Gap Analysis

STREET TREE ORDINANCE (TMC 12.24) AND STREET TREE PLAN
CITY OF TUMWATER

December 2022

Prepared for:

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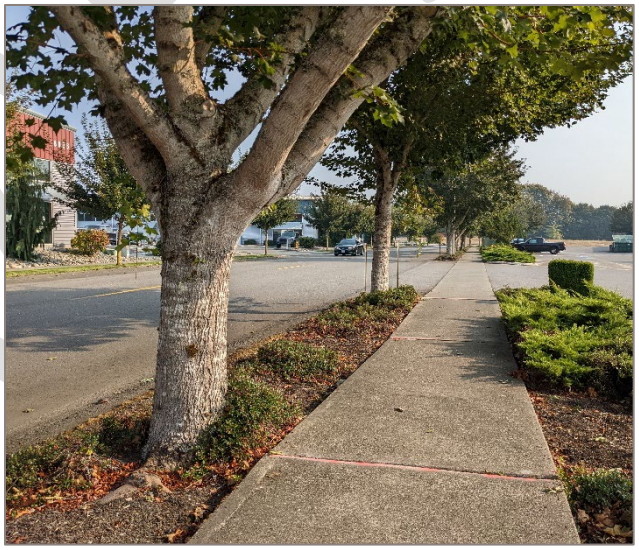

CITY OF TUMWATER

THE WATERSHED COMPANY

Title-page image: Street trees in Tumwater, The Watershed Company.

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1 Introduction

The City of Tumwater's urban forest provides environmental, health, and aesthetic benefits to the entire community. The urban forest is a dynamic ecological system that includes canopy trees as well as associated understory vegetation on both public and private land. It contributes to the City's character, economic vitality, and a variety of environmental and human health benefits such as reducing urban heat island effects, stormwater management and water quality improvement, erosion reduction, wildlife habitat, and biodiversity, improving mental health and wellness, recreation, and mitigating the impacts of climate change. Like many cities in the Puget Sound region, the Tumwater community is faced with the need to support population growth and development while also ensuring environmental sustainability and promoting equity and environmental justice in its policies.

To meet this challenge, the City Council established "Be a Leader in Environmental Sustainability" as one of its Strategic Priorities in the City of Tumwater Strategic Priorities with the goal of "implement[ing] [the] Urban Forestry Management Plan." The City Tree Board, with support from the Community Development Department and community stakeholders, created the Urban Forestry Management Plan, which was adopted by City Council on March 2, 2021. To achieve the objectives of the Urban Forestry Management Plan, the City established a review and revision of the City's street tree code (TMC 12.24 *Street Trees*) as well as the update of its existing Street Tree Plan, developed in 2002, as a high priority action (Tumwater 2021). In addition, the City will also be looking at other related codes, including TMC 16.08 *Protection of trees and vegetation* and TMC 18.47 *Landscaping*, in 2023.

In 2021 and 2022, the Tree Board, Planning Commission, and City planning staff began work to update the Street Tree Plan, which included field trips (See Appendix C) to four sites to learn about street tree conditions in the City and work-sessions to develop a scope of work and priorities for the revised Street Tree Plan (Medrud 2022). The City articulated that the audience for the Street Tree Plan would include residents, homeowner associations, commercial and industrial property owners, developers, landscape architects, arborists, tree professionals, and City tree and landscape maintenance staff. They also identified that the City should address the following sustainable resource management topics within the Street Tree Plan:

- Street Tree Management Plan
- Funding
- Staffing
- Assessment Tools and Data Management

- Species and Site Selection
- Standards for Tree Care
- Public Safety
- Equity
- Reuse

This gap analysis includes the assessment of both the City's municipal code governing the management of street trees as well as the City's 2002 Street Tree Plan, which serves as a best practices manual for City staff as well as for external professionals and stakeholders engaged in street tree care and maintenance in the City. Furthermore, this analysis draws from industry best practices, local urban forest management trends, and regulatory approaches within the Puget Sound region. Features from similar cities' Street Tree Plans or equivalent documents, which may be of interest to the City, are identified along with recommendations based on the latest tree management guidance.

One challenge of urban forest management lies in the fact that these are complex regional and watershed-scale natural systems where regulatory practices differ across local jurisdictions. Furthermore, urban forest types vary by ecoregion and climate type; what may work in eastern Washington cities may not work for the species and habitat types found in western Washington. It is essential that planning and design guidelines are grounded in best practices for urban forest management informed by the best available science in arboriculture[1] and silviculture best practices, urban tree canopy science, critical areas, stormwater management, climate change impacts and adaptation, and sustainable landscape strategies.

Urban forest management is also informed by the priorities, values, and resources of the community. Therefore, the code and Street Tree Plan updates will need to be tailored to address the needs of specific neighborhoods, business districts, landowners, and existing City resources, as well as balance competing City and regional priorities, including developing urban intensities, protecting federally listed prairie species, and providing affordable housing in a geographically constrained area.

[1] Best practices for arboriculture include but are not limited to the American National Standards Institute (ANSI) A300 Standards, which are industry consensus standards developed by the Tree Care Industry Association written by the Accredited Standards Committee. ANSI standards cover everything from specific tree care specifications such as pruning and planting to worker safety.

1.1 Methodology

This gap analysis is the first step in revising TMC 12.24 *Street trees* and the City's Street Tree Plan, and it will frame topics to be discussed and addressed by the Tree Board, Planning Commission, and City Council. The Watershed Company (Watershed) will meet with City Staff, Tree Board, and Planning Commission members beginning in January 2023 to discuss the current street tree ordinance and Street Tree Plan. The project team will also launch a public engagement process to solicit input from external stakeholders that build on the engagement process currently underway for the update to TMC 16.08 *Protection of trees and vegetation*. Priorities identified during stakeholder meetings and public comment provided on the Tumwater Urban and Community Forest Online Open House, coupled with existing code and policy review, will inform and guide the street tree code and Street Tree Plan update process. Community members will also have the opportunity for further involvement by participating in public hearings in 2023.

1.2 Plan and Policy Review

1.2.1 City Design Guidelines

Watershed reviewed TMC 12.24 *Street trees* and City codes that reference tree management, including TMC 16.08 *Protection of trees and vegetation* and TMC 18.47 *Landscaping*. In addition, Watershed reviewed City and regional planning and policy documents to assess tree protection and management references, identify nexus with the existing street tree preservation code and Street Tree Plan, and note opportunities for revision. Those documents include the following:

- 2021 Tumwater Urban Forestry Management Plan
- Tumwater Town Center Street Design Plan
- Design Guidelines for Capitol Boulevard Community Zone
- Capitol Boulevard Corridor Plan
- Tumwater Development Guide
- Tumwater Citywide Design Guidelines
- Tumwater Brewery District Plan
- Tumwater Littlerock Road Subarea Plan

Watershed also completed a jurisdictional code comparison of other Washington jurisdictions within the Puget Sound region with similar land use and urban interfaces that are referenced throughout this document. See Appendix A for a table of findings. Additionally, Watershed staff reviewed other critical City and regional planning documents, including the Tumwater

Comprehensive Plan and Thurston Climate Mitigation Plan, to ensure that the street tree code and Street Tree Plan updates align with local climate resilience and sustainability priorities and the Growth Management Act.

1.2.2 Street Tree Plans

Watershed completed an assessment of the 2002 Tumwater Street Tree Plan as well as reviewed the street tree plans from the City of Seattle (SDOT 2014), the City of Portland (Portland Parks and Recreation 2016), and the City of Vancouver, WA (City of Vancouver 2011). Although these cities have higher populations and are more heavily urbanized than Tumwater, their Street Tree Plans are grounded in the best available science and arboriculture practices. Additionally, these plans are well organized, comprehensive, and easy to understand and serve as good examples of publishable Street Tree Plans for Tumwater to use as a reference.

1.2.3 Urban Forestry Management Plan

The goals and strategies that will guide the update process for TMC 12.24 *Street trees* and the Street Tree Plan are derived from the Urban Forestry Management Plan. The Urban Forestry Management Plan guides the stewardship of the urban forest within the City through a series of implementation actions; its core focus is "The Right Tree in the Right Place." The primary goals, objectives, and actions of the Urban Forestry Management Plan that specifically inform regulatory strategies and the code update of TMC 12.24 *Street trees* and Street Tree Plan development include:

Goal 1. Restore and enhance the community and urban forest.

Objective 1.1. Increase canopy cover in the City to expand the community and urban forest.

Action B. Ensure that landscaping regulations provide for the preservation of trees with potential and the planting of new trees and understory when removing existing trees and understory on public and private properties.

Action C. Require appropriate tree planting in new development and redevelopment, by emphasizing proper planning for trees, correct planting techniques, and aftercare that supports the healthy establishment of newly planted trees.

Action E. Support and incentivize the use of large-canopy trees in appropriate areas to provide maximum benefits.

Objective 1.2. Improve and maintain an optimal level of age distribution and species diversity of trees in the community and urban forest by increasing the use of desirable trees.

Action A. Designate tree species based upon specific purposes and site conditions for each project and maximize the benefits of trees while maintaining species diversity.

Action B. Stagger new and replacement tree plantings to encourage age distribution and species diversity.

Objective 1.3. Establish a full complement of beautiful, healthy trees in the City by planting trees in locations that maximize their ability to grow while minimizing damage to the essential infrastructure of the City.

Action A. Plan citywide for trees along City streets and in City parks and open spaces, maintain an approved City planting list, and designate nuisance trees for removal and replacement.

Action B. Develop a partnership with the City Stormwater Utility to support maintenance of the City's urban forest and staffing.

Action C. Look at enlarging planting sites to capture stormwater, benefit trees, and reduce hardscape damage such as sidewalk failures or gratings not fitting due to confined growing space for trees. Consider increasing resources to prioritize repairing sidewalk damage.

Action D. Encourage engineering solutions in planting sites such as silva cells, automatic watering systems, or similar options to ensure the healthy growth of trees.

Goal 2. Protect and preserve the community and urban forest, which includes trees, understory, habitat, and soils.

Objective 2.1. Use regulatory and non-regulatory approaches to protect and retain the community and urban forest to the extent practicable within the context of necessary growth and development.

Action A. Enforce tree protection regulations to protect healthy existing trees and forested areas and replace on public and private properties.

Action B. Enforce landscaping regulations to preserve existing trees and understory as well as replace on public and private properties.

Action C. Implement tree-pruning standards for trees on public property such as street trees, trees in critical areas, public land, parks, and trees in natural areas and remnant forests.

Objective 2.2. Develop a City street tree-trimming program.

Action A. Develop tree-trimming areas based on optimal equipment mobilization, priority locations, current tree inventory, and best management practices.

Action C. Prohibit inappropriate tree topping using education and enforcement. Where overhead power lines are creating conflicts, consider replacing the trees with shorter species or burying the power lines to reduce such conflicts.

Action D. Consider tree growth patterns as a factor prior to planting, especially in instances where a dense sight obscuring barrier or exceptionally large tree is not desirable, such as in front of a business.

Goal 3. Manage City-owned community and urban forestry resources for maximum benefit.

Objective 3.1. Promote efficient and cost-effective management of the community and urban forest by selecting, situating, and maintaining urban trees appropriately to maximize benefits and minimize hazards, nuisances, hardscape damage, and maintenance costs.

Action B. Develop and enforce design phase and preconstruction coordination protocols to ensure "The Right Tree in the Right Place."

Action C. Define and assign street tree maintenance and care responsibilities and publicize for greater awareness and compliance.

Objective 3.2. Adopt best management practices and resource management assessment tools and data management to improve City tree maintenance to manage City-owned community and urban forest areas.

Action B. Regularly review and update the Public Works standards, the Development Guide, and facilities procedures for the maintenance of City trees and the community and urban forest and modify to reflect best tree management practices and employee safety.

Action F. Develop resources for proper tree care that are available to the public, simple to reference, and easily understood.

Objective 3.3. Improve the health and care of City trees through good horticultural practices.

Action A. Develop the recommended City Street Tree and Landscaping Tree Lists based on local experience.

Objective 3.4. Establish or enhance the character of City streets using trees in City rights-of-way, where adequate rights-of-way exist.

Action A. Use the updated Comprehensive Street Tree Plan to guide the enhancement of the visual appeal of the City.

Action B. Maintain and regularly update an ongoing planting plan for vacant street tree sites based on inventory data, which includes designating species for new and

replacement trees based on the Street Tree List that focuses on filling canopy gaps to produce equitable access to tree benefits and green space throughout the City.

Action D. Take the tree health assessment prepared for the Urban Forestry Management Plan and identify specific varieties regularly that will survive the urban environment, climate impacts, and winter wind and ice storms.

Goal 4. Balance the protection and support of the community and urban forest with other City strategic priorities, which include, in part, providing affordable housing, developing a walkable urban community, economic development, addressing climate change, and protecting endangered species.

Objective 4.1. Update the Urban Forestry Management Plan and supporting regulations regularly and ensure they work in harmony with other City strategic priorities.

Action D. Review tree preservation, landscaping, and street tree regulations regularly to ensure that they are working with other City strategic priorities, plans, and regulations, responding to changes in climate, and implementing the Urban Forestry Management Plan.

Action E. Review and update the Comprehensive Street Tree Plan regularly to reflect "The Right Tree in the Right Place" strategies, including plantings in planter strips and medians and encourage planting of native tree species, where appropriate.

Action F. Review the Street Tree List and Landscaping Tree List regularly to ensure plant choices and tree selection implement the Urban Forestry Management Plan.

The Urban Forestry Management Plan recognizes that different community and urban forest subtypes may require different approaches to tree management based on environmental conditions and land use designations, as described in the City's Comprehensive Plan. Environmental conditions account for the tree species and plant types most appropriate for a site, historical use, and conditions, as well as soils, hydrology, and microclimates. Land use accounts for the density of development within a subarea. Tree management differs in higher-density urban land developments compared with lower-density residential areas, open spaces, and critical areas. The tree and vegetation protection code update aims to integrate these concepts. The 2021 Urban Forestry Management Plan can be found on the City website or on the Tumwater Urban and Community Forestry Online Open House.

