



CITY OF
BAINBRIDGE ISLAND

**PLANNING COMMISSION SPECIAL MEETING
THURSDAY, DECEMBER 17, 2020**

THE PLANNING COMMISSION WILL HOLD THIS MEETING USING A VIRTUAL, ZOOM WEBINAR PLATFORM, PER GOVERNOR INSLEE'S "STAY HOME, STAY HEALTHY" ORDERS. MEMBERS OF THE PUBLIC WHO DO NOT WISH TO VIEW THE MEETING VIA THE BKAT BROADCAST OR THE CITY'S WEBSITE STREAMING WILL BE ABLE TO CALL IN TO THE ZOOM MEETING.

PLEASE CLICK THE LINK BELOW TO JOIN THE WEBINAR:

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AGENDA

1. **CALL TO ORDER/ROLL CALL/CONFLICT DISCLOSURE - 6:00 PM**
2. **PUBLIC COMMENT - 6:05 PM**
Public comment on off-agenda items.
3. **PUBLIC HEARING - 6:15 PM**
 - 3.a **(6:15 PM) - Public Hearing on Draft Ordinance 2020-28: Updates and Revisions to Tree and Vegetation Regulations** 30 Minutes
ORD. 2020-28 Staff Memo
Ordinance No. 2020-28 DRAFT 12112020.docx
ORD 2020-28 Exhibit A-Chapter 16.18 BIMC (Tree Removal, Forest Stewardship, and Vegetation Maintenance) DRAFT 12112020.docx
ORD 2020-28 Exhibit B-Chapter 16.32 BIMC (Protection of Landmark Trees) DRAFT 12112020.docx
ORD 2020-28 Exhibit C-Section 18.15.010 BIMC (Landscaping, screening, and tree retention, protection and replacement) DRAFT 12112020.docx
ORD 2020-28 Exhibit D-Section 16.20.100 BIMC (Aquifer Recharge Areas) DRAFT 12112020.docx
ORD 2020-28 Exhibit E-Community Forest Best Management Practices Manual DRAFT 12112020.docx

4. UNFINISHED BUSINESS - 6:45 PM

- 4.a **(6:45 PM) - Joint Land Use Subcommittee, Miscellaneous Code Revisions, Phase 2 Changes to the Pre-application Process** 30 Minutes
Major Site Plan Land Use Review Process 11.12.2020
REVISED Major Site Plan Land Use Review Process Staff Comments Incorporated 20201209

5. NEW BUSINESS - 7:15 PM

- 5.a **(7:15 PM) - Process for Adopting a Multifamily Property Tax Exemption** 20 Minutes
20201210 Quitslund MFTE memo to PC.docx
Background Multifamily Tax Exemption PSRC

6. SUBCOMMITTEE UPDATES - 7:35 PM

Discussion of subcommittee assignments for the City Council/Planning Commission Joint Land Use Subcommittee and the Planning Commission Affordable Housing Subcommittee.

7. PLANNING DIRECTOR'S REPORT - 7:55 PM

8. ADJOURNMENT - 8:00 PM

GUIDING PRINCIPLES

Guiding Principle #1 - Preserve the special character of the Island, which includes downtown Winslow's small town atmosphere and function, historic buildings, extensive forested areas, meadows, farms, marine views and access, and scenic and winding roads supporting all forms of transportation.

Guiding Principle #2 - Manage the water resources of the Island to protect, restore and maintain their ecological and hydrological functions and to ensure clean and sufficient groundwater for future generations.

Guiding Principle #3 - Foster diversity with a holistic approach to meeting the needs of the Island and the human needs of its residents consistent with the stewardship of our finite environmental resources.

Guiding Principle #4 - Consider the costs and benefits to Island residents and property owners in making land use decisions.

Guiding Principle #5 - The use of land on the Island should be based on the principle that the Island's environmental resources are finite and must be maintained at a sustainable level.

Guiding Principle #6 - Nurture Bainbridge Island as a sustainable community by meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Guiding Principle #7 - Reduce greenhouse gas emissions and increase the Island's climate resilience.

Guiding Principle #8 - Support the Island's Guiding Principles and Policies through the City's organizational and operating budget decisions.



Planning Commission meetings are wheelchair accessible. Assisted listening devices are available in Council Chambers. If you require additional ADA accommodations, please contact the Planning & Community Development Department at (206) 780-3750 or pcd@bainbridgewa.gov by noon on the day preceding the meeting.

Public comment may be limited to allow time for the Commissioners to deliberate. To provide additional public comment, email your comment to pcd@bainbridgewa.gov or mail it to Planning and Community Development, 280 Madison Avenue North, Bainbridge Island, WA 98110.



CITY OF
BAINBRIDGE ISLAND

Planning Commission Special Meeting Agenda Bill

MEETING DATE: December 17, 2020

ESTIMATED TIME: 30 Minutes

AGENDA ITEM: (6:15 PM) - Public Hearing on Draft Ordinance 2020-28: Updates and Revisions to Tree and Vegetation Regulations

AGENDA CATEGORY: Ordinance

PROPOSED BY: Nick Snyder

PREVIOUS PLANNING COMMISSION

REVIEW DATE(S): 8/13/2020, 9/10/2020, 10/29/2020, 11/12/2020, 12/10/2020

PREVIOUS COUCIL REVIEW DATE(S): 2/25/2020

RECOMMENDED MOTION:

Hold public hearing and consider recommending approval of Ordinance No. 2020-28 to City Council.

SUMMARY:

This Draft represents the work of the Planning Commission, Bainbridge Island Fire Department, and City Staff. Its purpose is to provide needed updates to language, and revisions to practices that reflect current best management techniques for tree and vegetation management. The updates also include language that supports responsible wildfire mitigation and forest stewardship planning. Additionally, the Community Forest Best Management Practices Manual is included for adoption with reference in BIMC chapters 16.18 and 18.15.010.

