center.

Special note: Planting recommended in early fall, irrigation is available for this site.

Israel Rd Planting Proposal

Planting Area: Aproximatly 23,000 sq ft
Site Features: well drained, Sloped 10-15%
Considerations:

- Within the ROW street trees are required
- All other plant species that fall behind the ROW can be selected from the DDECM preferred plant list for this location
- Irrigation is currently not available onsite
- Phase 1 plant types should be best suited for full sun, Phase 2 understory plants mat vary depending on canopy growth
- Site is well suited to serve as a research area for a variety of tree types (Suitable for multiple plots to monitor and gather data)



Special note: Planting recommended in early fall, irrigation for the first year dependent on weather conditions.

Table F.5. Plant Species Appropriate for Rarely Inundated Areas of Bioretention Facility.

Species | Common Name	Exposure	Mature Size	Time of Bloom	Comments
Trees				
Arbutus unedo | Strawberry tree	Sun/ partial shade	8 to 35 feet 8- to 20-foot spread	November – December	Tolerant of extremes; tolerant of urban/ industrial pollution; white or greenish white flowers.
*Calocedrus decurrens** | Incense cedar	Sun	75 to 90 feet 12-foot spread		Tolerant of poor soils; drought tolerant after established; fragrant evergreen with a narrow growth habit; slow growing.
Chamaecyparis obtusa | Hinoki false cypress	Sun/ partial shade	40 to 50 feet 15- to 30-foot spread		Moist, loamy, well-drained soils; very slow growing; prefers sun, but tolerates shade; does not transplant well or do well in alkaline soils. Note there are many alternative varieties of false cypress of varying sizes and forms from which to choose.
Cornus spp. | Dogwood	Sun/ partial shade	20 to 30 feet 30-foot spread	May	Reliable flowering trees with attractive foliage and flowers; may need watering in dry season; try *C. florida* (Eastern dogwood), or *C. nuttallii** (Pacific dogwood) or hybrid "Eddie's White Wonder." Also, *C. kousa* for small tree/ shrub that is resistant to anthracnose.
Pinus mugo | Swiss mountain pine	Sun/ partial shade	15 to 20 feet 25 to 30-foot spread		Prefers well-drained soil; slow growing, broadly spreading, bushy tree; hardy evergreen.
Pinus thunbergiana | Japanese black pine	Sun	To 100 feet 40-foot spread		Dry to moist soils; hardy; fast growing.
*Prunus emarginata** | Bitter cherry	Sun/ partial shade	20 to 50 feet 20-foot spread	May – June	Dry or moist soils; intolerant of full shade; bright red cherries are attractive to birds; roots spread extensively.
Prunus virginiana | Choke cherry		15 to 25 feet 15- to 20-foot spread	Late spring – early summer	Dry or moist soils; deep rooting; attractive white fragrant flowers; good fall color.
*Pseudotsuga menziesii** | Douglas-fir	Sun	100 to 250 feet 50- to 60-foot spread		Does best in deep, moist soils; evergreen conifer with medium to fast rate of growth; provides a nice canopy, but potential height will restrict placement.
*Quercus garryana** | Oregon white oak	Sun	To 75 feet		Dry to moist, well-drained soils; slow growing; acorns.

Table F.5 (continued). Plant Species Appropriate for Rarely Inundated Areas of Bioretention Facility.