1.2.4 Thurston Climate Mitigation Plan

Cities and towns in the Puget Sound region are already feeling the impacts of climate change, including hotter summers, extended periods of summer drought, an increase in air pollution, extreme flooding, and increased rain events (Climate Impacts Group 2022). A healthy urban tree canopy helps to mitigate some of these impacts through carbon sequestration; the capture, filtration, and slow release of stormwater; and providing shade. The Thurston Regional Planning Council, a partnership between the Cities of Tumwater, Lacey, Olympia, and Thurston County, seeks to reduce climate-polluting greenhouse gases and develop a regional framework to address this critical environmental issue. Together they developed the Thurston Climate Mitigation Plan (2021), which recognizes the important role that trees, vegetation, and healthy soils play in carbon sequestration, erosion reduction, stormwater management, and providing habitat. Strategy A5/A6/A7: Preserve tree canopy and manage forests and prairies to sequester carbon includes specific actions consistent with the Urban Forestry Management Plan, including:

> *A6.5 Municipal Canopy. Maximize tree canopy on jurisdiction owned or managed land, where appropriate in balance with other jurisdictional goals.*
>
> *A6.9 Tree Canopy Preservation. Develop a tree canopy ordinance that establishes a baseline for current urban canopy and sets goals for future canopy to increase resilience. Combine direct cooling value (urban heat island mitigation) with carbon sequestration value when evaluating urban tree management.*

Throughout the municipal code and street tree plan update process, the City will be considering the implications of climate change on street tree management. As much as trees and urban forests help to mitigate the impacts of climate change, they are also greatly affected by the shifts in temperature, precipitation, the growing season, and other factors, such as an increase in pest infestations that result from these changes. Heatwaves, drought, and flooding can cause a decline in tree health and increased mortality in some species. Although many tree species grow in a wide geographic range and may exhibit adaptations and "plasticity" in the face of changing growing conditions, the Puget Sound is starting to see the decline of some of our key native species, including bigleaf maple (Betzen et al. 2021) and western redcedar (Fischer 2019) as well as challenges to tree establishment and vigor in other horticultural varieties.

As noted in the Urban Forestry Management Plan, the City will need to employ management strategies to ensure the resilience of the City's urban forest. The City street tree ordinance and street tree plan can serve as a tool by guiding tree species selection, as noted earlier, timing of landscape plant installations, and monitoring protocols to assess tree health and potential pest outbreaks.

1.3 Internal and External Stakeholder Engagement

City and Watershed staff will be facilitating public meetings with external stakeholders beginning in January 2023, collectively called Community Conversations, to educate the public on the street tree code and Street Tree Plan update and solicit feedback, concerns, and priorities for street tree management within the City of Tumwater. These will be "hybrid" meetings hosted online, with in-person attendance provided at City Hall or the Fire Department Training Room. An internal stakeholder session with City staff will be conducted in early January 2023 to enlist input from City employees who implement and enforce the City street tree management.

Additionally, the City is hosting an Online Open House website to engage community members who cannot attend the stakeholder meetings. The Tumwater Urban and Community Forestry Online Open House invites all stakeholders to provide public comment and serves as a hub for project updates and background information. Public comments provided online and during stakeholder meetings will be summarized as an appendix in a final version of this Gap Analysis. Data will be assessed and integrated into the ordinance update and Street Tree Plan as applicable and feasible.

1.4 Document Organization

This report is organized in the following manner:

- Section 2. Analysis of Existing Street Tree Ordinance
  This section includes recommendations for updating TMC 12.24 *Street Trees* (See Appendix B). Potential gaps are identified within each section by topic. This section also addresses additional regulatory or urban forest management topics not addressed within the existing ordinance.
- Section 3. Analysis of 2002 Street Tree Plan
  Section 3 includes potential gaps and recommended revisions to the City's 2002 Street Tree Plan. The original Street Tree Plan is linked within the Reference section of this report.
- Section 4. Additional Considerations
  This section includes additional considerations and recommendations that pertain to the Street Tree Plan update not currently included in the 2002 Street Tree Plan.
- Section 5. Regulatory Linkages: Consideration with other City Plans and Guidelines
  Section 5 discusses regulatory linkages with other City documents where street trees are discussed or may require additional references and amendments including other related City tree protection or landscaping codes.

- Section 6. Proposed Street Tree Plan Organization
  Section 6 details a proposed outline for the revised Street Tree Plan.
- Section 7. References
  This section includes references used throughout the report.

2 Analysis of Existing Street Tree Ordinance

2.1 Introduction

Tumwater's existing street tree ordinance (TMC 12.24 *Street trees*) outlines regulatory requirements pertaining to planting authority, prohibited tree species, the definition and abatement of nuisance trees, stump and root removal, and enforcement. The current ordinance (See Appendix B) would benefit from reorganization with additional sections by specific topics as well as added references to other applicable codes and policy/planning documents. This would provide clarification and improve functionality for greater ease of use and application by the reader.

Summary of Recommendations:

- Reorganize the ordinance with additional topics sections and added references

2.2 Statement of Purpose or Intent

TMC 12.24 *Street trees* does not include a statement of purpose or intent. The City may consider adding this to ensure consistency with the adopted 2021 Urban Forestry Management Plan. This section should consist of an introductory paragraph that describes the recent Urban Forestry Management Plan planning efforts and reference the most up-to-date Street Tree Plan. Additional topics could include:

- General intent of the chapter is to ensure traffic visibility for pedestrian, bicycle, or vehicular traffic, protect utilities, streets, accessible access, and sidewalk infrastructure, link together various parts of the City, ease transitions from various land uses, mitigate the impacts of development on stormwater and urban heat islands, as well as growing the urban tree canopy.
- Include a statement that reflects the Urban Forestry Management Plan's guiding principle of "Right Plant, Right Place" to manage trees and vegetation in accordance with industry standards, best management practices established by the International Society of Arboriculture (ISA) and the American National Standards Institute (ANSI) for Management of Trees During Site Planning, Development and Construction, Pruning, and Tree Risk Assessment.

Summary of Recommendations:

- Develop and include a statement of purpose and intent

2.3 Definitions

One goal of this code update is to ensure that the revised ordinance is straightforward and easy to understand. To that end, additional terms are necessary to ensure the ordinance is accessible to City planners, industry professionals, and community members. As specific amendments are proposed, additional definitions may be needed to ensure conciseness within the ordinance. Furthermore, there may be definitions remaining that are no longer applicable and can be removed. Definitions should be crafted to reduce ambiguity and adhere to industry standards and best management practices established by ISA and ANSI.

Definitions should be reviewed for consistency across other chapters of the Tumwater municipal code, including TMC Title 16 *Environment*, Title 17 *Land Division* (TMC 17.04 *Definitions*), and Title 18 *Zoning* (TMC 18.04 *Definitions*). For example, a definition of a street tree is defined in TMC 17.04 *Definitions*, whereas Title 12 *Streets, Sidewalks, and Public Places* do not have a separate definitions section. A definitions section may be included in Title 12 *Streets, sidewalks and public places*, or a reference to TMC 17.04 *Definitions*, could be included in TMC 12.24 *Street trees*.

Summary of Recommendations:

- Include additional, relevant terms; remove terms deemed inapplicable
- Determine how these definitions should be accessed (included in Title 12 or as a reference to Title 17.04)

2.4 Street Tree Standards and Specifications

TMC 12.24 *Street trees* does not currently include planting and maintenance standards, nor does it cross-reference the City's Street Tree Plan. Street tree specifications are referenced as "in accordance with the development guide." The City could consider adding a code section titled "Street Tree Management Standards" with subsections on street tree species selection, pruning and maintenance requirements, and reference to the City Street Tree Plan. Further discussion on these topics can be found in Sections 3.5.1, 3.9.9, and 4.4 of this report.

Summary of Recommendations:

- Include a new section, "Street Tree Management Standards," with relevant subsections

2.5 Jurisdiction and Authority

The City should clarify the roles and jurisdiction of tree management and maintenance by the City versus when adjacent private landowners are responsible for trees within the right-of-way. This section should articulate that the City is responsible for formal arterial and streetscapes and informal roadside vegetation within public unimproved rights-of-way. Likewise, the code should clarify when private landowners are responsible for the management of trees within adjacent rights-of-way, such as privately owned street trees. Other jurisdictions include a specific list of rights-of-way in the code where City is responsible such as the City of Burien (BMC 12.38.080 *City maintenance responsibility list*).

Summary of Recommendations:

- Describe the roles and jurisdictions of tree management and maintenance
- Clarify when private landowners are responsible for the management of trees in adjacent ROW

2.6 Permit Requirements: Public Tree Removal and Pruning

The City may consider establishing a permitting process specifically for the removal or pruning of street trees with clear procedures outlined in TMC 12.24 *Street trees*. The request to remove a public tree should require an arborist report by a qualified professional and have associated fees. Pruning requests would not require any fees, but an ISA-certified arborist should be required to perform the pruning of public trees according to ANSI A300 standards. Other jurisdictions within the Puget Sound region include tree or right-of-way use permit requirements for planting, removing, and pruning of public trees. Examples included in the jurisdictional code comparison conducted for this report include the City of Burien (BMC 12.38.040), Edmonds (ECC 18.85.020), and Shoreline (SMC 12.30.040) (See Appendix A).

Summary of Recommendations:

- Establish and describe protocols for permitting requirements related to tree management in rights-of-way

2.7 Assessment of TMC 12.24 by Code Section

2.7.1 Planting of certain types of trees prohibited (TMC 12.24.010)

This section describes which species shall not be planted within the City rights-of-way. Willow, cottonwood, and poplar trees are identified as nuisance species due to the invasive quality of their root systems. These are also included on the list of prohibited trees for the City and excluded from tree retention calculation standards within TMC 16.08 *Protection of trees and*

vegetation. The City also has a list of trees not allowed in public rights of way to minimize impacts to sidewalks and other infrastructure conflicts.

The City may consider expanding its prohibited tree list to include trees known to be invasive in natural areas and open spaces, such as English holly (*Ilex aquifolium*), which can create dense thickets – especially in upland forests of Western Washington, outcompete native vegetation, and is on the monitor list with the Washington State Noxious Weed Board (WANWCB). Likewise, the City may consider expanding its preferred tree list to include other drought-tolerant or climate-adapted species suitable within restricted planted space within City rights-of-way. For further discussion of prohibited and preferred tree species and the development of an Approved Street Tree List, see Section 3.5.1 of this report.

Summary of Recommendations:

- Update the list of prohibited trees
- Revise and expand the approved street tree list

2.7.2 Unauthorized planting in public spaces prohibited (TMC 12.24.020)

This section discusses the prohibition of planting any trees or shrubs in any public space without permission from the City. It expands the list of prohibited trees to include fruit trees (except ornamental varieties), nut trees, Ailanthus, Mountain ash, Oregon or big leaf maple, American elm, or any other tree whose roots are considered invasive, which could lead to inevitable conflicts with sidewalks and other public infrastructure.

Consider consolidating this species list with the list of prohibited trees under 12.24.010 instead of having them in two separate sections. See Section 3.5.1 of this report for further discussion of species selection.

Summary of Recommendations:

- Consolidate and amend the street tree list to include species listed above
- See Section 3.5.1 of this report for additional discussion

2.7.3 Trees and shrubs endangering usefulness of streets and sidewalks – Public nuisance (TMC 12.24.030)

Public nuisance is first defined in TMC 8.04.030 *Public nuisance defined*. This section outlines how a tree, shrub, or other vegetation may be declared a public nuisance along with TMC 12.24.050 *Fire hazards – Abatement*. Consider consolidating these code sections into one new section that covers public nuisances. See Section 2.7.5 of this report regarding fire hazards.

Vegetation that jeopardizes the safety or inhibits access or use of any public street, sidewalk, sewer, or underground utility is considered a public nuisance. This code provision allows trees to extend over the sidewalk when its crown is raised eight feet above sidewalks and fourteen feet above roadways. Section 4.19.C of the Tumwater Development Guide also states that trees impeding visibility at intersections need to be "trimmed from the base to a height of 10 feet above the street" (Tumwater 2019). This standard should be consistent across the municipal code and planning documents or clarify in which circumstances the standard can be altered. City should also direct readers to street tree pruning and maintenance standards located in the City's revised Street Tree Plan.

Summary of Recommendations:

- Consider consolidating code sections (TMC 12.24.030 and TMC 12.24.040)
- Clarify pruning clearance height expectations for sidewalks and streets

2.7.4 Abatement of nuisance (TMC 12.24.040)

This section explains that the Director shall provide written notice to the owner of previously described nuisances to mitigate through trimming or removal. The expense shall be taken on by the owner. If mitigation is not done in a timely manner in accordance with the written notice, a bill may be given to the owner. There are no suggested changes to this section currently.

2.7.5 Fire hazards – Abatement (TMC.12.24.050)

Any vegetation that has grown and died on a property is considered a fire and safety hazard and is considered a public nuisance. The onus lies with the property owner to mitigate. As noted earlier, consider consolidating this section with TMC 12.24.030 to address public nuisances in one section. The City should also consider adding a reference to the current Hazards Mitigation Plan or Street Tree Plan.

2.7.6 Stumps and roots – Removal (TMC 12.24.060)

This section discusses the requirements for stump grinding for trees and shrubs. After stump grinding, should roots remain, a suitable compound is required to prevent future sprouting. If any roots have impacted the street, curb, or sidewalk, those roots shall be removed, and the infrastructure repaired. The City should consider including this in a new section titled "Street Tree Management Standards," as noted in Section 2.4 of this report, or reference the specific management standards referenced in the Street Tree Plan. The standard for stump and root treatments should also reference the City's Integrated Pest Management (IPM) policy or standards for herbicide use to control stump sprouting. The City should also specify when and if a right-of-way or street-use permit is required to perform this work.

Summary of Recommendations:

- Consider creating a new code section, "Street Tree Management Standards"
- Include reference to the City's IPM policy as it relates to herbicide use
- Determine if and when a ROW or street-use permit is required to perform stump removal

2.7.7 Appeals (TMC 12.24.070)

No changes are proposed, and the appeals procedure is cross-referenced to the appropriate development code to avoid redundancy and consistent language during future code updates to the section.

2.7.8 Enforcing authority (TMC 12.24.080)

This section states, "The public works director or his/her duly authorized representative shall be charged with the enforcement of this chapter." While the Transportation & Engineering Director has replaced the Public Works Director as the responsible party for street related issues, these code amendments will not be updating references to the old Public Works Director position, as that is a code wide issue. No changes are recommended for this section.

2.7.9 Violation – Penalty (TMC 12.24.090)

This section of the City code could be evaluated for consistency with other tree-related code violations. Currently, TMC 12.24.090 states that "violation of or failure to comply with any provision of this chapter shall constitute a misdemeanor." The City may consider structuring violation penalties by whether they are associated with a development project versus trees adjacent to existing development.

There is variation across jurisdictions on the assignment of fines and penalties related to public trees. The City of Burien street tree code also references RCW 64.12.030 *Injury to or removing trees, etc. – Damages* that pertain to the timber trespass statute in the Revised Code of Washington.

Summary of Recommendations:

- Consider penalty structure for violation of this code
- Determine fines and penalties as they relate to injuring or removal of street trees

2.7.10 Remedies not exclusive (TMC 12.24.100)

This section states, "The remedies prescribed in this chapter are in addition to all other remedies provided or authorized by law, including damages to the City's proprietary interests." No changes are recommended for this section.

2.8 Monitoring

As outlined in Objective 4.1 Action D of the Urban Forestry Management Plan, the City will review urban forestry regulations in the municipal code to evaluate their effectiveness in achieving other City strategic priorities, plans, and regulations, responding to changes in climate, and implementing the Urban Forestry Management Plan (Tumwater 2021). This will begin with this code update, anticipated to be completed by summer 2023, and then every four years. The City could consider including this provision in the municipal code itself.