BACKGROUND: After initial direction from City Council in February 2020 and discussions with Planning Commission on 8/13/20 and 9/10/20, Staff developed a proposed Ordinance that brings much needed updates and revisions to language and practices found in the Bainbridge Island Municipal Code. The ordinance has been amended to reflect the recommendations from the Planning Commission at the meeting on October 29th. On November 12th the Planning Commission met with the Fire Chief and Deputy Fire Chief to discuss wildfire mitigation and the potential for provisions that specifically address Firewise USA standards. After that meeting city staff worked with BIFD to generate draft language that was presented and amended at the December 10th Special Meeting.

ATTACHMENTS:



Department of Planning and Community Development

Memorandum

Date: December 11, 2020
To: Planning Commission
From: Nicholas Snyder, City Arborist
Subject: Public Hearing: Ordinance 2020-28, Updates to Tree Regulations in BIMC 16.18, 16.32, and 18.15.010

The draft ordinance was last brought to the Planning Commission on December 10th to discuss proposed revisions and updates to the tree and vegetation regulations in 16.18, 16.32, 18.15.010, and 16.20.100. At the December 10th meeting changes were presented that incorporated wildfire mitigation provisions from the Firewise USA program into BIMC 16.18. Minor changes were made to that proposal during the meeting and the commission conferred with the Fire Chief and Deputy Fire Chief on the changes made. All the proposed changes from past Planning Commission meetings (8/13/20, 9/10/20, 10/29/20, 11/12/20, and 12/10/20) are reflected in the exhibits provided with this ordinance.

This draft ordinance now represents the combined efforts of the Planning Commission, Bainbridge Island Fire Department, and city staff to collaborate and address issues identified with our current tree removal and vegetation management code. Its purpose is to provide needed updates to language, and revisions to procedures that will reflect current best practices for tree and vegetation management. The update also includes language that supports responsible wildfire mitigation and provides a pathway for wider forest stewardship planning. Additionally, the Community Forest Best Management Practices Manual is included for adoption to round out our tree protection and retention strategy.

ORDINANCE NO. 2020-28

AN ORDINANCE of the City of Bainbridge Island, Washington, amending Chapters 16.18, 16.32, 18.15.010 and 16.20.100 of the Bainbridge Island Municipal Code;

WHEREAS, the City Council of the City of Bainbridge Island (“City”) updated the City’s Comprehensive Plan in February of 2017; and

WHEREAS, the City Council has significant concerns about development and growth in the City under current regulations in the context of the vision and goals of the City’s Comprehensive Plan, has been discussing how to best accommodate growth and development in both general and specific ways, and finds that there are likely to be adverse impacts on the City and its citizens unless the City acts immediately to preserve the character of our community forest; and

WHEREAS, land clearing and development activities have resulted in the removal and loss of Landmark Trees on Bainbridge Island and the City has received numerous public comments expressing concern regarding the loss of Landmark Trees on Bainbridge Island; and

WHEREAS, Landmark Trees, because of their age, size, and condition, are recognized as having exceptional value in contributing to the character of the community; and

WHEREAS, the Planning Commission, Design Review Board, and the Ad Hoc Tree/LID Committee have expressed concern regarding the loss of trees on Bainbridge Island and the preservation of trees is a community value supported by the policies and goals of the City’s Comprehensive Plan; and

WHEREAS, on June 26, 2018, the City Council adopted Ordinance No. 2018-25, which imposed an interim official control in the form of Chapter 16.32 BIMC, *Preservation of Landmark Trees*, which designates Landmark Trees based on size and species, requires a permit to remove any Landmark Tree, and imposes fines if a Landmark Tree is removed without a permit; and

WHEREAS, on October 16, 2018, the City Council authorized the City Manager to contract with a team of arborists to review and make recommendations on City regulations governing tree and vegetation removal, including Chapter 16.32 BIMC; and

WHEREAS, in response to comments and input that City staff and the City Council received regarding implementation and application of the landmark tree regulations, including comments from many property owners and Puget Sound Energy about difficulty in meeting the requirements of the regulations, City staff proposed amendments to the regulations to add exceptions for the type of landmark tree removal that would be approved through permit review; and

WHEREAS, the above described team of arborists provided their report and recommendations to City staff, and the City Council discussed that report and those recommendations at a Council study session on May 7, 2019; and

WHEREAS, on February 25th, 2020, the City Council endorsed the continuing work by City Staff to draft a new ordinance that would include changes to BIMC 16.18, 16.32, and 18.15.010 in Ordinance No. 2020-28; and

WHEREAS, on August 13th, 2020, September 10th, 2020, October 29th 2020, November 12th, 2020, and December 10th, 2020 City Staff met with the Planning Commission to discuss proposed Ordinance No. 2020-28 and provide further direction to City Staff; and

WHEREAS on December 17th 2020 The Planning Commission Held a Public Hearing to discuss Ordinance 2020-28 and receive public input and after closing the public hearing, made a recommendation of approval of Ordinance No. 2020-28 to the City Council; and

WHEREAS, the City Council considered this ordinance at its meeting on XXX, 2021; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BAINBRIDGE ISLAND, WASHINGTON, DOES HEREBY ORDAIN AS FOLLOWS:

*****This part we will have Legal assist us with, but will primarily go away as this is not an interim control ordinance any longer*****

Section 1. Findings of Fact. The recitals set forth above are hereby adopted as additional and supplemental findings of fact to the City Council’s initial findings of fact in support of the interim official control, as initially established by Ordinance No. 2018-25 and as subsequently amended by Ordinance Nos. 2018-32, 2018-42, and 2018-45.

Section 2. Duration of Interim Official Control Extended. The interim official control is hereby amended, as also stated in Section 6 below, to extend the duration of the interim official control until December 26, 2019, six months beyond the current expiration date which, without this amendment, would be June 26, 2019.

Section 3. Interpretive Authority. The City of Bainbridge Island Director of Planning and Community Development, or designee, is hereby authorized to issue official interpretations arising under or otherwise necessitated by this ordinance.