Species | Common Name	Exposure	Mature Size	Time of Bloom	Comments
Shrubs				
*Holodiscus discolor** | Oceanspray	Sun/ partial shade	To 15 feet	June – July	Dry to moist soils; drought tolerant; white to cream flowers; good soil binder.
*Mahonia aquifolium** | Tall Oregon grape	Sun/ partial shade	6 to 10 feet	March – April	Dry to moist soils; drought resistant; evergreen; blue-black fruit; bright yellow flowers; "Compacta" form averages 2 feet tall; great low screening barrier.
*Philadelphus lewisii** | Mock-orange	Sun/ partial shade	5 to 10 feet	June – July	Adapts to rich moist soils or dry rocky soils; drought tolerant; fragrant flowers.
Pinus mugo pumilio | Mugo pine	Sun	3 to 5 feet 4- to 6-foot spread		Adapts to most soils; slow growing and very hardy; newer additions with trademark names such as "Slo-Grow" or "Lo-Mound" are also available.
Potentilla fruticosa | Shrubby cinquefoil	Sun	To 4 feet	May – September	Moist to dry soils; several cultivars available with varying foliage and flower hues; try "Tangerine" or "Moonlight."
*Ribes sanguineum** | Red-flowering currant	Sun/ partial shade	8 to 12 feet	March – April	Prefers dry soils; drought tolerant; white to deep-red flowers attract hummingbirds; dark-blue to black berries; thornless.
*Rosa gymnocarpa** | Baldhip rose	Partial shade	To 6 feet	May – July	Dry or moist soils; drought tolerant; small pink to rose flowers.
Shrubs – Evergreen				
Abelia x grandiflora | Glossy abelia	Partial sun/ partial shade	To 8 feet 5-foot spread	Summer	Prefers moist, well-drained soils, but drought tolerant; white or faintly pink flowers.
Arbutus unedo "Compacta" | Compact strawberry tree	Sun/ partial shade	To 10 feet	Fall	Prefers well drained soils; tolerant of poor soils; good in climate extremes; white to greenish-white flowers; striking red-orange fruit.
Cistus purpureus | Orchid rockrose	Sun	To 4 feet	June – July	Moist to dry well-drained soils; drought resistant; fast growing; reddish purple flowers.
Cistus salvifolius | White rockrose	Sun	2 to 3 feet 6-foot spread	Late spring	Moist to dry well-drained soils preferred, but can tolerate poor soils; tolerant of windy conditions and drought; white flowers.
Escallonia x exoniensis "*fradesii*" | Pink Princess	Sun/ partial sun	5 to 6 feet	Spring – Fall	Tolerant of varying soils; drought tolerant when established; pink to rose colored flowers; good hedge or border plant; attracts butterflies.

Table F.5 (continued). Plant Species Appropriate for Rarely Inundated Areas of Bioretention Facility.

Species | Common Name	Exposure	Mature Size	Time of Bloom	Comments
Shrubs – Evergreen (continued)				
Osmanthus delavayi | Delavay osmanthus	Sun/ partial shade	4 to 6 feet	March – May	Tolerant of a broad range of soils; attractive foliage and clusters of white fragrant flowers; slow growing.
Osmanthus x burkwoodii | Devil wood	Sun/ partial shade	4 to 6 feet	March – April	Drought tolerant once established; masses of small, white fragrant flowers.
Rhododendron | "PJM" hybrids	Sun/partial shade	To 4 feet	Mid – late April	Moist to fairly dry soils; well drained organic soil; lavender to pink flowers.
Stranvaesia davidiana	Sun	6 to 20 feet	June	Moist soils; white flowers in clusters; showy red berries.
Stranvaesia davidiana | undulata	Sun	To 5 feet	June	Moist soils; lower growing irregularly shaped shrub; great screening plant.
*Vaccinium ovatum** | Evergreen huckleberry	Partial shade/ shade	3 to 15 feet	March	Moist to slightly dry soils; small pinkish-white flowers; berries in August.
Groundcover – Evergreen				
*Arctostaphylos uva-ursi** | Kinnikinnik	Sun/ partial shade		April – June	Prefers sandy/rocky, well-drained soils; flowers pinkish-white; bright red berries; slow to establish; plant closely for good results.
*Gaultheria shallon** | Salal	Partial shade/ shade	3 to 7 feet	March – June	Dry and moist soils; white or pinkish flowers; reddish-blue to dark-purple fruit.
*Fragaria chiloensis** | Wild/coastal strawberry	Sun/ partial shade	10 inches	Spring	Sandy well drained soils; flowers white; small hairy strawberries; evergreen; aggressive spreader.
Helianthemum nummularium | Sunrose	Sun	To 2 feet 2-foot spread	May – July	Prefers well-drained soils, but will tolerate various soils; low-growing, woody sub shrub; many varieties are available with flowers in salmon, pink, red, yellow and golden colors.
Lavandula angustifolia | Lavender	Sun/ partial shade	To 1.5 feet	June – August	Adaptable to various soils; blue, lavender, pink to white flowers, semi-evergreen aromatic perennial.
*Mahonia nervosa** | Cascade Oregon grape/ Dull Oregon grape	Partial shade/ shade	To 2 feet	April – June	Dry to moist soils; drought resistant; evergreen; yellow flowers; blue berries.