Summary of Recommendations:

- Consider including an update interval into TMC 12.24 *Street Trees*

3 Analysis of the 2002 Street Tree Plan

3.1 Overview of Section 3

Tumwater's existing Street Tree Plan (Tumwater 2002) was developed in 2002 by Washington Forestry Consultants. The plan focuses on the use of trees as a central design element to link different areas of the City together. It describes different planting design themes and provides recommendations on tree species selection by addressing mature trees in the landscape, lifespan, character and form, and cold hardiness. Tree species recommendations are outlined for specific types of streets (main artery, connector, etc.). It includes suggestions for planting strip dimensions to support tree growth, basic best management practices for tree planting, after-planting care, and maintenance practices. An overview of the City code and document review is described, and recommendations for the next steps for urban forestry management are included.

The following gap analysis is organized by the title section of the 2002 Street Tree Plan (report Sections 3.2 through 3.10). Recommendations for revisions are provided with references to examples from other jurisdictions. Additional recommendations for the revised Street Tree Plan follow in Section 4 and they are organized by topic. Regulator linkages with related City codes, policies, and guides are described in Section 5. The proposed organization of the revised Street Tree Plan is in Section 6.

3.2 Executive Summary

The Executive Summary of the 2002 Street Tree Plan includes a brief overview of the contents, a description of the 2002 canopy conditions, and broad canopy goals. In lieu of an Executive Summary, the City could consider combining it with the information currently housed in the

Introduction to create one section detailing the Street Tree Plan's purpose, scope, and intent. The *Purpose, Scope, and Intent* section should place the Street Tree Plan in context with City's broader planning and management framework – with references to related municipal codes and policies. The importance of street tree management should be referenced as a critical tool for achieving the City's canopy cover goals. It should also serve as a stand-alone and defensible plan when the City is reviewing development applications. This section should describe the intended audience defined in Section 1 of this report (See Appendix D).

Summary of Recommendations:

- Condense executive summary and introduction sections into a *Purpose, Scope, and Intent* section
- Reference goals stated in the Urban Forestry Management Plan and other relevant municipal codes and policies

3.3 Introduction

The existing introduction section describes the overarching canopy goals of the City, emphasizing the design importance on a community-wide basis and trees' ability to link different City areas together. As noted above in Section 3.2, the Introduction could be combined with the Executive Summary to characterize the purpose, scope, and intent of the Street Tree Plan. The revised section will need to reference and reflect the goals, objectives, and actions outlined in the City's 2021 Urban Forestry Management Plan as stated in Section 1.2.3 of this report (Tumwater 2021).

Summary of Recommendations:

- Condense executive summary and introduction sections into a *Purpose, Scope, and Intent* section

3.4 The Street Tree Planning Process

This section describes various planting design themes and their applications. It also discusses mature tree size, lifespan, characteristics, hardiness, and species diversity. Comments per section topic are discussed below. Any discussion of street tree planning and planting should ensure synergy with TMC 18.47 *Landscaping*.

3.4.1 Planting design patterns

Design recommendations outlined in this section would be better suited to a City street design plan. Design themes are discussed in the Town Center Street Design (Tumwater 2003) and the Capitol Boulevard Corridor Plan (Tumwater 2014). See the Reference section of this report for

links to these documents. The City should ensure that specific neighborhood or district design documents reflect best planting and management practices outlined in the revised Street Tree Plan.

Summary of Recommendations:

- City design documents should reflect best management practices
- Determine what level of detail regarding street tree design is desired
- Present the information graphically

3.4.2 Mature Tree Size

This section discusses the limitations trees face in the urban environment that may restrict a tree from maturing to its full size. These considerations would be better suited under Street Tree Selection. See Section 6 of this report for a proposed outline.

Summary of Recommendations:

- Combine topics related to tree species selection (mature tree size, lifespan of trees, tree character, and species diversity) under one section (See Section 6 of this report for a proposed outline) and utilize this information to help inform the updates to the Approved Street Tree List.

3.4.3 Longevity of Species

This section lists common fast-growing tree species that are often planted. These fast-growing species result in higher maintenance costs and often need to be replaced sooner than slower-growing species. These considerations would be better suited under *Street Tree Selection* and incorporated into the Approved Tree List table. See Section 6 of this report for a proposed outline.

3.4.4 Tree Character

This section describes tree characteristics, such as form, leaf color, and branch habit, which help determine tree selection. These considerations would be better suited under *Street Tree Selection* and incorporated into the Approved Tree List table. See Section 6 of this report for a proposed outline.

3.4.5 Diversity of Street Trees

This section discusses the importance of avoiding monocultures when unexpected disease and pest pressures emerge. This should include findings of the 2018 citywide tree inventory, canopy diversity goals discussed in the Urban Forestry Management Plan, and industry

recommendations. Based on best arboriculture practices the recommendation is to limit any one genus to 10% and species to 5% (Galle et al. 2021). While these thresholds do not consider the surrounding matrix of trees or the non-inventoried street trees in Tumwater, it is good practice to aim for these numbers by increasing species diversity, thus reducing the risk of losing significant portions of the street tree canopy. These considerations would be better suited under *Street Tree Selection*. See Section 6 of this report for a proposed outline.

3.5 Current Tree Conditions

This section describes the results of the 1997 street tree inventory and species planted in old and recent plantings. Existing soil conditions of Tumwater are also outlined in this section. Recommendations regarding backfill soil for tree planting are briefly discussed. This section also notes that supplemental irrigation is required three years post-planting to ensure healthy root growth. In the case of trees planted in sidewalks with tree grates or in parking lots, the Street Tree Plan encourages species selection to reflect increased soil and air temperatures.

The City completed an updated street tree inventory in 2018. For further discussion of the 2018 data, see Section 4.6 of this report. Objective 1.3 Action A of the Urban Forestry Management Plan, recommends updating this inventory on a five-year basis. All current information on 2018 tree inventory results, diversity findings, and tree selection should be moved to a new section titled *Street Tree Selection*. Soil amendment requirements should be included in the detailed specifications for plantings and should be moved to *Planting Guidance* along with requirements regarding irrigation, watering requirements, and tree grates. See Section 6 for all recommended changes to the revised street tree plan outline. Additional comments regarding irrigation and watering are found in Section 3.9.6 of this report.

Summary of Recommendations:

- Include 2018 inventory data in the Street Tree Plan and proposed update intervals. The Urban Forestry Management Plan recommends every five years (Objective 3.3 Action A Priority 2)
- Include specifications for soil amendments

3.5.1 Street Tree List

Growing healthy full-sized canopy trees in the built environment requires careful consideration of optimal growing conditions by species, proper planting practices, and protection of infrastructure (e.g., buildings, utilities, driveways, sidewalks, and fences). To achieve this, the City has developed an approved tree list (Approved Street Tree Species | City of Tumwater, WA) to guide street tree selection on commercial, industrial, and residential development projects. The current Street Tree Plan also includes a recommended tree list (See Table 1, page

13). The list is organized by size, crown spread, and spacing. The Street Tree Plan also includes a list of conifer species considered suitable for informal plantings.

The City should consider revising this list to provide homeowners and other landowners with "Right Tree, Right Place" guidance on preferred and prohibited tree species and planting practices aligned with planting specifications outlined in TMC 18.47 *Landscaping* and the revised Street Tree Plan.

Additionally, species selection and recommendations should be informed by current trends in the region's changing climate. The University of Washington Climate Impacts Group predicts that Western Washington will likely see increasingly drier conditions and higher temperatures during the summer months, with potential increases in precipitation during the winter months. This increases stressors on urban trees, such as drought, insect, and tree disease outbreaks. As the City develops its preferred tree lists and resources, species should be prioritized that Perform well under summer drought conditions and outline best practices for tree installation and establishment. The City should reference this resource in the applicable tree protection, landscaping, and development codes and provide access on the City's urban forestry website.

Both lists within the current Street Tree Plan should be cross-referenced with the species noted in the Urban Forestry Management Plan, the Tumwater Development Guide Chapter 3, the Tumwater Capitol Blvd Design document, the Tumwater Town Center Street Design document, and the Approved Street Tree Species list published on the City of Tumwater website. The updated list should be revised to remove problematic trees and include new suitable species with a focus on enhancing the diversity of the street tree population, procurement availability, and our evolving climate with drier, hotter summers.

The City may also include prohibited street tree species in their own list. Prohibited trees should include invasive trees, trees with weak wood, and trees that drop fruit on the sidewalk or street. The City should consider adding the following invasive or aggressive species to those listed in TMC 12.24.010 *Planting of certain types of trees - prohibited*:

- *Crataegus monogyna* – common hawthorn (invasive in natural areas)
- *Ilex aquifolium* – English holly (invasive in natural areas)
- *Paulownia tomentosa* – empress tree (aggressive and quick growing, potentially invasive)
- *Prunus avium* – bird cherry (invasive in natural areas)
- *Sorbus aucuparia* – European mountain ash (invasive in natural areas)

Trees cited in the 2018 citywide tree inventory known to have infrastructure conflicts may also need to be added to the prohibited tree list. The trees listed below are included because they require large planting areas and they are known to have aggressive root systems, which can cause infrastructure conflicts.

- *Acer platanoides* – Norway maple (roots; invasive – Seattle does not allow planting this within 1,000 feet of greenbelts)
- *Acer rubrum* – red maple (roots)
- *Acer truncatum* x *A. platanoides* – sunset maple (roots)
- *Fraxinus* spp. – ash (roots)
- *Liriodendron tulipifera* – tulip tree (roots)
- *Pyrus calleryana* – Callery pear (becoming invasive in other areas)

Field trip notes compiled by the Tree Board and Planning Commission on Sept 22, 2022 (See Appendix C), recorded two species to avoid—maples and sweetgums. Additional information is needed to determine why these two species were cited (i.e., infrastructure conflicts). In addition, if the City updated Street Tree Plan covers the entire ROW, including natural areas, the City may want to create an additional list with approved native trees to plant in natural areas adjacent to the road.

Consider creating one Approved Street Tree List, listing common and botanical names, noting such specifics as best-suited locations (i.e., under powerlines) and spacing recommendations, and including it in the updated Street Tree Plan. The final list should be a living document and, as recommended by the Urban Forestry Management Plan, be evaluated and updated every five years (Objective 3.3 Action A Priority 2). When the Approved Street Tree List is updated in coming years, consider including the scope and budget to perform a street tree suitability test. This field test would involve an arborist assessing species in the built environment around the City of Tumwater. The arborist would look for current infrastructure conflicts, especially pertaining to root conflicts. Trees consistently found to be in conflict may need to be removed from the list.

Example planting resources and tree lists include the Seattle Department of Transportation's Approved Street Tree List and City of Kirkland tree lists and homeowner education materials, which are linked in the References section of this report for further consideration.

Summary of Recommendations:

- Cross-reference existing Street Tree Lists
- Establish an Approved Street Tree List to be included in the Street Tree Plan and on the City's website
- Consider including a Prohibited Tree List in the master list that could reference the Noxious Weed Board's most current list of trees.

3.6 Street Tree Themes

This section describes high-need areas, potential planting opportunities, and species recommendations. Table 2 in this section describes recommended primary and secondary trees along specific streets, with an accent tree and utility tree. This detailed information seems better suited for a master plan document like the Tumwater Town Center Street Design or Design Guidelines for Capitol Blvd Community Zone than the operating Street Tree Plan document. However, the design information may be better relayed through a map graphic. None of the other Street Tree Plan reviewed included high-level design details within the document.

Summary of Recommendations:

- Determine what level of detail regarding street tree design is desired
- Consider presenting the information graphically

3.7 Street Profiles for Trees

This section described ideal tree spacing to achieve tree-lined streets it and should be combined with Section 3.8. Both sections should reside within the Street Tree Planting section described in the proposed Street Tree Plan outline. See Section 6.

3.8 Planting Space Recommendations

This section recommends 8-foot-wide planter strips when designing sidewalk areas to reduce future infrastructure conflict and emphasizes providing trees with enough root space to allow the tree to come to maturity. General spacing recommendations are also included for large, medium, columnar, and small street trees.

Several Tumwater documents note planting strip width recommendations and tree spacing.

- Tumwater Development Guide Chapter 3 (4.49.C-D *Street Trees*)
    - "Planter strips shall typically be 6 feet in width to provide adequate root space and water infiltration."
    - "Trees shall be located at least 3 feet behind the backside of the curb…spaced 30 feet on-center, starting 15 feet from the property line."
- Tumwater Town Center Street Design (*Street Character*)—streets to include 6-foot-wide planter strip.
- Tumwater Capitol Blvd Design (B.1.2 *Properties Fronting on Side Streets)* – "must provide a sidewalk at least 6-foot-wide sidewalk with a 6-foot-wide planter or a 12-foot-

wide sidewalk with tree wells. The planting strip must include at least one street tree for every 30 feet of frontage."

A consensus on the minimum amount of planting space should be agreed upon before implementation. Tree spacing recommendations should be included in the updated Street Tree Plan and could be presented in the master Approved Street Tree list table as its own column. Establishing minimum planting space requirements (planter strip width, etc.) should be included in the Tumwater Development Guide and the Street Tree Plan. Any areas too small to support tree growth should also be listed; for example, planting strips less than three feet in width (Portland 2016).

Summary of Recommendations:

- Determine the minimum allowable planting area and tree spacing
- Include recommendations for use of silva cells
- Include this determination in the Tumwater Development Guide

3.9 Street Tree Planting and Maintenance

This section outlines several aspects of the planting and maintenance process, including budget, stock quality, preparation of the planting hole, the orientation of the tree to be planted, tree grates, burlap and wire basket, fertilization, watering, mulching, staking, trunk wraps, root collar protection, pruning, inspections, planting timing, record keeping, and management units. Many topics discussed in this section follow current best management practices and should be included in the updated Street Tree Plan. See Section 6 for the recommended outline. Comments per section topic are discussed below for those needing updates, revisions, or clarification.

3.9.1 Budget

This section details the recommended per-tree annual budget ($7-$10 per tree) needed to adequately maintain street trees, noting that as trees grow, the budget should also reflect the aging trees.

While overall maintenance costs may increase, choosing the right tree for the right place and establishing a proactive maintenance program while the tree is young will help mitigate many problems as the trees age, such as infrastructure conflicts and poor canopy structure. The City should consider whether it would like to include general cost estimates or budget information in the updated Street Tree Plan. Other jurisdictions reviewed as part of this analysis do not include cost estimates or budget information. Instead, the Street Tree Plan serves as the best management guideline.

Summary of Recommendations:

- Determine if the City wants to include budget information

3.9.2 Stock Quality

The recommendations referenced in this section of the current Street Tree Plan regarding stock selection, although sound, were published in 1996 by the American National Standard for Nursery Stock. Instead, consider a reference to the most current standard on the Tumwater Street Tree webpage and the Resources section of the updated Street Tree Plan. An additional paragraph within the existing Street Tree Plan describes procurement contracting between the City and a nursery. If helpful for internal City staff use, this procedure should be updated to represent current or desired practices.