Section 4. Interim Official Control Work Plan and Hearing. As provided for under RCW 35A.63.220 and RCW 36.70A.390, the City may renew an interim official control for one or more six-month periods if a work plan has been developed, a public hearing has been held, and findings of fact have been made, and the City is hereby extending the interim official control as described herein based on the updated work plan that has been developed and is attached and incorporated herein as Exhibit A to this ordinance, the public hearing that is being held related to

~~this ordinance, and the findings of fact that have been made in this ordinance and the previous ordinances related to this interim official control.~~

Section 5. Severability. Should any section, paragraph, sentence, clause, or phrase of this ordinance, or its application to any person or circumstance, be declared unconstitutional or otherwise invalid for any reason, or should any portion of this ordinance be preempted by state or federal law or regulation, such decision or preemption shall not affect the validity of the remaining portions of this ordinance or its application to other persons or circumstances.

PASSED BY THE CITY COUNCIL this.

APPROVED BY THE MAYOR this

/s/ _____
Leslie Schneider, Mayor

ATTEST/AUTHENTICATE:

/s/ _____
Christine Brown, CMC, City Clerk

FILED WITH THE CITY CLERK:
PASSED BY THE CITY COUNCIL:
PUBLISHED:
EFFECTIVE DATE:
ORDINANCE NUMBER:
ATTACHED:

2020-28
Exhibit A, Exhibit B

Chapter 16.18 TREE REMOVAL, FOREST STEWARDSHIP, AND VEGETATION MAINTENANCE

Sections:

- 16.18.010 Overview.**
- 16.18.020 Findings.**
- 16.18.025 Purposes.**
- 16.18.030 Applicability.**
- 16.18.040 Activities allowed without a permit.**
- 16.18.050 Activities requiring a permit.**
- 16.18.060 General regulations and standards.**
- 16.18.070 Tree removal/vegetation maintenance permit administration and review process.**
- 16.18.080 After-the-fact tree removal/vegetation maintenance permit.**
- 16.18.090 Forest Stewardship Plan. ~~Mitigation and restoration.~~**
- 16.18.100 Mitigation and restoration. ~~Performance assurance.~~**
- 16.18.110 Performance assurance. ~~Appeals.~~**
- 16.18.120 Appeals. ~~Violations, restoration and enforcement.~~**
- 16.18.130 Violations, restoration and enforcement. ~~Definitions.~~**
- 16.16.140 Definitions**

16.18.010 Overview.

A. The policies presented in this chapter rest on an assumption that in, the care of trees and vegetation on their property, citizens will be guided by common sense and best practices, responsive to the purposes stated in BIMC [16.18.025](#). Sanctions shall be applied to activities that are found by the planning director to be reckless and destructive, and to any action or negligence that adversely affects a neighboring property, pursuant to the provisions of BIMC [16.18.120](#) and other applicable provisions of the code.

B. To a large extent, work carried out in landscaped yards and forested areas does not require a permit (see BIMC [16.18.040](#)). However, property owners who are considering major changes to the landscape and trees on their property should seek advice and professional services from a licensed arborist who is certified by the American Society of Consulting Arborists or the International Society of Arboriculture, ~~or a landscape professional who is certified by the city.~~

C. This chapter is one of several in the municipal code that pertain to the care of trees, vegetation, and forested areas on Bainbridge Island. Its policies and nonregulatory provisions pertain especially to the plans and ongoing activities of island residents, outside of their homes or places of business but on their

own property, when the use and enjoyment of the property involves stewardship and maintenance of trees and vegetation. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.020 Findings.

A. Forested areas and trees on individual lots are integral parts of Bainbridge Island's character; they enhance the city's appearance and livability, as well as providing significant environmental benefits and natural resource values.

B. Conserving and managing the island's forested areas and native vegetation is a central goal of the Bainbridge Island Comprehensive Plan: see Guiding Principles 1 and 5 and related Policies; Goals LU-6, 12 and 13; EN-3, 4, 5, 18 and 19; WR-3 and 4; and Policies LU 4.10 and EN 15.3.

C. Trees are valued by homeowners and, when well cared for, enhance property values.

D. Removal of trees and understory vegetation, combined with extensive disturbance of soils, cause loss of habitat and wildlife, runoff and soil erosion, degradation of surface water and aquifer recharge, and adverse impacts on air quality, as well as loss of aesthetic appeal.

E. The community forest resources of the island are best understood as a mosaic, with some large and many small pieces, on publicly owned and private properties. When clearing for development further fragments the mosaic, both individual and community interests are affected.

F. On Bainbridge Island and elsewhere, examples exist to demonstrate that development for residential and other uses can be compatible with careful conservation of forest conditions and other natural features; and that such development can be cost-effective, attractive, energy-efficient, and well adapted to our climate. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.025 Purposes.

This chapter is adopted for the following purposes:

A. To promote the public health, safety, and general welfare of Bainbridge Island citizens without preventing the reasonable use of private property.

B. To preserve and enhance the city's physical and aesthetic character, to promote the healthy functioning of our island's natural systems, and to provide economic benefits to the community, for the sake of present and future generations.

C. To implement the purposes of the State Growth Management Act relating to conservation of natural resources, pursuant to Chapter [36.70A](#) RCW.

D. To implement goals and policies in the ~~current e~~Comprehensive ~~p~~Plan, the Community Forest Management Plan (~~2006~~), the Bainbridge Island Open Space Study (~~October 2008~~), and the Bainbridge Island Community Wildfire Protection Plan (~~2010~~), or subsequent updated versions.

E. To promote forest stewardship practices and carefully planned development that results in minimal disturbance to the prior conditions of a property and neighboring properties.

F. To implement a long-range policy of maintaining the island's forest canopy cover while taking measures to prevent wildfires and protect structures in accordance with the minimum standards of Firewise USA® or recommendations ~~of from~~ the Bainbridge Island ~~f~~ire ~~d~~epartment.

G. To allow limited tree and vegetation removal to provide for solar access, agriculture and gardens.

H. To promote infiltration of stormwater and aquifer recharge; to minimize erosion and prevent pollution; to prevent landslides; to protect the waters of Puget Sound and the quality and quantity of water in wells.