Table F.5 (continued). Plant Species Appropriate for Rarely Inundated Areas of Bioretention Facility.

Species | Common Name	Exposure	Mature Size	Time of Bloom	Comments
Groundcover – Evergreen (continued)				
Mahonia repens | Creeping mahonia	Sun/ partial shade	3 feet	April – June	Dry to moist soils; drought resistant; yellow flowers; blue berries; native of eastern Washington.
*Penstemon davidsonii** | Davidson's penstemon	Sun	To 3 inches	June – August	Low-growing, evergreen perennial; prefers well-drained soils; drought tolerant; blue to purple flowers.
Perennials and Ornamental Grasses				
*Achillea millefolium** | Western yarrow	Sun	4 inches to 2.5 feet	June – September	Dry to moist, well-drained soils; white to pink/reddish flowers; many other yarrows are also available.
Anaphalis margaritaceae | Pearly everlasting	Sun/ partial shade	To 18 inches		Drought tolerant perennial; spreads quickly; attracts butterflies.
*Bromus carinatus** | Native California brome	Sun/ partial shade	3 to 5 feet		Dry to moist soils; tolerates seasonal saturation.
Carex buchannii | Leather leaf sedge	Sun/ partial shade	1 to 3 feet		Prefers well-drained soils; copper-colored foliage; perennial clumping grass; tolerant of a wide range of soils; inconspicuous flowers.
Carex comans | "Frosty curls" New Zealand hair sedge	Sun/ partial shade	1 to 2 feet	June – August	Prefers moist soils; finely textured and light green; compact, clumping perennial grass; drought tolerant when established; inconspicuous flowers.
Coreopsis spp. | Tickseed	Sun	1 to 3 feet		Dry to moist soils; drought tolerant; seeds attract birds; annual and perennial varieties; excellent cut flowers.
Echinacea purpurea | Purple coneflower	Sun	4 to 5 feet		Prefers well drained soils; hardy perennial; may need occasional watering in dry months.
*Elymus glaucus** | Blue wildrye	Sun/ partial shade	1.5 to 5 feet		Dry to moist soils; shade tolerant; rapid developing, but short lived (1 to 3 years); not good lawn grass.
*Dicentra formosa** | Pacific bleeding-heart	Sun/shade	6 to 20 inches	Early spring – early summer	Moist, rich soils; heart-shaped flowers.
*Erigeron speciosus** | Showy fleabane	Sun/ partial shade	To 2 feet	Summer	Moist to dry soils; dark violet or lavender blooms; fibrous roots.
Festuca ovina "Glauca" | Blue fescue	Sun/ partial shade	To 10 inches	May – June	Prefers moist, well-drained soils; blue-green evergreen grass; drought tolerant; shearing will stimulate new growth.

Table F.5 (continued). Plant Species Appropriate for Rarely Inundated Areas of Bioretention Facility.