Minimum tree size requirements should also be included. The Tumwater Development Guide requires street trees to measure 2 or 3 inches in caliper (Chapter 4.49.B, page 4-41), which is similar to, but slightly larger than the size thresholds used by other jurisdictions. Size thresholds for street tree stock is generally consistent across other jurisdictions that include different minimum replacement tree size requirements based on tree type (broadleaf or conifer)[2]. Caliper recommendations from the jurisdictional review are as follows:

Table 1. Recommended Tree Species Size

City	Broadleaf (Caliper/Height)	Conifer (Caliper/Height)
Burien, WA	2 – inches in caliper	6 feet in height
Edmonds, WA	Largest caliper available	
Lacey, WA	2 – inches in caliper	7 feet in height
Olympia, WA	1-2 inches in caliper *size requirements based on development type	3-4 feet in height *size requirements based on development type
Portland, OR	1.5 - 2.5 inches in caliper	5 feet in height
Vancouver, WA	1.5 - 2 inches in caliper	
Tumwater (existing)	2 - 3 inches in caliper	
Recommended	1.5-2 inches in caliper	6-7 feet in height

[2] This standard is based on the American Standard for Nursery Stock (ANSI Z60.1) published by the American Horticulture Industry Association (aka AmericanHort). This was developed to standardize the system for measuring and describing plants based on tree type to facilitate the trade in nursery stock with professionals in the arboriculture and landscaping industry. Some jurisdictions also utilize these size thresholds to ensure that trees at the time of planting are of a size and structure to dissuade acts of vandalism or damage and thus are more likely to reach maturity.

Summary of Recommendations:

- Determine if procurement information is helpful to City officials to be included in this document
- Determine the minimum size of replacement trees based on tree type

3.9.3 Tree Grates

Within the current Street Tree Plan, tree grates are recommended for use if the only planting location is within a sidewalk. The grates should be five feet by five feet. Tumwater Town Center Street Design recommends using permeable pavers to help increase the water supply and available soil to trees. Tumwater Capitol Blvd Design (Section C.1.2. A-C Pedestrian Circulation) requires trees "as approved by the Director, [to] be placed at an average of 30 feet on-center and placed in grates."

Tree grates generally do not contribute to a tree's overall well-being during its lifespan. Too often, grates cause trunk or root girdling issues or roots cause grates to uplift, thus creating a pedestrian tripping hazard. If there are instances where there is no alternative, the City should decide when tree grates are required and include a detail depicting best practices for installation. Additionally, the City should clarify who will oversee maintaining the tree grates and removing rings as the tree grows. Situations, when permeable pavers are preferred, including narrow sidewalks with less-than-ideal planting space, should be specified. Consider including proactive sidewalk solutions such as silva cells or interlocking pavers.

Summary of Recommendations:

- Determine when tree grates are required (include a standard detail)
- Determine which department is responsible for tree grate maintenance and removal
- Include proactive sidewalk solutions

3.9.4 Burlap and Wire Basket

The current Street Tree Plan notes that "prior to completing backfill, cut out the upper 2/3's of the wire basket and remove from the hole." Current best management practices vary for this recommendation. The City should consider how it would like to approach this practice and include the decision in the Street Tree Plan.

- Seattle: At a minimum, twine, burlap, and wire baskets should be removed to expose the top 2/3 of the root ball. Full removal of twine, burlap, and wire baskets is preferred.

- Portland: All of the burlap and wire shall be completely removed from the root ball before backfilling.
- Vancouver, WA: Remove wire baskets. After the root ball is oriented in the hole, balled and burlapped trees in wire baskets shall have the upper two-thirds of the wire basket cut and removed from the ball.
- Trees Are Good website: Remove wire basket or cut one or two rings off so it is low profile and will not interfere with future root growth.

  Summary of Recommendations:

  - Determine how the City would like to deal with this tree-planting practice.

3.9.5 Fertilization

The current Street Tree Plan states that trees should be fertilized with a granular fertilizer at a rate of 6 pounds per 1,000 square feet with a 20-10-10 fertilizer. The section also states not to incorporate fertilizer into the planting hole.

It is recommended to perform a soil or foliage nutrient test before fertilizer is applied to avoid over-salting the soil. A soil or foliar test aims to provide an accurate assessment of the soil's fertility to create an accurate plant healthcare plan. A slow-release fertilizer with a low salt index is preferred if fertilizer is to be applied. Fertilization recommendations may not be necessary to specify in the Street Tree Plan and can reference a qualified professional or be included in an appendix with best management practices.

3.9.6 Watering

This section provides recommendations for watering at the time of planting and watering rates amounts per week as the tree matures, with the caveat that soil moisture should be physically checked to confirm frequency and amount.

There is little direction in the existing Street Tree Plan regarding irrigation past the planting stage. The Tumwater Development Guide Chapter 3 discusses irrigation very briefly—"systems shall have a backflow prevention installed and not wet public streets or sidewalks." Irrigation is required, as per TMC 18.47.020(J), except when native or drought-tolerant vegetation is included. Field trip notes compiled by the Tree Board and Planning Commission (See Appendix C) note the need for street tree irrigation during dry summers.

As summers continue to be drier and hotter than previous years, the City could consider including long-term watering/irrigation requirements, such as bubblers, to ensure newly planted street trees are established as quickly and effectively as possible. Include water volume application per week (i.e., "5-10 gals [of water] per week, applied slowly, especially during dry

months" (Vancouver 2011) and the required duration of irrigation (i.e., three years post-planting, as stated in the current Street Tree Plan). Lastly, the City should decide which party (public work vs. property owner) is responsible for tree watering. All this information should reside under *Planting Guidance*. See Section 6 for a proposed outline.

Summary of Recommendations:

- Determine if the City would like to include long-term (first three years) watering/irrigation requirements
- Determine who is responsible for watering/irrigation

3.9.7 Staking

The current Street Tree Plan recommends installing stakes along with newly planted trees. The City needs to determine a procedure for removing the stakes once the tree is established, usually after the first year, if there is not one already in place. This procedure should be included in the updated Street Tree Plan.

3.9.8 Root collar protection

The current Street Tree Plan recommends installing root collar protection to protect against lawnmowers and line trimmers. Consider removing this practice or utilizing it only on an as-needed basis. ANSI A300 Part 6 Planting Standards (64.5.7 *Backfill*) recommends that mulch be applied at least two inches from the trunk to the perimeter of the planting circle. This mulching practice should eliminate the need, and cost, for root collar protection. ANSI A300 Part 6 Annex E for planting projects recommends that the planting hole should be kept clear of grass and landscape plantings. Additionally, anything wrapped around a tree's trunk can pose a girdling risk if not inspected on a regular basis. If weeds or grasses do grow up to a tree's trunk, the use of hand tools and hand pulling is recommended instead of a lawn mower or line trimmer.

Summary of Recommendations:

- Determine if the City would like to continue the use of root collar protection
- If so, establish a maintenance schedule to avoid trunk girdling problems (i.e., annual inspection)

3.9.9 Pruning

The brief, existing pruning notes correspond with current industry standards. The entirety of the ANSI 300 Pruning Standards is included in the appendix, as are a couple of bulletins from Tree City USA regarding pruning.

The City should consider including these by reference instead of including them in their entirety within the appendices. The Street Tree Plan would benefit from additional pruning guidelines for specific scenarios, pruning for clearance over sidewalks and streets, structural pruning of young trees, pruning under overhead utilities, etc. Critical references from the ANSI 300 Pruning Standards, including definitions of pruning types and basic pruning terms, should be included in the body of the updated Street Tree Plan document. Types of prohibitive pruning, such as topping, should also be outlined. Additional pruning discussions are outlined in the *Maintenance* chapter of the proposed Street Tree Plan outline (See Section 6 of this report).

The City should clarify jurisdiction and responsibilities for pruning under different scenarios (City vs. private owners). This should also include clear guidance on when and under which circumstances pruning should be performed. This includes but is not limited to maintaining and enhancing a tree's natural form, longevity, clearance for driver—pedestrian visibility, and clearance heights over sidewalks and streets.

Pruning specifications for clearance and visibility exist in a couple of supporting City documents:

- The Tumwater Development Guide (4.16.C *Sight Obstruction*) –"trees should be trimmed from the base to a height of 10 feet above the street."
- The Capitol Blvd Design Guidelines (Guidelines B.9.1 *Prohibitions*) – landscaping should be "open between three feet and eight feet above grade where there is need for visibility."

Clearance recommendations from the jurisdictional review are as follows:

- SDOT – lower limbs on street trees within thirty feet of an intersection shall be pruned to a minimum of eight feet over the sidewalk and planting strip, and 14 feet over the surface of the street."
- Vancouver, WA – if trees do not meet an eight-foot clearance over sidewalks and 14-foot clearance over streets they shall be pruned

Clearance height expectations should be included in the updated Street Tree Plan.

The Street Tree Plan should facilitate the needs of Puget Sound Energy (PSE) by allowing PSE to perform necessary utility pruning without getting a permit on the condition PSE follows industry standards. The recommended street tree list should contain tree species suitable to plant under powerlines.

Additionally, the Street Tree Plan should reference the regulatory requirements related to the removal and pruning of street trees. This should include a reference to the appropriate municipal code section (e.g., TMC 12.24 *Street Trees*).

Summary of Recommendations:

- Include pruning guidelines for specific scenarios and critical references from ANSI standards
- Determine pruning clearance height expectations for sidewalks and streets
- Clarify jurisdiction and responsibilities for pruning under different scenarios (City vs. private owners).
- List prohibitive pruning practices

3.9.10 Inspections

This section recommends that new street trees be inspected several times during their first year and "*prior to the release of the 1-year bond or end of the 1-year guarantee for trees planted as part of a street project*" new trees should be inspected by an ISA Certified Arborist.

If this procedure is still current, it should be included. If not, the City should decide how it wants to address inspections and how to penalize violations.

3.10 Appendices

The following documents are included as appendices in the Street Tree Plan.

- American National Standard for Nursery Stock
- Tree Planting Specifications
- Tree Pruning Guidelines for Small Trees

Critical references should be included in the body of the updated Street Tree Plan with reference to the parent document; include links on the City website for these ANSI standards. See Section 6 for the proposed Street Tree Plan outline and recommended appendices.

4 Additional Considerations

4.1 Street Tree definition

Tumwater's Urban Forestry Management Plan references the previously completed 2018 street tree inventory and states that inventoried trees included "most City-owned tree[s] planted in the rights-of-way between a public sidewalk and a City street" (Urban Forestry Management

Plan, Street Inventory, pg. 16). A street tree definition is published in TMC Title 17 *Land Division* and states that a street tree is a tree "planted along the edge of a right-of-way or easement, or just inside the lot or parcel from the right-of-way or easement and is of a variety approved by the City for such. However, this definition is not noted in TMC 12.24 *Street trees* or the existing Street Tree Plan. The City should clarify whether street trees include those trees also located within both improved and unimproved rights-of-way.

Other municipalities define a street tree as any tree in the public ROW, excluding trees located on private property or public parcels. Some representative example definitions are as follows:

- Seattle – Any tree planted or growing within public places, which includes the public right of way and the space above or beneath its surface, whether or not open or improved, including streets, avenues, ways, boulevards, drives, places, alleys, sidewalks, planting strips, squares, triangles, and plazas that are not privately owned. Public places do not include boulevards or land owned by Seattle Parks and Recreation.
- Portland – Any tree planted in the City right-of-way, whether in improved or unimproved right-of-way.
- Vancouver – Any woody vegetation, generally single-stemmed, and is recognized by the City as a tree, and in which the trunk is wholly or partially located within the right-of-way or any easement granted for the purpose of public tree management.
- Shoreline – Trees in rights-of-way adjacent to the applicant's property [excluding] trees on rights-of-way that have not been opened with public improvements, including, but not limited to, streets, sidewalks, pathways, and underground or overhead utilities. (Per Shoreline Municipal Code 12.30.040)

Once the City decides on a definition of a street tree, the updated Street Tree Plan should clearly outline the definition, and the body of the plan should incorporate that definition. Other regulations, including the definitions listed in TMC Title 16 *Environment*, Title 17 *Land Division*, Title 18 *Zoning*, and supplementary documents, may need to be updated to use consistent terminology.

Summary of Recommendations:

- Consider expanding and clarifying the definition of street tree
- Include the updated street tree definition in applicable code chapters and supplementary City documents

4.2 Definitions section

A list of applicable definitions should be provided in the updated Street Tree Plan at the end of the document, which will reduce ambiguity and provide clarification of terms referenced in the Street Tree Plan. Some of these terms already exist in TMC 16.08 *Protection of trees and vegetation*. Example terms to include street tree, Right-of-Way, public tree, private tree, hazard tree, nuisance tree, landmark tree, trees worthy of preservation, caliper, DBH (diameter-at-breast-height), topping, ISA Certified Arborist, and qualified tree professional. This list should be reviewed, refined, and amended to be consistent across codes and supporting documents.

Summary of Recommendations:

- Create a definitions section utilizing applicable industry terms, terms in TMC 16.08 *Protection of trees and vegetation*; this list should be cross-referenced with applicable code chapters and supplementary City documents.

4.3 Street Tree planning, planting, and removals

4.3.1 Planning

The existing Street Tree Plan provides recommendations regarding design themes. Additional documents also provide direction and guidance on street tree planning in conjunction with development, namely the Design Guidelines for Capitol Blvd Community Zone, the Tumwater Brewery District Plan, and the Tumwater Town Center Street Design.

Pertinent goals outlined in the Urban Forestry Management Plan:

Goal 1. Objective 1.1.

> *Action C: "Requiring tree planting in development by emphasizing proper planning for trees, correct planting techniques, and aftercare that supports the healthy establishment of newly planted trees," and*

Goal 3. Objective 3.1.

> *Action B: "To develop and enforce design phase and preconstruction coordination protocols to ensure "The Right Tree in the Right Place."*

To further these goals, appropriate planting space is required to support adequate tree growth and should be planned for during the design phase of new projects. Cohesive design recommendations and the minimum requirements based on the design documents mentioned above, as well as best management practices for planting space, should be included in the updated Street Tree Plan.

Summary of Recommendations:

- Determine what level of detail regarding street tree design is desired
- Establish and include minimum spacing requirements

4.3.2 Planting

The Street Tree Plan should include better guidance on how to plant street trees, including specifications and details. The City's existing details on tree planting with root barriers (ST-31) should be included in the Street Tree Plan as well as when they are required (i.e., trees planted within six feet of hardscape). This detail is currently published online as a part of the Tumwater Development Guide (City of Tumwater 2008). There is no planting detail in the Tumwater Development Guide pertaining to tree planting that outlines soil and planting hole preparation recommendations. This standard detail should be included in the updated Street Tree Plan as well as the Tumwater Development Guide.