I. To maintain in a healthy state significant trees, clusters of trees, and forested areas, allowing for thinning, pruning, removal of invasive and undesirable vegetation, selective harvest and replanting, developing and maintaining trails, and removal of dead or dangerous trees. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.030 Applicability.

Provisions of this chapter apply citywide to all properties where trees and ~~naturally occurring~~ vegetation are found, except where the following chapters of the municipal code apply:

A. This chapter does not apply to any portion of a parcel that is identified as a critical area pursuant to Chapter [16.20](#) BIMC, Critical Areas, including designated aquifer recharge protection areas (ARPAs) or prescribed critical area buffers or setbacks. Chapter [16.20](#) BIMC applies to critical areas, designated ARPAs, and buffer zones, and critical area setbacks.

B. This chapter does not apply to the portion(s) of a shoreline property within 200 feet landward of an ordinary high water mark, where the regulations of Chapter [16.12](#) BIMC (the Shoreline Master Program) apply. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.040 Activities allowed without a permit.

The following activities are allowed without a tree removal/vegetation maintenance permit, subject to any other applicable city regulations:

A. Routine landscaping and maintenance of vegetation, such as pruning and planting, removal of invasive/exotic species, management of brush and seedling trees. Pruning should comply with ANSI A300 (Part 1 – 2017), Tree, Shrub and Other Woody Plant Management – Standard Practices, to maintain long term health. This includes maintenance of trees and vegetation required to be retained or planted through a land use permit such as a subdivision, site plan review, or conditional use permit.

B. Outside of the Mixed Use Town Center and High School Road zoning districts, removal of some healthy significant trees (see BIMC [16.18.130](#), Definitions) is allowed without a permit, except for trees required to meet any tree retention provisions of this chapter, BIMC [18.15.010](#) (Landscaping, screening, and tree retention, protection and replacement), Chapter [17.12](#) BIMC (Subdivision Design Standards) or other applicable provisions of the code.

1. On a lot that is larger than one acre, a property owner may remove up to six significant trees in any 36-month period without a permit.
2. On a lot one acre or less in size, a property owner may remove up to three significant trees in any 36-month period without a permit.
3. After the tree removal limits of this section have been reached, see BIMC [16.18.050](#), [16.18.060](#), and [16.18.070](#) related to obtaining a tree removal/vegetation maintenance permit.

C. Removal of trees and ground cover in emergency situations involving immediate danger to life or structure or substantial fire hazards. If this activity would ordinarily require a tree removal/vegetation maintenance permit, it shall be obtained as soon as possible after the emergency situation is stabilized.

D. Removal of dead or fallen trees. The city encourages property owners to leave dead trees in place for ecological benefit such as wildlife snags or nurse logs where possible. If a standing dead tree poses a hazard, creating a shorter wildlife snag is recommended.

E. Routine maintenance activities in rights-of-way and required roadside buffers, including removal of hazard trees and invasive/exotic species, trimming of overgrown hedges, thinning and planting to replace removed vegetation to control vegetation on road and utility rights-of-way (~~see Chapter [12.04](#) BIMC~~) Where all portions of the project comply with applicable Right-of-Way regulations found in Chapter [15.12](#) BIMC.

F. The installation and maintenance of fire hydrants, water meters, and pumping stations, and street furniture by the city or utility companies or their contractors.

G. Pruning and limbing of significant trees that are required to be retained, to remove dead or hazardous branches, and to improve the tree's form and long-term vitality, provided that such work is done by an ISA certified arborist. (Ord. 2018-19 § 1 (Exh. A), 2018)

H. Wildfire mitigation activities, other than tree removals requiring a permit in BIMC 16.18.050 or vegetation clearing under 16.18.050.A, within a 30-foot defensible space around primary structures, that bring a property up to the current minimum standards of Firewise USA®, the Bainbridge Island Community Wildfire Protection Plan, or as recommended by the Bainbridge Island Fire Department.

16.18.050 Activities requiring a permit.

The following activities require an applicant to obtain a tree removal/vegetation maintenance permit prior to commencing:

A. A permit is required for any tree removal or vegetation ~~maintenance~~ clearing in an area required to be retained or planted, pursuant to BIMC [18.15.010](#), through a land use permit such as a subdivision, a site plan review, or a conditional use permit. Tree retention requirements ~~for the R-2.9, R-3.5 and R-4.3 single-family residential zones (subsection E of this section) also apply (see below)~~ in subsection H-J of this section also apply (see below).

B. For developed properties located within the Mixed Use Town Center and High School Road zoning districts, a tree removal/vegetation maintenance permit is required for removing any tree eight inches in diameter or greater, measured four and one-half feet above grade. The applicant must demonstrate that the requested removal meets one of the following criteria:

1. The removal is necessary to allow reasonable use or enable permitted construction, and no alternative is feasible; or
2. The removal is necessary to maintain utilities, provide access, or fulfill the terms of an easement or covenant recorded prior to the adoption of the ordinance codified in this chapter; or
3. The tree is dead, or determined to be ~~hazardous, as certified~~ between moderate to extreme risk by an International Society of Arboriculture (ISA) Tree Risk Assessment Qualified (TRAQ) arborist who:
 - a. Identifies the tree part(s) and defect(s) that increase the likelihood of failure
 - b. Identifies the target(s) and site factors contributing to increased likelihood of impact
 - c. Utilizes a timeframe of five years or less
 - d. Utilizes the Risk Matrixes in tables 16.18.050-1 and 16.18.050-2

16.18.050-1: Likelihood Matrix

<u>Likelihood of Failure</u>	<u>Likelihood of Impact</u>			
	<u>Very Low</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>
<u>Imminent</u>	<u>Unlikely</u>	<u>Somewhat Likely</u>	<u>Likely</u>	<u>Very Likely</u>
<u>Probable</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Somewhat Likely</u>	<u>Likely</u>
<u>Possible</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Somewhat Likely</u>
<u>Improbable</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Unlikely</u>