Species | Common Name	Exposure	Mature Size	Time of Bloom	Comments
Perennials and Ornamental Grasses (continued)				
*Festuca idahoensis** | Idaho fescue	Sun/ partial shade	To 1 foot		Bluish-green bunching perennial grass; drought tolerant.
*Fragaria vesca** | Wood strawberry	Partial shade	To 10 inches	Late spring – early summer	Dry to moist soils; white flowers.
Gaura lindheimeri | Gaura	Sun	2.5 to 4 feet		Perennial; fairly drought tolerant and adaptable to varying soil types; long blooming period.
*Geum macrophyllum** | Large-leaved avens	Sun/ partial shade	To 3 feet	Spring	Moist, well-drained soil; bright yellow flowers; other Geum cultivars available, some of which may require supplemental watering.
Geranium maculatum | Spotted geranium	Sun/shade	To 1.5 feet	July	Moist, well-drained soils; low perennial; pale pink, blue to purple flowers.
Geranium sanguineum | Cranesbill	Sun/ partial shade	To 1.5 feet	May – August	Moist soils; deep purple almost crimson flowers.
Helichrysum italicum | Curry plant	Sun	To 2 feet	Summer	Moist or dry soils; hardy evergreen perennial; a good companion to lavender; bright yellow flowers; fragrant.
Helictotrichon sempervirens | Blue oat grass	Sun/ partial shade	1 to 1.5 feet	June – August	Tolerant of a variety of soil types but prefers well-drained soil; clumping bright blue evergreen grass; bluish white flowers.
Hemerocallis fulva | Daylilies	Sun/ partial shade	1 to 4 feet	Summer	Tolerant of a variety of soil types; easy to grow and tolerant of neglect; hardy perennial; entire plant is edible.
Heuchera americana | Coral bells (alumroot)	Sun/ partial shade	1 to 2 feet	June – August	Moist to dry, well-drained soils; never wet; easily transplantable perennial; red, greenish-white flowers; may need supplemental watering in dry season.
Heuchera micrantha | "Palace purple" (alumroot)	Sun/ partial shade	1 to 2 feet	June – August	Moist, well-drained soils; bronze to purple foliage in shade; small, yellowish-white flowers; perennial, evergreen; a number of other species and varieties are available. Try *H. sanguinea* for bright red flowers.
*Lupinus** spp. | Lupines	Sun	3 to 5 feet	March – September	Moist to dry soils; various native varieties; blue to purple, violet to white flowers; both native and nonnative varieties.

Table F.5 (continued). Plant Species Appropriate for Rarely Inundated Areas of Bioretention Facility.

Species | Common Name	Exposure	Mature Size	Time of Bloom	Comments
Perennials and Ornamental Grasses (continued)				
*Lupinus bicolor** | Two-color lupine	Sun	4 inches to 1.5 feet	Spring	Dry gravelly soils; small-flowered; annual.
*Lupinus latifolius** | Broadleaf lupine	Sun	To 1 foot	June – August	Dry to moist soils; perennial; bushy herb; bluish flowers.
*Lupinus polyphyllus** | Large-leafed lupine	Sun	To 3 feet	Spring – summer	Dry to moist, sandy to gravelly soils; perennial.
*Maianthemum dilatatum** | False lily-of-the-valley	Partial shade/ shade	3 to 12 inches	Spring	Prefers moist soils; small, white flowers; light-green to red berries.
Pennisetum alopecuroides | Fountain grass	Sun/ partial shade	1 to 2 feet	August – September	Moist, well-drained soils; tolerant of many soil types; clump-forming grasses. A number of varieties are available in different heights and bloom times. Try *P. caudatum* (White-flowering fountain grass) and *P. alopecuroides* cultivars "Hameln" and "Little Bunny" (Dwarf fountain grass).
Pennisetum orientale | Oriental fountain grass	Sun/ partial shade	1 to 3 feet	June – October	Prefers moist, well-drained soils; somewhat drought tolerant; small clumping, blooming grass, showy pink flowers; fountain grasses will benefit from annual shearing in late winter/early spring, but not required.
Penstemon fruticosus | Shrubby penstemon	Sun	8 to 10 inches	May	Prefers well-drained soils; evergreen perennial; drought tolerant; violet-blue flowers 1-inch long attract hummingbirds.
*Polystichum munitum** | Swordfern	Partial shade/ deep shade	2 to 4 feet		Prefers moist, rich soil conditions, but drought tolerant; large evergreen fern.
*Potentilla gracilis** | Graceful cinquefoil	Sun	1 to 2 feet	July	Moist to dry soils; yellow flowers.
Rudbeckia hirta | Black-eyed Susan	Sun/ partial shade	3 to 4 feet	Summer	Moist to dry soils; showy flowers, hardy and easy to grow; several other varieties are available.
*Smilacina racemosa** | False Solomon's seal	Partial sun/ shade	1 to 3 feet	April – May	Moist soils; creamy white flowers; red berries.

*Denotes native plant species.