In the recent tree inventory, tree grates were inventoried, but no design details or direction exist in the Street Tree Plan or the Tumwater Development Guide. Guidance on when the tree grate rings should be removed and who is responsible for this maintenance should be included in the Street Tree Plan, as should protocols to address conflicts between tree roots and infrastructure.

Summary of Recommendations:

- Determine when tree grates are required (include a standard detail)
- Determine which department is responsible for tree grate maintenance and removal
- Include processes to address infrastructure conflicts

4.3.3 Removals

The Street Tree Plan does not address procedures and protocols for the approval of removing a street tree, including due to risk, outgrowing its location, or conflicts with streetscape infrastructure. The Street Tree Plan should outline clear guidelines for when and how tree removal occurs and is acceptable, along with the appropriate procedures including permitting, traffic control plans, underground utility locating, inventory updates, and regulatory authority to contact. When street trees—especially older and well-loved trees—need to be removed, the Street Tree Plan should outline replanting guidelines and requirements, including public notice and outreach. The City of Vancouver's Street Tree Plan (Vancouver 2011) outlines specific criteria for when trees are not suitable for removal, which is another method to outline criteria for when tree removal is acceptable.

Summary of Recommendations:

- Consider criteria for when trees are not suitable for removal
- Develop protocols for removing and replanting street trees, when not related to development

4.4 Management and maintenance responsibility

The Street Tree Plan currently states that the responsibility for maintenance and planting new street trees should fall with the Public Works Department. The Urban Forestry Management Plan has a summary table (A.6 Summary of Management Responsibilities, page) depicting the roles and responsibilities of various management departments. Based on the Urban Forestry Management Plan summary table, Public Works is currently responsible for all planting, pruning, and tree removal. Currently, there is not a subcategory discussing street trees and development. According to the Urban Forestry Management Plan table, no other entities currently prune or remove street trees. The City should also consider requiring a permit for pruning activities over a certain threshold to ensure trees are being pruned following BMPs outlined in the Street Tree Plan and not being over-pruned or topped. Additional recommendations regarding pruning procedures are noted previously in this report (Section 3.9.9).

Summary of Recommendations:

- Determine if the City would like to develop a permitting process for street tree pruning and removal.

4.5 Street tree protection during development and construction

Street tree protection measures required during development and construction are not mentioned in the Street Tree Plan. Such instances include but are not limited to, sidewalk repair, utility work, and frontage improvements. These measures should parallel those outlined in TMC. 16.08 *Protection of Trees and Vegetation* and be included in the Street Tree Plan. Additionally, a standard detail showing appropriate tree protection fencing setup should also be included in the Street Tree Plan.

The tree protection detail should provide for the protections of trunk, canopy, and critical root zone and include specifications for the type and location of fencing, treatment of roots exposed during construction, prohibition of stockpiling materials, vehicular traffic, or storage of machinery within the fencing area, and fencing signage requirements. The City may consider providing a tree protection zone (TPZ) engineering detail with instructions for contractors within the Tumwater Development Guide. Example details and best practices from other Puget Sound jurisdictions or industry professionals can be found on the following websites:

- International Society of Arboriculture (Tree Protection (isa-arbor.com))
- City of Mercer Island (Tree Protection During Construction)
- City of Kirkland (Tree Fencing)

The City may want to incorporate recommendations from the City's drainage manual here as well. The City should consider including procedures surrounding sidewalk repair, maintenance responsibility, and how trees and roots will be mitigated. The City of Seattle has a detailed handbook, SDOT Trees and Sidewalks Operation Plan (Seattle 2015) that provides guidance on installation, repair, maintenance of sidewalks, and solutions to conflicts. This manual outlines a decision process that considers existing trees, sidewalks, and future tree planting opportunities. This manual is listed in the Reference section of this document for additional review.

Summary of Recommendations:

- Consider providing a tree protection zone (TPZ) engineering detail with instructions for contractors within the Tumwater Development Guide
- Include instances when street tree protection is needed
- Include procedures around sidewalk conflicts and tree roots.

4.6 2018 Street Tree Inventory Data

Watershed staff did a cursory review of street tree inventory data (current as of October 2022) to identify any significant gaps and potential opportunities for future data collection. An inventory in 2018 collected data for 3,481 trees. Tree attribute data collected were for City-owned trees planted in the right-of-way between a public sidewalk and a City street. Since the 2018 effort, it appears that an additional 1,674 tree points have been added to the inventory without tree attribute data. This is possibly the result of an analysis of remote sensing data by City staff. These points should be prioritized for a follow-up effort to collect relevant tree attribute data.

The 2018 street tree inventory was an update to a 1997 inventory of 2,340 public street trees managed by the City of Tumwater. The summary of the 1997 inventory included in the 2002 Street Tree Plan is brief, mentioning that most trees inventoried were flowering plum (*Prunus cerasifera*) varieties. The 2021 Urban Forest Management Plan includes a more detailed assessment of the 2018 inventory results, finding that maples (*Acer* spp.), flowering pears (*Pyrus* sp.), and flowering cherries and plums (*Prunus* spp.) represent over 50% of the total species inventoried. Additionally, most trees were estimated to be less than ten years old and less than 15 inches in diameter. This indicates that the relative diversity of tree species, age, and size is low and has been for the past few decades. Future planning documents for the urban forest,

including street trees, should be consistent with the recommendations outlined in the Urban Forestry Management Plan.

Trees not captured in the 2018 street tree inventory include trees in medians and planting strips not adjacent to sidewalks, trees along unimproved rights-of-way and natural areas, and within City-managed parks. Including all trees growing in public spaces may be too cumbersome to completely inventory. However, there may be value in quantifying or otherwise analyzing trends for these public trees (which may or may not be planted) within a street tree management framework. These trees have both positive and negative impacts on public infrastructure, utilities, environmental benefits, and maintenance budgets. It is critical to determine first the scope of the street tree plan and definition of a street tree before deciding to include additional trees in future inventories. Fully understanding the gaps in the street tree inventory is contingent on defining the scope of the plan.

The 2021 Urban Forestry Management Plan recommends maintaining an ongoing street tree inventory built on the success of the Stream Team program, engaging community members on a long-term basis to provide updates to the street tree inventory. It also identifies the development of a citywide work order system that enters all tree work automatically as performed. Additionally, Objective 1.3 Action A recommends an evaluation of this inventory on a five-year basis. The details on how to achieve and implement these goals and actions may be included in the Street Tree Plan or other internal planning documents.

Finally, a critical concern of any street tree plan usually addresses impacts from tree roots to sidewalks and roads, as well as clearing tree canopies from traffic and pedestrian circulation. There will undoubtedly be instances in which trees located on private property, adjacent to roads and sidewalks, have roots and canopies which impact public infrastructure. These trees may also be included in the street tree inventory, although considerations would need to include the adjacent private property owner.

5 Regulatory Linkages – Coordination with other City Plans and Guidelines

Several City policy and code documents were reviewed for language and content related to TMC 12.24 *Street trees*, including TMC 16.08 *Protection of trees and vegetation*, TMC 18.47 *Landscaping*, the Tumwater 2002 Street Tree Plan, Tumwater Comprehensive Plan Land Use Element, Tumwater Town Center Street Design, Design Guidelines for Capitol Boulevard Community Zone, Capitol Boulevard Corridor Plan, Tumwater Development Guide, and the Tumwater Brewery District Plan. Note that separate a separate gap analysis is being completed for both TMC 16.08 *Protection of trees and vegetation* and TMC 18.47 *Landscaping.* As the Street

Tree Plan and TMC 12.24 *Street trees* are amended and developed, consistency with other City planning and design guidelines will need to be addressed for uniformity. The following City documents include references to or requirements for street tree management and maintenance within the City.

5.1 TMC 16.08 Protection of trees and vegetation

A separate Gap Analysis is currently being reviewed for TMC 16.08 *Protection of trees and vegetation* as part of the City's urban forestry municipal code updates (Watershed 2022). As the project team considers amendments and updates for TMC 12.24 *Street trees* and the City's Street Tree Plan, the respective codes will be evaluated for consistency. A complete discussion of recommended updates to TMC 16.08 *Protection of trees and vegetation* is found in the draft gaps analysis under development by The Watershed Company and the City (Watershed 2022). Items under consideration for TMC 16.08 *Protection of trees and vegetation* that may have implications for the updated Street Tree Plan and TMC 12.24 *Street trees* include, but are not limited to, the following:

- Addition of new code section under TMC 16.08 *Protection of trees and vegetation* addressing the management of public trees. The new code section would reference TMC 12.24 *Street trees* while also addressing regulatory needs of trees within unimproved rights-of-way, public parks, and natural areas (not regulated by the critical areas ordinance).
- Updates to the Prohibited and Preferred Tree Species List. The review process for these revised lists will also include street tree recommendations, which will be evaluated in tandem with the Street Tree Plan update.
- Updates to permitting requirements on development projects, tree removal on existing development, and any potential permits needed to address nuisance trees and fire hazards.
- Contractor licensing requirements for tree removal contractors.
- Climate change resilience and best management practices identified for planting and maintenance in a changing environment.
- Updates to definitions and use of terms to ensure consistency across TMC 18.47 *Landscaping*, TMC 16.08 *Protection of trees and vegetation*, and TMC 12.24 *Street trees*.

5.2 TMC 18.47 Landscaping

A separate gap analysis will be developed for TMC 18.47 *Landscaping* in 2023 as part of the City's urban forestry municipal code updates. As the City considers amendments and updates for TMC 18.47 *Landscaping*, implications for TMC 12.24 *Street trees* will be evaluated. The

following outlines a preliminary list of revisions or updates that may be needed for consistency with TMC 12.24 *Street trees*:

- Review landscaping plan requirements in TMC 18.47.020 to ensure consistency with updated tree retention plan requirements in TMC 16.08 *Protection of trees and vegetation* for depicting significant trees, critical root zones, tree protection fencing requirements, and appropriate species and spacing.
- Reference updated permitting requirements outlined in TMC 16.08 *Protection of trees and vegetation* and TMC 12.24 *Street Trees.*
- Section 18.47.020(L) could include a reference to the revised Approved Street Tree Species List.
- Review species choice in Section 18.47.020(N) to ensure consistency definition of invasive plant species and noxious weeds that are prohibited.
- Update maintenance recommendations in TMC 18.47.040 for consistency with those outlined in the updated Street Tree Plan and TMC 12.24 *Street trees*, as it pertains to maintenance of street trees.
- Section 18.47.050.A.2.b could include a reference to the Approved Street Tree list and/or expand on street trees would be best to accomplish 75 percent coverage in four years and perform well in urban landscape conditions. Additionally, include reference to the Approved Street Tree List throughout TMC 18.47.050(B), (D), and (E).
- Updates to definitions and use of terms to ensure consistency across TMC 18.47 *Landscaping*, TMC 16.08 *Protection of trees and vegetation*, and TMC 12.24 *Street trees*.

5.3 Tumwater Town Center Street Design

This document serves as an overarching, guiding document to help inform the design of the Tumwater Town Center and offer recommendations. It emphasizes that as streets and frontages are improved, new development follow a pattern and be consistent with themes (i.e., street tree species, benches style, light style, etc.). It describes three main types of streets (main streets, green streets, and connector streets) in the Town Center area. Each of these streets have their own characteristics and feel to them, whether that be street parking availability, formal or informal landscape, and access to buildings from the street. The document provides recommendations for types of landscaping along certain streets as well as tree species. This document could benefit from an in-depth look at the types of landscaping and species recommended to planted, to ensure the species and landscaping types are consistent with the

overall canopy and vegetation goals identified in Urban Forestry Management Plan. A table of the Approved Trees List, or reference to the list, would also be beneficial.

5.4 Design Guidelines for Capitol Boulevard Community Zone

This document complements TMC 18.21 *CBC Capitol Blvd Community Zone District*. There are specific requirements listed for development regarding frontage improvements. According to this document, tree replacement is considered a major change and needs to follow the guidelines outlined within. Details include appropriate tree spacing, planting strip width, and sidewalk specifications for various types of projects. There are additional sections that discuss landscaping installation specifically as well as expected maintenance. These sections contain broad best management practices but do contain information that should be reviewed and referenced in the updated Street Tree Plan.

5.5 Tumwater Capitol Boulevard Corridor Plan

This document focuses on economic conditions, transportation options and safety, and aesthetics of the Capitol Boulevard (Blvd). Street trees are addressed peripherally in the context of preservation in specific sections of the thoroughfare as well as identifying areas that would benefit from new street tree plantings as new development happens. Most of the document is dedicated to overarching goals and objectives for different segments of the Blvd, such as the addition of bus stops or the installation of new bike lanes. These objectives parallel the goals outlined in the Urban Forestry Management Plan. Listed goals include "choose appropriate species and locations for tree planting and attend to maintenance issues" (*Goals and Objectives: Respect the environment)*. The document also notes the importance of parks and green spaces within the cityscape.

The document primarily contains standards specific to street trees. Goals and Objectives section could be updated with maintenance standards from TMC 16.08 *Protection of trees and vegetation*, rather than just stating, "…be aware of maintenance that comes with trees." This section could also reference the new Approved Trees List where it states, "…choose appropriate species and locations for trees."

5.6 Tumwater Littlerock Road Subarea Plan

This document serves to create an understanding of the existing conditions and desired design of the Littlerock Road Subarea. The overall vision for the development of this area was informed by public input. The area is 410 acres within City boundaries composed of commercial and multi-residential mixed uses. The goal of future development is to create a "village" that is "transit oriented and pedestrian friendly." The build-out of the area brings forward two major concerns "provisions of adequate infrastructure to serve new development…and stormwater

[management]." Significant development would impact existing trees as well as provide opportunities for new plantings. Most of the document describes the opportunities available in this subarea for growth and change as well as the overall vision for the area. Suggested road sections, detailing street trees and trees planted in the median, include six-foot-wide planter strips and 12-foot-wide median planter strips. Trees are a noted part of the existing infrastructure. The importance of preserving the existing urban forest as a way to offset significant development is emphasized.

1. Section 2.1 Community Involvement could benefit from including updates pertaining to tree retention and tree protection standards. Additionally, include a reference to the new Approved Tree List.
2. Section 3.2 Vision for the Subarea could include a reference to the new Approved Tree List.
3. Section 5.1 Necessary Implementation Actions could include updated tree protection measures for existing trees to be retained, as well as requiring replacement trees or street trees to be selected from the new Approved Tree List.

5.7 Tumwater Development Guide

This document is the presiding guide for regulations relating to development. Street, sidewalk, and public utility development are included. Street trees are discussed in Chapter 4. It states that all arterial and collector streets be planted with street trees. Specific tree species are listed as are planting size requirements, tree spacing within a planting strip, and expected width of planting strips. A brief overview of maintenance expectations is also outlined. The maintenance responsibility in regard to development and the planting of street trees is noted as well.

Section 4.49 Street Trees (pages 4-40, 4-41, and 4-42) could be updated with the new Approved Trees List, in addition to updating the maintenance standards for residential and commercial projects for consistency.