16.18.050-2: Tree Risk Rating Matrix

<u>Likelihood of Failure and Impact</u>	<u>Consequences of Failure</u>			
	<u>Negligible</u>	<u>Minor</u>	<u>Significant</u>	<u>Severe</u>
<u>Very Likely</u>	<u>Low</u>	<u>Moderate</u>	<u>High</u>	<u>Extreme</u>
<u>Likely</u>	<u>Low</u>	<u>Moderate</u>	<u>High</u>	<u>High</u>
<u>Somewhat Likely</u>	<u>Low</u>	<u>Low</u>	<u>Moderate</u>	<u>Moderate</u>
<u>Unlikely</u>	<u>Low</u>	<u>Low</u>	<u>Low</u>	<u>Low</u>

C. For undeveloped properties within the Mixed Use Town Center and High School Road zoning districts, a tree removal/vegetation maintenance permit is required to remove any tree except trees that are hazardous, dead, fallen, or contributing to an emergency. The tree removal permit will be reviewed for consistency with any applicable provisions of BIMC [18.15.010](#) that would apply to future development permits.

D. For properties located outside of the Mixed Use Town Center and High School Road zoning districts, a tree removal/vegetation maintenance permit is required for removing more than the number of significant trees allowed without a permit, pursuant to BIMC [16.18.040.B](#). A permit is required:

1. On a lot that is larger than one acre, a property owner needs an approved permit to remove seven or more significant trees in any 36-month period, up to any retention requirements of subsection E of this section (if applicable).

2. On a lot one acre or less in size, a property owner needs an approved permit to remove four or more significant trees in any 36-month period, up to any retention requirements of subsection E of this section (if applicable).

E. For properties located within the Mixed Use Town Center or Highschool Road Zones I and II a tree removal/vegetation maintenance permit is required for vegetation and underbrush clearing of over 2500 square feet.

F. For properties located outside the Mixed Use Town Center or Highschool Road Zones I and II a tree removal/vegetation maintenance permit is required for vegetation and underbrush clearing of over 7000 square feet.

G. Removal or shortening of a wildlife snag that was kept or created as part of a mitigation plan resulting from a land use permit requires a tree removal/vegetation maintenance permit.

~~¶ H. In the R-4.3, R-3.5 and R-2.9 zoning districts, existing single-family residential development, developing single-family residences and vacant parcels shall retain at least 30 tree units per acre, or at least as many tree units as the property had on October 31, 2018, pursuant to BIMC [18.15.010.G](#) the date of permit application. Tree removals that bring a parcel below this threshold will require a tree removal/vegetation maintenance permit and replanting may be required as described in BIMC [18.15.010.G](#). Replanting may be required as described in BIMC [18.15.010.G](#). (Ord. 2018-19 § 1 (Exh. A), 2018)~~

I. In the MUTC Central Core and Ferry Terminal Overlay districts, any parcel shall have at least 30 tree units per acre or at least as many tree units the property had on the date of permit application. Tree removals that bring a parcel below this threshold will require a tree removal/vegetation maintenance permit and replanting may be required as described in BIMC [18.15.010.G](#).

J. In the Mixed Use Town Center Ericksen Avenue, Madison Avenue, and gateway overlay districts, and each site in the R-5, R-8, R-14, HSR I and II, and NC districts, and for permitted nonresidential

developments in the R-4.3, R-3.5, and R-2.9 zone districts, the parcel shall have at least 40 tree units per acre or at least as many tree units the property had on the date of permit application. Tree removals that bring a parcel below this threshold will require a tree removal/vegetation maintenance permit and replanting may be required as described in BIMC [18.15.010.G](#).

16.18.060 General regulations and standards.

A. While nonnative and invasive species should be kept under control and eradicated if possible, native understory vegetation shall be maintained and land disturbing activity shall be kept to a minimum. Stump pulling and use of heavy equipment is only allowed if the activity will not affect the health of adjacent trees.

B. An applicant shall protect any trees or landscaped area that must be retained during approved tree removal or vegetation maintenance work, pursuant to the protection provisions of BIMC [18.15.010.C.4](#) and the Community Forest Best Management Practices Manual.

C. Once a portion of a property is cleared, the property owner shall ensure that invasive species do not reestablish or expand into cleared areas.

D. Any tree or vegetation removal or maintenance undertaken without a permit pursuant to this section shall be done to ensure long-term health of the trees or vegetation. A property owner shall follow ~~the~~ ANSI A300 (Part 1 – 2017), Tree, Shrub and Other Woody Plant Management – Standard Practices (Pruning), ~~or 60 percent live-crown ratio, whichever standard is more appropriate for the species.~~

E. A forest practice permit from the State Department of Natural Resources may be required pursuant to Chapter [76.09](#) RCW. Failure to obtain a forest practice permit when applicable shall be grounds for denial of all applications for permits or approvals, including building permits and subdivision approvals, relating to nonforestry uses of the land for a period of six years, in accordance with RCW [76.09.060](#). (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.070 Tree removal/vegetation maintenance permit administration and review process.

A. For activities requiring a permit, the process begins with submission of a complete permit application, usually after discussion of the proposed activity with a member of the planning staff.

B. Tree removal and vegetation maintenance activities shall comply with this chapter's provisions for permits and related regulations. Permits for tree removal/vegetation maintenance may require the

planting of replacement trees and/or other city permits such as a site assessment review (Chapter [15.19](#) BIMC).

C. The planning director shall grant a tree removal/vegetation maintenance permit if the application meets the requirements of this chapter and is consistent with other relevant city codes, including but not limited to Chapters [15.19](#), [15.20](#), [16.12](#), [16.20](#) and [17.12](#) BIMC and BIMC [18.15.010](#). If the tree removal permit application is denied, the decision may be appealed pursuant to BIMC [16.18.110](#).

D. No work authorized by a tree removal/vegetation maintenance permit shall commence until a permit notice has been posted by the applicant at a conspicuous location on the subject property. The notice shall describe specific plans for tree removal and land disturbing activity and shall remain posted in said location until the authorized tree removal has been completed.

E. Any tree removal/vegetation maintenance permit granted under this chapter shall expire one year from the date of issuance. Upon a showing of good cause, the permit may be extended for six months by the planning director. Approved tree removal permits shall not be amended without authorization of the planning director.

F. A tree removal/vegetation maintenance permit may be suspended or revoked by the planning director because of incorrect information supplied or any violation of the provisions of this chapter. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.080 After-the-fact tree removal/vegetation maintenance permit.

A. In response to a report that one or more trees have been removed improperly or vegetation maintenance activity did not comply with requirements of this code, the city's code enforcement officer shall investigate. If in fact the reported activity was legitimate without a permit, no action will be taken. If the reported activity would have been allowed if a permit had been applied for, an after-the-fact tree removal/vegetation maintenance permit shall be issued. The person or persons responsible for unauthorized tree removal shall be made aware of all the conditions for approval and any applicable regulations and remedies. The fee for an after-the-fact permit shall be established by a resolution of the city council.

B. If the reported activity would not have been permitted, entirely or in some particulars, the code enforcement officer, in consultation with the planning director or the city attorney, shall follow the procedures for enforcement and penalty in BIMC [16.18.120](#). (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.090 Forest Stewardship Plan

A. Tree Removal and Vegetation Management activities that require a permit and are planned over multiple years may be permitted for up to a 5 year period after the submittal and City review of a Forest Stewardship Plan. At a minimum the plan shall include:

1. A project narrative that addresses:
 - a. Goals of the project
 - b. Compliance with all applicable tree and vegetation retention regulations including those that resulted from a land use permit such as a subdivision, site plan review, or conditional use permit.
 - c. Canopy cover impacts.
 - d. Wildlife habitat impacts.
 - e. Wildfire impacts
2. A site plan identifying existing vegetation and proposed activities
3. A vegetation activity timeline
4. A mitigation plan developed according to section [16.18.100 BIMC](#)
5. The administrator may include additional conditions for a site-specific analysis by a qualified professional at the applicants expense.

B. This permit type will be reviewed under procedures in [16.18.070 BIMC](#).

C. This permit type is not applicable within the shoreline jurisdiction, or any portion of a parcel that is identified as a critical area or a critical area buffer or designated Aquifer Recharge Protection Areas (ARPAs).

16.18.090 100 Mitigation and restoration.

A. For alterations to or removal of significant trees or vegetation that require a permit under this chapter, the following minimum performance standards for mitigation shall be met when replanting or other mitigation is required; provided, that if the applicant can demonstrate that greater functions or values can be obtained through the application of different standards, these standards may be modified:

1. ~~Historic structural and functional values~~ Vegetation types, size, distribution and habitat functions shall be restored, including ~~water quality and habitat functions~~ including stormwater infiltration;
2. ~~Historic soil types and configuration~~ organic matter and infiltration rate shall be replicated;
3. ~~The disturbed area shall be replanted with vegetation that replicates the vegetation historically found on the site in species types, sizes, and densities.~~ The historic environmental functions and values should be replicated at the location of the alteration;
4. Any applicable tree retention or replanting requirements shall be met through restoration, ~~if required~~ of disturbed areas when possible.

B. Information demonstrating compliance with the requirements of this section shall be submitted to the director. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.400110 Performance assurance.

A. The planning director may require, as a condition for the granting of a permit, that the applicant furnish a performance assurance in a form approved by the planning director, in order to obligate the applicant, after the approved tree removal has been accomplished, to complete all required replanting, erosion control, and cleanup on the property. The surety device shall be in an amount equal to the estimated cost of such services, with surety and conditions satisfactory to the planning director.

B. In order to stay enforcement, the director may choose to enter into a voluntary correction agreement (VCA). This is a civil contract entered between the city and the applicant. The VCA will outline several performance items that will be required within an agreed-upon time frame. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.410120 Appeals.

Appeals of the planning director's decision on a tree removal/vegetation maintenance permit application shall be in accordance with the administrative decision procedures established in Chapter [2.16](#) BIMC. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.420130 Violations, restoration and enforcement.

A. It is a violation of this chapter for any person to fail to comply with a requirement of this chapter. It is also a violation of this chapter for any person to:

1. Initiate or maintain, or cause to be initiated or maintained, the removal of significant tree(s) or native vegetation within the city without first obtaining permits or authorizations required by this chapter, or in a manner that violates the terms or conditions of such permits or authorizations or this chapter;
2. Misrepresent any material fact in any application, plans or other information submitted to obtain permits or authorizations under this chapter; or
3. Remove or deface any sign, notice, complaint, or order required by or posted in accordance with this chapter.

B. When a significant tree or vegetation has been removed or altered in violation of this chapter, all ongoing development work shall stop, and the significant tree or vegetation shall be restored or replaced. The city shall have the authority to issue a stop work order to cease all ongoing development work, and order restoration, rehabilitation, or replacement measures at the owner's or other responsible party's expense to compensate for violation of provisions of this chapter.

C. Restoration Plan Required. All development work shall remain stopped until a restoration plan is prepared and approved by the director. Such a plan shall be prepared by a qualified professional using the best available science and shall describe how the actions proposed meet the minimum requirements described in BIMC [16.18.090](#). The director shall, at the violator's expense, seek expert advice in determining the adequacy of the plan. Inadequate plans shall be returned to the applicant or violator for revision and resubmittal.

D. Site Investigations. The director is authorized to make site inspections and take such actions as are necessary to enforce this chapter. The director shall present proper credentials and make a reasonable effort to contact any property owner before entering onto private property.