5.8 Tumwater Citywide Design Guidelines

This document contains design guidelines for projects that are not addressed by other City planning and design guidelines, with the intent of implementing the City's Comprehensive Plan vision. The guidelines apply to all new commercial, mixed use, residential, industrial, and institutional development projects that are not already addressed by specific district or corridor design guidelines, additions to existing buildings that increase gross floor area by 1,000 square feet or more or increase gross floor area by 50 percent or more, and exterior modifications of existing structures. Design guidelines are organized by land use type and they include guidelines for site planning, pedestrian access, amenities, and open space, parking areas,

building, and lighting. The City may consider the following updates to the Design Guidelines based on updated best practices outlined in the revised Street Tree Plan or include by reference:

1. Update Section 1.A.1 Purpose to include purposes identified in Gap Analysis Section 2.2.
2. 1.A.2 Administrative Procedures is an opportunity to include a statement about incentives/variation allowances in development standards to encourage tree retention.
3. Consider adding a statement about trees and the aesthetics and functional benefits that selecting the appropriate street tree species can provide to the Intent bullet list in Section 2.B.2 Relationship to Street Front.
4. Opportunity to add a reference to the Approved Street Tree List in Figures 2.B.2-1 and 2.B.2-2.
5. Opportunity to add a reference to the Approved Street Tree List in Section 2.B.2.6 Streetscape.
6. There is an exception on page 2-8 regarding requirements for residential buildings on signature roads (section 2.B.2.5.b.3) that states that departures from maximum setbacks may be allowed to preserve existing large trees. "Existing large tree" could be defined with a specific DBH, or DBH based on species; allowed setback departures could be elaborated upon by clarifying within the document itself or adding a reference to the new section in TMC 16.08 *Protection of trees and vegetation* that discusses development incentives, including allowed setback reductions.
7. Section 2.B.4.2 Internal Roadways and Vehicular Circulation contains street tree requirements.
8. Section 2.B.5.1 Unified Site Plans (for lots with multiple buildings or a total area greater than 2 acres) criteria could include the preservation of large trees (to be defined) and groves.
9. Section 2.B.7.2(g) Integration of Stormwater Facilities into Site Design provides an opportunity to suggest the use of specific tree species best suited for biofiltration, LID, and stormwater management needs.
10. Section 2.B.2.8.1(a) discusses requirements for common open space in multifamily developments. In addition to the requirements outlined, the City could consider requiring the common open space area be located to preserve and retain landmark trees and/or groves, when possible.
11. Section 2.B.2.9.1 discusses requirements for non-residential open space. The City could consider requiring the open space to include landmark trees and/or groves when possible.
12. Section 2.B.11.1.b(2) could include a reference to the Approved Street Tree List.
13. Section 2.C.1.2(a) could reference the Approved Street Tree List.

14. Section 2.C.3.2(f) could include a direct reference to the Approved Street Tree List, and (m) could include a reference to the Approved Tree List.
15. Section 2.C.3.5(a) states that maintaining existing mature evergreen trees and including existing and new evergreens in site development is an important objective. When appropriate, the Director may also relax other standards, such as setbacks and geometric requirements, to promote the retention of mature trees. This section could be elaborated upon by clarifying within the document itself or adding a reference to the new section in TMC 16.08 *Protection of trees and vegetation* that discusses development incentives, including allowed setback reductions. Further, this section includes the protection of roots and setbacks to maintain the tree's health. It should be reviewed to include potentially any updates to tree protection measures.
16. Section 2.D.2 Parking Area Landscaping could include a list of trees best suited for improving water quality and stormwater management. Section 2.D.2.1(b) states that mature conifer trees over 24 inches in caliper may count as two trees (with regard to tree retention standards). The City should consider updating this sentence to use DBH rather than caliper.
17. Section 2.E.1.1.a(1) includes the retention of a substantial number of large trees, especially native trees such as conifers, to accomplish the objective that the architectural design of new development must reflect and add to Tumwater's design character by incorporating distinctive and substantial landscaping to enhance the building's setting. The City should consider making the retention of large trees a requirement in this section rather than calling out the retention of large trees as an option to accomplish an objective. The goal would be to require new development to prioritize the preservation of high-retention value trees when possible.

5.9 Tumwater Brewery District Plan

This document describes the redevelopment vision for the Brewery District. It encompasses a "*series of recommended transportation enhancements, public realm improvements, a vision for building character and development intensity, and a set of implementation and phasing strategies*." As road improvements happen, street tree planting opportunities occur. The addition of trees helps to calm the overall atmosphere and creates a more welcoming environment. The document includes design recommendations and broad street tree placement recommendations (i.e., "*trees should be interspersed with on-street parking*") and notes the importance of using trees and the landscape to help link together different areas. Trees are mentioned peripherally when building frontages are being improved.

1. TMC 18.27.050 references "preservation of mature tree stands" in footnote No. 2. A definition of what constitutes a mature tree stand or alternate language could be included here for clarity.
2. Goals/Objectives Section 1.3 could benefit from updating vegetation and tree replacement standards. This section could also include a reference to the new Approved Tree List.

5.10 Tumwater Stormwater Management Program Plan

This section is under development. To include a discussion of Low Impact Development (LID) requirements and the City's NPDES permit.

6 Proposed Street Tree Plan Organization

Tumwater planning staff, the Planning Commission, and Tumwater Tree Board developed a proposed scope of work and outline for the revised Street Tree Plan (Medrud, 2022; See Appendix D). The proposed structure for the updated Street Tree Plan includes the following:

- Chapter 1 –Introduction: describes why the City developed the Plan, its benefits, and its purpose.
- Chapter 2 –Background: refers to the existing regulations and street tree surveys completed.
- Chapter 3 –Street tree planning: describes the vision for future street tree plantings.
- Chapter 4 –Street tree planting: contains recommendations for street tree planting and maintenance.
- Appendices: include information on specific street trees to be planted as well as planting and pruning recommendations.

Building off this proposed structure, the City should consider the following revised outline. The following structure is informed by Street Tree Plans from Seattle, Vancouver, and Portland and it outlines more explicit content to consider within each chapter.

Chapter 1. Introduction: Purpose, Intent, and Scope of the Street Tree Plan

A. State the purpose of the Street Tree Plan

B. Describe what type of information is in this manual: permitting requirements and best management practices for street tree planting, maintenance, and tree protection and preservation

C. Describe whom this manual is intended for: City departments, property owners, tree service providers, and/or contractors, and those working around street trees

D. State reasons for having and protecting street tree canopy: e.g., reducing stormwater runoff, cooling temperatures, shading streets

E. Define a street tree, who is responsible for maintenance, and the geographic scope of the plan

F. List and describe broad goals for the Street Tree Plan, and any related goals in the Urban Forestry Management Plan

Chapter 2. General Overview of Regulations

A. Include a brief background summary of the process for creating the Street Tree Plan

B. Describe governing documents and policy and which departments regulate street trees

C. Describe which department issues permits, who has the authority to establish tree standards, and the code that gives that regulatory authority

D. Describe the other policy documents that govern street trees or influence the goals of the Street Tree Plan

Chapter 3. Street Tree Permitting

A. Provide reference to TMC 12.24 *Street Trees* and other municipal code sections regulating street trees

B. Provide a summary of when a permit is needed to (1) plant, (2) prune, or (3) remove a street tree and explain the process and requirements

C. Specify City authority for review and issuance of permits

D. Describe exemptions for street tree permits (e.g., City departments)

E. Describe the penalties and required mitigation for violations of *TMC 12.24 Street Trees* or by reference to the City code

Chapter 4. Street tree planting

A. Species selection:

1. Reference the City's approved and prohibited species selection lists and include them as appendices in the Street Tree Plan

2. Describe "Right Tree in the Right Place" criteria including:
    - Width of the planting area
    - Whether in the streetscape, setback from the sidewalk, or in a natural area
    - Visibility and clearance from nearby structures, roads, driveways, intersections, signs, or signals
    - Overhead wires – plant trees approved under wires
    - Underground utilities – call 811 to locate utilities
    - Mature height, width, and shape of the tree
    - Existing species of nearby street trees; the street has a species predetermined by the City

B. Tree size

C. Spacing

D. Planting guidance

1. Planting season
2. Planting procedures
    - Tree quality – meet industry standards for nursery stock
    - Soil amendments
    - Rood ball
    - Woodchip mulch
    - Tree stakes and ties
    - Backfilling
    - Tree grate specifications
    - Include planting detail(s)
3. After planting care (establishment)
    - Watering
    - Weed control/mulch restoration
    - Establishment pruning

Chapter 5. Maintenance

A. Watering (frequency, volume, duration)

B. Pruning

1. Reference industry pruning standards
2. Pruning requirements
    - State who is required to prune trees in the ROW (City vs. private)
    - State when pruning is required
    - Pruning expectations (i.e., natural form)
    - State if a pruning threshold requires the tree care worker to have industry certification/training
    - Maximum pruning allowed (i.e., 25% per year)
    - Benefits of pruning young trees for longevity
3. Types of pruning with definitions
4. Timing of pruning

C. Tree grate management

D. Management of sidewalk conflicts

E. Insect and disease management

F. Tree Preservation and Removal

Chapter 6. Tree Protection During Construction

A. Critical root zone/dripline

B. Calculate tree protection zone (Provide detail)

C. Tree protection fencing and signage (Include tree protection detail)

D. Grading around trees in the ROW

E. Penalties for injuring street trees (e.g., construction damage)

F. Promote longevity of trees and pavement

1. Methods to reduce conflicts include decompact soil before planting, root barrier, and Silva Cells.

Chapter 7. Additional Resources

A. Quick Guides for specific audiences (property owners/HOA, City maintenance staff, tree care companies)
B. Definitions
C. Approved Street Tree/ROW Tree Lists

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Appendix A

JURISDICTIONAL COMPARISON RESEARCH

Topic	Tumwater	Burien	Edmonds	Lacey	Lake Forest Park	Olympia	Shoreline
Municipal code sections where street trees are regulated or referenced:	• *Street Tree Defined: TMC 17.04.450 Street Tree* • *TMC 12.24 Street Trees* • *TMC 16.08 Protection of Trees & vegetation* • *TMC 18.27 Brewery District in Zoning* • *TMC 12.12 Construction of curbs and sidewalks* • *TMC 18.21 CBC Capitol Blvd Community Zone* • *TMC 18.23 TC Town Center Zone* • *TMC 18.67 Landscaping*	• *BMC 12.38 Street Trees and Trees on City Property* • *BMC 19.26 Tree Retention* • *BMC 19.25 (Landscaping)* • *BMC 19.17 Miscellaneous Use, Development, and Performance Standards* • *Climate Action Plan (2021)* • *Comprehensive Plan (last updated 2021)*	• *EMC 18.85 Street trees* • *EMC 20.13 Landscaping* • *EMC 23.10 Tree Related Regulations* • *Edmonds Street Tree Plan*	• *LMC 12.20 Street Trees* • *LMC 14.32.067 Street Tree Requirements* • *LMC 16.80.050 Types of Landscaping* • *LMC 14.23 Design Review* • *LMC 16.24.080 Design Toolbox*	• *LFPMC 16.14 Tree Canopy Preservation and Enhancement* • *LFPMC 16.06 State Environmental Act Implementation* • *LFPMC 12.40 Complete Streets* • No specific street tree ordinance.	• *OMC 12.44 Street Trees* • *Engineering Design & Development Standards Chapter 4 Transportation: 4H.100 Street Trees* • *OMC 16.56* • *OMC 16.58* • *OMC 16.60* • *Urban Forestry Manual*	• *SMC 12.30 Public Tree Management* • *SMC 20.50.480 Street trees and landscaping within the right-of-way - Standards* • *Engineering Development Manual*
Recommended Street Tree List	Approved Street Tree List and Prohibited Trees provided on City website: Approved Street Tree Species | City of Tumwater, WA	No approved Street Tree List.	Street Tree List is provided on page 128 of the Edmonds Street Tree Plan. Other species suggestions are in other areas of the Street Tree Plan, based on location.	Street tree list in Lacey Urban Forest Management Plan: https://cityoflacey.org/wp-content/uploads/sites/3/2022/03/UFMP-Document-092621-FINAL.pdf	No approved Street Tree List.	Street Tree List on city website: Recommend Street Trees List	Street tree list: http://www.shorelinewa.gov/home/showdocument?id=2454
Street Tree Replacement Standards	• Replacement standards are not called out in TMC 12.24. • Restrictions on planting willow, cottonwood, poplar, and any other trees the roots of which are likely to obstruct or injure sanitary sewers or other underground utilities, except as approved by the director of public works in accordance with a city-approved plan or project.	• New trees planted in the right-of-way shall be selected from a list of recommended species approved by the City. *(BMC 12.38)* • For single detached subdivisions, a tree shall be planted at the rate of 1 tree for every 50 feet of street frontage along a neighborhood collector street and 40 feet if frontage along an arterial street.	• When necessary to remove a tree, the City shall replant the tree(s) or replace them. • Replacements shall meet the standards specified in the street tree plan for size, species, and placement. • The permittee shall bear the costs of removal and replacement. *(EMC 18.85)*	• All trees within the ROW shall be planted in accordance with the City of Lacey Development Guidelines and Public Works Standards including species, size, location, etc. Any alternate species shall not be used unless approved by the City forester. *(LMC 12.20)* • Street trees are required on all public streets within all new developments. The species of tree shall	• For RM, BN, TC, CC zones and uses, at least one tree shall be required for every 250 square feet of landscape area. *(LFPMC 18.62.041)*	• Mitigation is required if a public tree is removed, injured, or otherwise damaged by a private party. The mitigation value shall be calculated by the Urban Forester using the formula outlined in the most recent edition of the "Guide for Establishing Values of Trees and Other Plants," published by the International Society of Arboriculture. The	• All existing public trees 6 inches in DBH or greater allowed to be removed shall be replaced with an approved variety of tree in the area of removal according to the replacement formula in SMC 20.50.360(C). • If the director determines there is no suitable space for planting of the replacement trees in the vicinity of removal, the director will determine