E. Penalties. Any development or activity carried out contrary to the provisions of this chapter shall constitute a public nuisance and may be enjoined as provided by the statutes of the state of Washington. Enforcement of this chapter and the imposition of penalties for violations of this chapter shall be as provided for in Chapter [1.26](#) BIMC; provided, that in addition to the civil penalties provided for in BIMC [1.26.090](#), an additional penalty shall be imposed on any person, party, firm, corporation, property owner, or other legal entity who fails to complete a required restoration plan, who conducts any

disturbance (including cutting or removing trees or vegetation) in violation of this chapter, or who is otherwise in violation of this chapter.

For such violations, the additional penalty shall be in the amount equal to 200 percent of the cost of restoration as approved under a restoration plan pursuant to subsections B and C of this section for a minor violation. For a major violation, the additional penalty shall be in the amount equal to 200 percent of the cost of restoration as approved under a restoration plan pursuant to subsections B and C of this section, or \$2,500, whichever is greater. The director shall determine whether the disturbance is a minor or major violation. Any person, party, firm, corporation, or other legal entity who knowingly and willfully refuses to complete a required restoration pursuant to subsections C and D of this section shall be guilty of a misdemeanor punishable by not more than 30 days in jail and/or not more than a \$1,000 fine. (Ord. 2018-19 § 1 (Exh. A), 2018)

16.18.130140 Definitions.

“Applicant” means a person, corporation, or organization that files an application for a land use or development permit with the city: either the owner of the land in question, or the authorized agent of such a person.

“Aquifer recharge protection area (ARPA)” means a portion of a development site comprised of native or equivalent vegetation in which existing vegetation, topography and supporting soils are free of development, uses or activities detrimental to the aquifer recharge of the total site area.

“Arborist” means an individual engaged in the profession of arboriculture who, through experience, education, and related training, possesses the competence to provide for or supervise the management of trees and other woody plants. Must be concurrently an International Society of Arboriculture (ISA) Certified Arborist to perform any role required of a Certified Arborist.

“Arborist, ISA Certified” means an arborist holding a current International Society of Arboriculture (ISA) Certified Arborist credential.

“Arborist, Tree Risk Assessment Qualified (TRAQ)” means an arborist who has successfully completed the International Society of Arboriculture (ISA) TRAQ training course and assessment and holds a valid ISA TRAQ credential.

“Clearing” means the destruction and removal of vegetation by manual, mechanical, or chemical methods.

“Dead Tree” means a tree that has no live tissue or is determined to have less than 10% live tissue by a Tree Risk Assessment Qualified ISA Arborist.

“Hazard Tree” means a tree that has been found to be high or extreme risk, by an International Society of Arboriculture (ISA) Tree Risk Assessment Qualified (TRAQ) arborist who identifies criteria located in 16.18.050

“Invasive/exotic species” means opportunistic plant species (~~either native or non-native~~) that colonize disturbed ecosystems and may come to dominate the plant community in ways that are seen by us as reducing the values provided by the previous plant community.

“Land disturbing activity” means any activity that results in a change in the existing soil cover (both vegetative and nonvegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to, clearing, grading, filling and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Vegetation maintenance practices are not considered land disturbing activity. Stormwater facility maintenance is not considered land disturbing activity if conducted according to established standards and procedures.

“Low impact development (LID)” means a stormwater and land use management strategy that strives to mimic predisturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

“Low impact development best management practices (LID BMPs)” means distributed stormwater management practices, integrated into a project design, that emphasize predisturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to: bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, improvements to soil quality and depth, minimal excavation foundations, vegetated roofs, and water reuse.

“Significant tree” means a: (1) a live evergreen tree 10 inches in diameter or greater, measured four and one-half feet above existing grade; or (2) a live deciduous tree 12 inches in diameter or greater, measured four and one-half feet above existing grade; or (3) in the Mixed Use Town Center and High School Road zoning districts, any live tree eight inches in diameter or greater, measured four and one-half feet above existing grade; or (4) any live trees located within a required critical area or critical area buffer as defined in Chapter [16.20](#) BIMC.

“Vegetation” means plant matter, including trees, shrubs and ground cover. (Ord. 2018-19 § 1 (Exh. A), 2018)

“Wildlife Snag” means a standing tree that is purposefully managed for wildlife habitat or a tree that has been partially removed and whose trunk has been left standing at six feet tall or taller to provide quality habitat for wildlife species.

Chapter 16.32 PROTECTION OF LANDMARK TREES¹

Sections:

- 16.32.005 Applicability.**
- 16.32.010 Definitions.**
- 16.32.015 Exemptions.**
- 16.32.020 Landmark tree criteria.**
- 16.32.030 Landmark tree retention.**
- 16.32.040 Emergencies.**
- 16.32.050 Appeals.**
- 16.32.060 Violations and penalties.**

16.32.005 Applicability.

This chapter applies only to those properties located within the Winslow Master Plan Study Area as shown in Figure 2.3 of the Winslow Master Plan, updated November 8, 2006. (Ord. 2019-17 § 7, 2019)

16.32.010 Definitions.

A. "City attorney" means the city attorney of the city of Bainbridge Island, or their designee.

B. "Dead Tree" means a tree that has no live tissue or is determined to have less than 10% live tissue by a Tree Risk Assessment Qualified ISA Arborist.

BC. "Diameter breast height" means the diameter of a tree measured at four and one-half feet above the ground on the uphill side of the tree.

CD. "Landmark trees" means trees, located on Bainbridge Island, that are unique because of their age, size, species, historical significance, or aesthetic quality and meet the criteria established by this chapter.

DE. "Planning director" means the director of the planning and community development department of the city of Bainbridge Island, or their designee.

F. "Removal" This means cutting of a tree with the intent to kill it, this includes wildlife snag creation wherein all live material is removed from the tree.

EG. "Replacement tree" means a tree that is of a species native and indigenous to the site where a landmark tree was removed and is a minimum size of six feet in height measured from top of the root flare, with a minimum trunk diameter of one inch measured at four inches above the top of the root flare for both evergreen and deciduous trees.