Topic	Tumwater	Burien	Edmonds	Lacey	Lake Forest Park	Olympia	Shoreline
	• Fruit trees, nut trees, Ailanthus, Mountain ash, Oregon or big leaf maple, American elm may not be planted in any event. • No trees or shrubs shall be planted in or abutting any public parking strip, street ROW, or any other public place in the City, including sidewalks.	• Mature and health native trees retained within the ROW or within 20 feet of the ROW line may substitute for the required street tree at a 1:1 ratio. • BMC 19.25.060(2) has a requirement for work along Des Moines Memorial Drive that requires the planting of elm trees, when applicable. *(BMC 19.25)* • Developments within the Station Area overlay that abut a required sidewalk are exempt from street tree frontage landscaping standards, except that street trees are required at an average of 1 tree for every 30 feet of linear street frontage *(BMC 19.16.025)*		be selected from the street tree list or general tree list in the Lacey Urban Forest Management Plan. Landscape trees are required in all alleys. (*LMC 14.32.067)*		mitigation value shall be paid into the City Tree Account, as established in OMC 16.60. All or a portion of this mitigation may be met by planting replacement trees on the site. *(OMC 16.58)* • No maples or other such spreading trees shall be planted. Ash, poplar, similar trees shall be used. • Trees shall be planted on all streets within the City which have been paved, or may be paved, and wherever there is a parking strip. • Trees planted shall be uniform on each street, not closer than 40 feet apart. *(OMC 12.44)*	whether an applicant shall replant at public sites approved by the director or pay a fee in lieu. *(SMC 12.30.040)* • All street trees must be selected from the City-approved street tree list. *(SMC 20.50.480)*
Permit requirements	• Not specified in TMC 12.24. • Application for a land clearing permit required for any "project permit". • Tree protection plan, replacement plan required. *(TMC 16.08)*	• A tree permit will not be issued to a private individual for the pruning or removal of trees or other vegetation on city property identified on the city maintenance responsibility list, including streets, parks and open spaces. • Issuance of a tree permit is based on the City arborist determining that the removal or requested	• Permit required from the director of public works for planting, removing, pruning, or otherwise changing a tree on a street, ROW, parking, planting strip, or other public place. • Proposal must conform to the Edmonds Street Tree Plan. *(EMC 18.85)*	• ROW access permit required prior to the planting, major pruning, or removal of any street tree within the City. (*LMC 12.20)*	• Minor permit, major tree permit, or utility forest management permit required. *(LFPMC 16.14)*	• A tree removal permit is required. To be approved by the Urban Forester if the tree is infected with an epidemic insect or disease; is a public nuisance; safety hazard; severely interferes with the growth and development of a more desirable tree; required infrastructure work or improvements would kill	• A ROW use permit shall be required and issued by the director of public works for planting public trees in rights-of-way adjacent to an applicant's property according to the variety and spacing approved in the Engineering Development Manual. • A ROW use permit shall be required and issued by the director for the nonexempt pruning or removal of public trees in

Topic	Tumwater	Burien	Edmonds	Lacey	Lake Forest Park	Olympia	Shoreline
		action or treatment is necessary. • Planting plan required. (*BMC 12.38)*				the tree or render it a hazard; necessary to implement or maintain a vegetation management plan for the area; or to provide the only reasonable access to adjacent private property. • When a private party (non-city) requests the removal of a public tree, the applicant required to develop and implement a vegetation management plan for the property. The applicant required to pay all costs associated with the plan. *(OMC 16.58)*	rights-of-way adjacent to an applicant's property. • Public tree removal is prohibited on ROWs that have not been opened with public improvements. • No trees listed in the Engineering Development manual as approved tree varieties for planting in the ROW shall be removed unless deemed a hazard by a certified arborist. • In commercial zones, tree removal is exempt unless within a critical area or buffer, or if the existing trees were included as required landscaping within the previous three years. (*SMC 12.30.040*)
Protection and Management of Public Trees	• Not specified in TMC 12.24. • Protection standards in TMC 16.08.070 apply to all land clearing not exempt under TMC 16.08.080.	• The City manager, or his/her designee, shall oversee the planting, care, and removal of trees on City property. • The City of Burien has a City Maintenance Responsibility list for street trees and other vegetation on ROW and City property. The list can be found in BMC 12.38.080.	• Not explicitly defined in Chapter 18.85. • Tree protection measures during development are outlined in EMC 23.10.070 and include tree protective fencing of minimum 3' tall and prohibiting excavation or compaction of soil within the tree barrier. *(EMC 23.10)*	• Street trees shall be maintained so that they do not obstruct the free use of the ROW, including clearance for sight visibility, traffic signage and signals, as well as pedestrian and vehicular use of streets and sidewalks. • Street trees are not to damage utilities, streets, or sidewalks. (*LMC 12.20)*	• Not explicitly defined for street trees.	• Tree removal, pruning and/or planting is subject to review and approval of the Parks, Recreation and Cultural Services Department. *(OMC 16.58)* • Protective fencing required: chain link and at least 4' high, prior to development activities. • No materials placed within the protective area of any tree, and no objects attached to any tree. *(Chapter 7 of the Urban Forestry Manual)*	• No specific protection measures outlined in SMC *12.30.040 Public Trees in the ROW*.

Topic	Tumwater	Burien	Edmonds	Lacey	Lake Forest Park	Olympia	Shoreline
Maintenance Requirements	• Not specified in TMC 12.24. • For street trees, the maintenance requirements of TMC 16.08.072 shall be in effect for 3 years from the date the final plat is approved, or the trees are planted. • The applicant shall also execute a covenant in a form agreeable to the city. The recording fee shall be paid by the applicant. *(TMC 16.08.072)*	• The city shall maintain all trees and other vegetation on the city maintenance responsibility list. • No person shall prune or remove trees identified on the city maintenance responsibility list. • The owner of property adjacent to an improved or unimproved right-of-way not listed on the city maintenance list shall maintain street trees and other vegetation located within the maintenance area. (*BMC 12.38)* • Public utilities shall maintain any vegetation that interferes with their utilities and may prune trees. (*BMC 12.38)*	• Not explicitly defined in Chapter 18.85. • Except where otherwise defined by the City, the adjacent property owner is responsible for tree planting and maintenance. • Street Tree Maintenance is outlined in the Edmonds Street Tree Plan and includes maintenance standards for water, fertilizer application, pruning, treating disease, avoiding damage, and reducing plant competition.	• Maintenance shall be in accordance with tree care standards contained in ANSI A300 standards. • Adjacent property owners have the following routine tree maintenance responsibilities: removal or pruning of nuisance trees, pruning of nuisance trees, and removal of all debris from public property. (*LMC 12.20)*	• Not explicitly defined for street trees. • All protected trees and required replacement trees shall be maintained in a healthy condition. • Pruning and maintenance of protected trees shall be consistent with the ANSI A300 standards and ISA best management practices for proper pruning. *(LFPMC 16.14)*	• Private parties may have public trees pruned with written permission from the City with permission. • Topping of public trees is prohibited. • Insect and disease abatement. The City may prune, spray, or otherwise maintain public trees in order to control infestations of insects or disease or to maintain public safety. *(OMC 16.58)*	• All planted trees and replacement trees shall be maintained in good health and condition by an applicant, or their successor in interest, in accordance with the issued ROW use permit or other authorizing permit. *(SMC 12.30.040)*
Nuisances	• The Director can enforce abatement of nuisance trees and fire hazards. • Removal of stumps and roots of trees or shrubs shall be removed to a point a least 1-foot below the tops of the adjacent curb or proposed curb grade.	• City shall maintain trees planted by the City and may remove any tree located on or near City property that present unsafe conditions, disrupt utilities or public improvements, or are infected with any significant disease or insect. (*BMC 12.38)*	• Not addressed in Street Tree Chapter 18.85. • Nuisance trees may be removed with supporting documentation of the damage and any tree work that has been attempted to rectify the nuisance. *(EMC 23.10)*	• Any tree (public or private) that constitutes a hazard to public safety, obstructs the free passage of pedestrian or vehicular traffic or obstructs public street lighting, harbors pests expected to injure or harm public trees. • All costs for nuisance abatement are the responsibility of the property owner or adjacent property owner. • City has the right to immediately abate any nuisance in an emergency. (*LMC 12.20)* or immediate hazard to public safety.	N/A	• Any planting of public trees that fails to comply with the standards established in the Urban Forestry Manual is declared a public nuisance and may be abated pursuant to OMC 8.24.030. *(OMC 16.58)*	N/A

Topic	Tumwater	Burien	Edmonds	Lacey	Lake Forest Park	Olympia	Shoreline
Code Enforcement/ Mitigation for Violations	• Public works director is charged with enforcement of chapter. • Violations constitute a misdemeanor.	• Violation or failure to comply with Ch 12.38 is subject to enforcement set forth in BMC Chapter 1.15. (*BMC 12.38)* • Violations constitute a misdemeanor, unless otherwise designated as a gross misdemeanor. • Violations are punishable by imprisonment in jail for a maximum term fixed by the court of not more than 90 days or by a fine in an amount fixed by the court of not more than $1,000 or by both such imprisonment and fine. • A gross misdemeanor is punishable by a fine of not more than $5,000 or by imprisonment for not more than 12 months or by both such fine and imprisonment. *(BMC 1.15)*	• Public works enforces this chapter. • If a tree is planted contrary to provisions, the director of public works may remove the tree. A second violation is a misdemeanor. *(EMC 18.85)*	• Public works department has the authority to enforce provisions of the street tree chapter as it relates to trees located within the public ROW or any tree located on private property that poses a risk, hazard or nuisance to the public ROW. (*LMC 12.20)*	• Violations are addressed by the administrator. • Liability for violations shall be the joint and several responsible of the landowner and any person performing activity. *(LFPMC 16.14)*	• It shall be gross misdemeanor for any person, firm, or corporation to knowingly cut down, prune, kill, or otherwise damage any public tree without lawful authority. The penalty for such violation shall be a fine not to exceed One Thousand Dollars ($1,000), and/or to imprisonment not to exceed ninety (90) days or to both such fine and imprisonment. *(OMC 16.58)*	• It is the responsibility of the parks, fleet, and facilities manager to manage and oversee the planting, care maintenance, and removal of all trees on public ROW and city-owned property. • No penalties or violations identified. *(SMC 12.30)*

Appendix B

TMC 12.24 STREET TREES

Sections:

12.24.010 Planting of certain trees prohibited.

It is unlawful to plant hereafter anywhere in the city willow, cottonwood, poplar, and any other trees the roots of which are likely to obstruct or injure sanitary sewers or other underground utilities, except as approved by the director of public works in accordance with a city-approved plan or project.

(Ord. 1392, Amended, 08/03/1993; Ord. 909, Added, 08/15/1981)

12.24.020 Unauthorized planting in public places prohibited.

No trees or shrubs shall hereafter be planted in or abutting any public parking strip, street right-of-way, or any other public place in the city, including sidewalks, without permission of the city; provided, that the following species may not be planted in the above-named places in any event: trees named in TMC 12.24.010, fruit trees (except ornamental types), nut trees, Ailanthus, Mountain Ash, Oregon or big leaf maple, American elm, or any other tree the roots of which cause injury to sidewalks or pavements.

(Ord. O2011-002, Amended, 03/01/2011; Ord. 909, Added, 08/15/1981)

12.24.030 Trees and shrubs endangering usefulness of streets and sidewalks – Public nuisance.

Trees, plants, shrubs or vegetation, or parts thereof, which endanger the security or usefulness of any public street, sidewalk, sewer or other underground utility, are declared to be a public nuisance, except that trees may extend over the sidewalk when kept trimmed to a height of eight feet above sidewalks and fourteen feet above a roadway.

(Ord. 909, Added, 08/15/1981)

12.24.040 Abatement of nuisance.

The public works director, or his/her designee, shall by written notice require the owner of such nuisances described in TMC 12.24.030, in addition or alternative to the penalties prescribed by TMC 12.24.090, to abate the nuisance by trimming, destroying or removal, at the owner's cost and expense within the time specified by the director; provided further, that if the destruction, trimming, or removal is not made by such owner within the time specified, the director may abate the same and render a bill covering the cost of such abatement.

(Ord. O2011-002, Amended, 03/01/2011; Ord. 909, Added, 08/15/1981)

12.24.050 Fire hazards – Abatement.

Grass, weeds, shrubs, trees, or vegetation growing or which has grown and died upon any property and are a fire hazard or menace to public health, welfare or safety are likewise public nuisances. It is the duty of the property owner wherein or whereon any such nuisance exists to abate the nuisances by destroying, removing, or trimming the growth.

(Ord. 909, Added, 08/15/1981)

12.24.060 Stumps and roots – Removal.

The stumps and roots of trees or shrubs shall be removed to a point at least one foot below the top of the adjacent curb or proposed curb grade, treating the remaining roots with a suitable compound to prevent future sprouting or growth. Any roots which have disrupted or broken the adjacent street, curb or sidewalk shall be removed and the street, sidewalk or curb shall be repaired.

(Ord. 909, Added, 08/15/1981)

12.24.070 Appeals.

Appeals from administrative actions made under this chapter may be made by any citizen or property owner to the hearing examiner in the manner provided in TMC Chapter 2.58.

(Ord. O2014-018, Amended, 12/16/2014; Ord. O2011-002, Amended, 03/01/2011; Ord. O96-027, Amended, 10/15/1996; Ord. 909, Added, 08/15/1981)

12.24.080 Enforcing authority.

The public works director or his/her duly authorized representative shall be charged with the enforcement of this chapter.

(Ord. O2011-002, Amended, 03/01/2011; Ord. 909, Added, 08/15/1981)

12.24.090 Violation – Penalty.

Violation of or failure to comply with any provision of this chapter shall constitute a misdemeanor.

(Ord. O2011-007, Amended, 07/19/2011; Ord. 909, Added, 08/15/1981)

12.24.100 Remedies not exclusive.

The remedies prescribed in this chapter are in addition to all other remedies provided or authorized by law, including damages to the city's proprietary interests.

(Ord. 909, Added, 08/15/1981)

Appendix C

STREET TREE FIELD TRIP NOTES MEMO

Background

Following the completion of the Urban Forestry Management Plan earlier this year, the Tree Board and Planning Commission will be working on an update to the city's street tree regulations (TMC 12.24). This update will also include a review and potential update to the following:

- Urban Forestry Management Plan Appendix A.9 Street Tree Planting List
- Tumwater Municipal Code (TMC) Chapter 12.24 *Street Trees*
- Other relevant sections of the Municipal Code in
  - TMC Title 12 *Streets, Sidewalks and Public Places*
  - Title 16 *Environment*
  - Title 17 *Land Division*
- Tumwater Development Guide
- Littlerock Road Subarea Plan
- Tumwater Town Center Street Design Plan
- Capitol Boulevard Community Zone Design Guidelines

The next step in the review process was a street tree field trip on Wednesday, September 22 at 5:30 PM with members of the Tree Board and the Planning Commission.

The City's tree preservation (TMC 16.08) and landscape buffering and screening regulations (TMC 18.47) will be updated next year.

Attendees

Tree Board

- Trent Grantham
- Brent Chapman
- Mike Jackson
- Jim Sedore
- Dennis Olson

Planning Commission

- Elizabeth
- Meghan Sullivan
- Terry Kirkpatrick
- Joel Hansen
- Michael Tobias
- Nathan Peters

Staff

- Brad Medrud

Field Trip Itinerary

1. **City Hall Parking Lot – 555 Israel Road SW**
2. **Mirasett Subdivision - 70th Avenue SW on to Mirasett Street SW**

Staff Comment: This is an example of joint project where the city replaced the lifted panels in 2016 and the HOA replaced the trees that were causing problems around 2019. This subdivision was originally approved by the County and annexed into the City with existing problems that continue to get worse.

3. **Littlerock Road SW near Israel Road SW**

Staff Comment: This is a good example of an area built by the City that has held up for 10 to 15 years. We believe construction was in 2009. We are sure it is not the only reason for its success, but note the larger planting strips on Littlerock Road SW.

4. **The Preserve at Tumwater Place Subdivision, Phase 1**

Staff Comment: This subdivision was originally approved by the County and annexed into the City.

5. **Deschutes River Highlands Subdivision, Phase 1**

Staff Comment: This is another example of many failures in a small area. This subdivision was originally approved by the County and annexed into the City.

6. **End of Field Trip**

Field Trip Notes

- Soils.
- Proper planting
- Training for maintenance of trees and landscaping near the trees
- Use of root barriers to protect sidewalks, curbs, and gutters
- Smaller trees but more of them for canopy coverage
- Consider clearance needed for garbage trucks with lifting containers
- Consider requiring a planting bed area similar in size to the ones used on Littlerock Road to protect trees from equipment.
- Irrigation would likely be needed for street trees because of dry summers and nearest to street and sidewalk heat. Guidance can be given on the amount of watering needed.
- There was a question about interactions with street trees and undergrounding utilities.
- There was a question about who is responsible for sidewalks and street trees: property owner or City
- Consider requiring different varieties of street trees in subdivisions
- Specific species to avoid: maples, sweetgums
- Consider alternatives to street trees: location behind sidewalk, in separate tracts balanced with the needs of heat reduction for streets and sidewalks and aesthetics.

STP SCOPE OF WORK MEMO

Attachment A

City Hall
555 Israel Road SW
Tumwater, WA 98501-6515
Phone: 360-754-5855
Fax: 360-754-4138

Memorandum

Date: March 9, 2022

To: General Government Committee

From: Brad Medrud, Planning Manager

Subject: Urban Forestry Management Plan – Street Tree Plan, Scope of Work

Issue

Street trees are an essential part of the character of the City. As part of a healthy community and urban forest, they provide many environmental, economic, and community benefits. Street trees work constantly to mitigate the negative effects of development, while protecting and enhancing lives within the community. In addition to environmental benefits such as improving and protecting water and air quality, directly and indirectly addressing the effects of climate change, and buffering urban noise, street trees also have socioeconomic and aesthetic benefits, including promoting equity and environmental justice within the community by ensuring each neighborhood in the City receives community investment and support.

The City Council adopted the *Urban Forestry Management Plan* on March 2, 2021 after four years of work. The City's urban forest consists of all trees and understory plants on public and private property in the City. It includes a diverse mix of vegetation that is managed by a broad group of individuals and groups that are located in a range of urban and natural settings including private properties, developed parks, rights-of-way, conservation areas, and other public lands.

The *Urban Forestry Management Plan* guides the stewardship of the urban forest within the City though a series of implementation actions. Twenty-five actions in the City's *Urban Forestry Management Plan* address street trees and the most important of these are the following three actions with their overall objectives:

Objective 1.1. Increase canopy cover in the City to expand the community and urban forest.

Action C. Require appropriate tree planting in new development and redevelopment, by emphasizing proper planning for trees, correct planting techniques, and aftercare that supports the healthy establishment of newly planted trees.

Objective 4.1. Update the *Urban Forestry Management Plan* and supporting regulations regularly and ensure they work in harmony with other City strategic priorities.

Action D. Review tree preservation, landscaping, and street tree regulations regularly to ensure that they are working with other City strategic priorities, plans, and regulations, responding to changes in climate, and implementing the *Urban Forestry Management Plan*.

Action E. Review and update the Comprehensive Street Tree Plan regularly to reflect "The Right Tree in the Right Place" strategies, including plantings in planter strips and medians and encourage planting of native tree species, where appropriate.

The next step in the implementation of the *Urban Forestry Management Plan* is the preparation of a *Street Tree Plan*, which is intended to guide street tree planting and maintenance in the City as an element of the 2021 *Urban Forestry Management Plan*. The *Street Tree Plan* will incorporate elements of the 2002 *Comprehensive Street Tree Plan* that was prepared by Washington Forestry Consultants, Inc.

Work on the *Street Tree Plan* will include updating Tumwater Municipal Code (TMC) 12.24 *Street Trees*, Chapter 3 of the *Tumwater Development Guidelines*, as well as review and update other relevant regulations, plans, and procedures for maintaining street trees with the *Urban Forestry Management Plan's* primary goal of ensuring "The Right Tree in the Right Place."

The purpose of the *Street Tree Plan* is to guide the maintenance, management, and improvement of the street tree component of the community and urban forest in the City for the benefit of the entire community over the next 20 years. The *Street Tree Plan* and the regulations establish the minimum requirements and standards for development and redevelopment of individual properties in the City as it relates to the street trees. The information for the *Street Tree Plan* will come from multiple sources, including stakeholder groups and inventories and surveys completed as part of the development of the *Urban Forestry Management Plan*.

As part of work on the *Urban Forestry Management Plan*, in 2018 more than 25 volunteers worked with staff and our consultant to inventory, measure, and catalogue more than 3,500 street trees using geographic information systems (GIS) and global positioning systems (GPS). Trees were identified by species, measured trunks at diameter breast height or four and a half feet above the ground, and canopy width, and rated for structure, condition, and health.

The street tree inventory included most City-owned trees planted in rights-of-way between a public sidewalk and a City street. In addition to common tree measurements described above, the inventory teams collected data on sidewalk displacement and planting location types in order to study relations between tree species and types of hardscape damage. This data has been incorporated into the City's' GIS-based asset management system.

On September 22, 2021, the Tree Board and Planning Commission took a field trip to four different sites in the City to review street trees conditions and then provided input on the *Street Tree Plan* scope of work at more than seven meetings in the summer and fall of 2021 and the winter of 2022.

The *Street Tree Plan* will identify recommendations regarding sustainable resource management for street trees in the City that can be used by residents, homeowner associations, commercial and industrial property owners, developers, landscape architects, arborists, tree professionals, and tree and landscape maintenance staff including the following criteria for sustainable resource management:

Criteria	**Key Purpose**
Management Plan	Develop and implement a management plan for street trees on public right of ways that includes updating tree design and planting guidelines to provide for long-term development and health of the trees by providing enough space for them to grow.
Funding	Develop and maintain adequate funding to implement the *Street Tree Plan*.
Staffing	Employ and train adequate City staff to implement the *Street Tree Plan*.
Assessment Tools and Data Management	Develop methods to collect information about the street trees on a routine basis.
Species and Site Selection	Provide guidelines and specifications for street tree species use, on a context-defined basis.
Standards For Tree Care	Adopt and adhere to professional standards for street tree care.
Public Safety	Maximize public safety with respect to street trees.
Equity	Ensure that ensuring each neighborhood in the City receives community investment and support by requiring street trees to be planted on all public and private streets, and in all new development
Reuse	Create a closed system for street tree waste.

All natural and built systems change over time. Adaptive changes must be actively planned, managed, and maintained over the course of the *Street Tree Plan*'s duration to result in effective benefits. Lack of planning and management is evident where street trees are planted in places that do not allow for growth, which can lead to conflict with sidewalks and utilities. Proactive planning, management, and

maintenance are needed to keep street trees in the City sustainable and in balance with other urban priorities.

The conditions under which trees grow in the City are often less than optimal. The soils in developed areas are often severely compacted, low in organic content and may contain construction debris. Trees often have restricted rooting space, and the space they do have is often covered with concrete or asphalt, reducing access to water and gas exchange from the soil to the air, critical to tree health.

Because the urban environment is a complex combination of human growth and disturbed environments, the selection of street trees used to create a healthy, sustainable urban environment should include a mixture of native and non-native trees, with no single species dominating. The predominance of a single species will increase the susceptibility of street trees to pests or disease.

The *Street Tree Plan* will provide a comprehensive list of street trees appropriate for all of the City's arterial and collector streets, as well as a general list for all other street types and include a detailed tree planting specification for use in transportation and engineering projects that could also be used for parks and recreation projects. The tree planting plan, specifications, and maintenance guidelines will ensure that the durable, long-term, canopy forming trees will be planted along City streets, forming the linkages between neighborhoods in the City.

The *Street Tree Plan* is proposed to be organized into four chapters and series of appendices.

Chapter 1 – Introduction describes the reasons why the City developed the Plan, its benefits, and its purpose.

Chapter 2 – Background refers to the existing regulations and street tree surveys completed.

Chapter 3 – Street Tree Planning describes the vision for future street tree plantings.

Chapter 4 – Street Tree Planting contains recommendations for street tree planting and maintenance.

Appendices include information specific street trees to be planted, as well as planting and pruning recommendations.

Grant Application

The City submitted a Community Forestry Assistance grant application on February 22, 2022 to the Department of Natural Resources to support a consultant to work on the *Street Tree Plan*. The purpose of the grant is to assist communities with planning and implementing projects that improve management, care, and public engagement with trees growing in parks, natural areas, and along public rights-of-way. As part of the grant, projects also need to address social and environmental disparities in

Washington communities by investing in community-identified urban forestry needs that advance environmental, social, or public health outcomes.

Draft Scope of Work

1. Prepare Public Engagement Plan, which will:
    a. Define the stakeholders for the process of creating the *Street Tree Plan*, their different information needs, and their role in the update process:
        1) Residential property owners
        2) Homeowner associations
        3) Commercial, industrial, and institutional property owners
        4) Residential, commercial, industrial, and institutional developers
        5) City maintenance staff
        6) City development review staff, including planning, building and development engineering staff
        7) City code enforcement staff
        8) Professional consultants, such as landscape architects, foresters, and arborists
        9) Tree cutting/landscape maintenance companies
    b. Explicitly address how the *Street Tree Plan* will promote equity and environmental justice
    c. Establish external and internal stakeholder groups
    d. Contain a project schedule for:
        1) Community and stakeholder meetings
        2) Staff stakeholder meetings
        3) Draft work product delivery schedule for review by staff, stakeholders, and the Tree Board, Planning Commission, and City Council
        4) Public worksessions with the Tree Board and the Planning Commission
        5) Formal adoption of the supporting regulations through the Tree Board, the Planning Commission, including a public hearing, General Government Committee briefing, City Council worksession, City Council consideration and adoption
    e. Identify materials for the implementation of the Public Engagement Plan
        1) City website and social media materials
        2) Materials to support the external and internal stakeholder groups

3) Explanatory materials to support the community and stakeholder meetings, public worksessions with the Tree Board, Planning Commission, and City Council, and adoption of the *Street Tree Plan* and supporting regulations

f. Review of the draft Public Engagement Plan by City staff, Tree Board, Planning Commission, and City Council

2. Implementation of the Public Engagement Plan

a. Conduct stakeholder meetings

1) External stakeholders

2) Internal stakeholders

b. Conduct a public open house, if needed

c. Conduct public worksessions with the Tree Board and Planning Commission

d. Conduct formal adoption of the *Street Tree Plan* and supporting regulations through the Tree Board, the Planning Commission, including a public hearing, General Government Committee briefing, City Council worksession, and City Council consideration and adoption

e. Prepare materials for the implementation of the Public Engagement Plan

3. Prepare the *Street Tree Plan,* which would include the following sections:

a. Introduction, describing the reasons why the City developed the *Street Tree Plan*, its benefits, and its purpose

b. Background, referring to the process for creating the *Street Tree Plan*, public engagement process updating regulations, and street tree surveys completed

c. Street tree planning, describing the vision for future street tree plantings, including:

1) Arterials and connectors

2) Guidance for other street types

3) Street tree design recommendations

d. Street tree planting, containing recommendations for the following:

1) Street tree planting and maintenance guidance

2) Street tree management responsibilities

3) Best management practices for street tree care

4) Street tree planting list

5) Street tree planting specifications and details

6) Street tree pruning guidelines

e. Shorter, individual documents derived from the *Street Tree Plan* for specific audiences and their needs:

1) Residential property owners and homeowner associations

2) City maintenance staff

3) Tree cutting/landscape maintenance companies

4. Prepare amendments to the following, as needed:

a. Tumwater Municipal Code Amendments:

1) TMC Title 12 *Streets, Sidewalks and Public Places* (TMC 12.08 *Street and Sidewalk Obstructions*, TMC 12.12 *Construction of Curbs and Sidewalks*, and TMC 12.24 *Street Trees*)

2) Title 16 Environment (TMC 16.08 *Protection of Trees and Vegetation*)

3) Title 17 Land Division (TMC 17.04 *Definitions*)

b. *Tumwater Development Guide*, Chapter 3 *General Engineering Considerations* and Chapter 4 *Transportation*, text and details

c. *Littlerock Road Subarea Plan*, Chapter 5 *Implementation*

d. Tumwater Town Center Street Design Plan

e. Capitol Boulevard Community Zone Design Guidelines

f. The ordinance should assessed for compliance with the Growth Management Act (GMA) requirement to comply with the Attorney General's Guidance regarding takings

Schedule

- May and June 2022 – RFP process and consultant selection
- July 2022 – Project start
- July 1, 2022 – June 1, 2023 – Department of Natural Resources grant money will be available
- December 31, 2022 – Project completion

<u>Notice of Intent and SEPA Review</u>

- August 2022 – Submit Notice of Intent to Commerce
- August 2022 – SEPA Review

Tree Board Meetings

- July 11, 2022 – Tree Board worksession
- August 8, 2022 – Tree Board worksession
- September 12, 2022 – Tree Board worksession

Planning Commission Meetings

- August 23, 2022 – PC worksession
- September 13, 2022 – PC worksession
- September 27, 2022 – PC hearing

City Council Meetings

- October 12, 2022 – GGC briefing
- October 25, 2022 – CC worksession
- November 15, 2022 – CC consideration

Other Notes

- The street tree survey completed as part of the development of the Urban Forestry Management will be used to determine which tree species caused the most infrastructure damage.
- At the December 14, 2021 City Council worksession on the Planning Division department work program, Councilmember Dahl recommended contacting the company she used that would like to review 'tree' related documents and plans. They also voiced interest in joining the Tree Board if there is room in the future. https://www.doubledtreellc.com/
- Also at the December 14, 2021 City Council worksession, Councilmember Schneider recommended avoiding the Bradford pear as a street tree.
- Staff has asked our Permitting Division staff if they could provide recent as-built plans and landscaping plans for recent projects such as Skyview to the Planning Commission and Tree Board. As part of this scope of work, staff will spend a worksession taking the Planning Commission and Tree Board through the development review process.
- Staff has reviewed materials related to the scope of work provided by Ben Thompson and his staff at the Washington State Department of Natural Resources.
- On December 16, 2021, the City issued the job posting for the new sustainability coordinator position, which will be taking lead on urban forestry projects in 2022. The position closed in January 2022 and staff are reviewing

candidate for the position in February and March 2022. The new sustainability coordinator will be taking over as lead staff for the Tree Board, but Planning Division staff will continue to lead the work on the code update.