FH. "Size" means the diameter breast height of a tree. (Ord. 2018-42 § 1, 2018: Ord. 2018-25 § 2, 2018)

16.32.015 Exemptions.

In the following circumstances, a removal of landmark tree permit shall not be required pursuant to this section:

A. The tree(s) at issue is/are dead;

B. For routine maintenance activities required to control vegetation on road, access, or utility rights-of-way or easements, including tree removal, pruning, and thinning; or

C. For Class II and Class III forest practices regulated by the Washington State Department of Natural Resources under Chapter [76.09](#) RCW. (Ord. 2018-45 § 2, 2018)

16.32.020 Landmark tree criteria.

Landmark trees are trees that meet the following criteria for their species or are known to be 100 years old or older:

Species	Size (Greater than or equal to)
Birch (Betula papyrifera spp.)	30"
Beech (Fagus grandifolia spp.)	36"
Catalpa (Catalpa speciosa)	36"
American Elm (Ulmus americana)	30"
Douglas Fir (Pseudotsuga menziesii)	40"
Grand Fir (Abies grandis)	40"
Horsechestnut (Aesculus hippocastanum)	40"
Western Hemlock (Tsuga heterophylla)	30"
Black Locust (Robinia pseudoacacia)	30"
Lombardy Poplar (Populus nigra)	38"
Pacific Madrone (Arbutus menziesii)	24"

Species	Size (Greater than or equal to)
Bigleaf Maple (Acer macrophyllum)	36"
Silver Maple (Acer saccharinum)	36"
Monkey Puzzle Tree (Araucaria araucana)	36"
Monterey Pine (Pinus radiata)	30"
Oregon White Oak (Quercus garryana)	30"
Pacific Yew (Taxus brevifolia)	20"
Pin Oak (Quercus palustris)	30"
Red Oak (Quercus rubra)	38"
Ponderosa Pine (Pinus ponderosa)	30"
Western White Pine (Pinus monticola)	30"
Sitka Spruce (Picea sitchensis)	36"
Sycamore (Platanus occidentalis)	36"
English Walnut (Juglans regia)	30"
Western Red Cedar (Thuja plicata)	30"
Coast Redwood (Sequoia sempervirens)	30"
Japanese Laceleaf-Maple	12"
<u>Pacific Dogwood (Cornus nautalii)</u>	<u>20"</u>

Species	Size (Greater than or equal to)
<u>Atlas Cedar (Cedrus atlantica)</u>	<u>36"</u>
<u>Deodar Cedar (Cedrus deodara)</u>	<u>36"</u>
<u>Black Walnut (Juglans nigra)</u>	<u>24"</u>
<u>Red Maple (Acer rubrum)</u>	<u>36"</u>
<u>Giant Sequoia (Sequoiadendron giganteum)</u>	<u>40"</u>
<u>Weeping Willow (Salix babylonica)</u>	<u>30"</u>
<u>Shore Pine (Pinus contorta)</u>	<u>24"</u>
<u>Port Orford Cedar (Chamaecyparis lawsoniana)</u>	<u>30"</u>
<u>Cherry (Prunus spp.)</u>	<u>24"</u>

(Ord. 2018-42 § 1, 2018: Ord. 2018-25 § 2, 2018)

16.32.030 Landmark tree retention.

A. Except as otherwise allowed under this chapter, no person, corporation, or other legal entity shall remove a landmark tree without having obtained approval from the planning director.

B. Prior to the removal of a landmark tree, any person, corporation, or other legal entity seeking to remove a landmark tree must submit an application for removal of a landmark tree, along with a fee to be established by resolution of the city council, to the department of planning and community development.

C. Upon receipt of an application for removal of a landmark tree, the planning director will review the application materials and consider the request based upon the criteria outlined in this chapter and any other city regulations that apply to the tree requested for removal, such as, but not limited to, Chapter [16.12](#) BIMC, Shoreline Master Program, Chapter [16.20](#) BIMC, Critical Areas, and BIMC [18.15.010](#), Landscaping, screening, and tree retention, protection and replacement.

D. The planning director shall approve the removal, deny the removal, or request additional information. The planning director shall only approve the removal of a landmark tree if all other applicable city regulations are met and upon a finding that at least one of the following criteria is met:

1. The removal is necessary to enable construction on or reasonable use of the property, and no other alternative is feasible; or
2. The removal is necessary to fulfill the terms of an easement or covenant recorded prior to the adoption of the ordinance codified in this chapter; or
3. The tree is ~~diseased, or otherwise determined to be a hazardous tree as determined by a qualified professional pursuant to BIMC 18.15.010.C.1.e.~~ determined to be a high or extreme risk tree by an ISA certified TRAQ Arborist who:
 - a. Identifies the tree part(s) and defect(s) that increase the likelihood of failure
 - b. Identifies the target(s) and site factors contributing to increased likelihood of impact
 - c. Utilizes a timeframe of five years or less
 - d. Utilizes the Risk Matrixes in tables 16.32.030-1 and 16.32.030-2

16.32.030-1: Likelihood Matrix

<u>Likelihood of Failure</u>	<u>Likelihood of Impact</u>			
	<u>Very Low</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>
<u>Imminent</u>	<u>Unlikely</u>	<u>Somewhat Likely</u>	<u>Likely</u>	<u>Very Likely</u>
<u>Probable</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Somewhat Likely</u>	<u>Likely</u>
<u>Possible</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Somewhat Likely</u>
<u>Improbable</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Unlikely</u>	<u>Unlikely</u>

16.32.030-2: Tree Risk Rating Matrix

<u>Likelihood of Failure and Impact</u>	<u>Consequences of Failure</u>			
	<u>Negligible</u>	<u>Minor</u>	<u>Significant</u>	<u>Severe</u>
<u>Very Likely</u>	<u>Low</u>	<u>Moderate</u>	<u>High</u>	<u>Extreme</u>
<u>Likely</u>	<u>Low</u>	<u>Moderate</u>	<u>High</u>	<u>High</u>
<u>Somewhat Likely</u>	<u>Low</u>	<u>Low</u>	<u>Moderate</u>	<u>Moderate</u>

<u>Unlikely</u>	<u>Low</u>	<u>Low</u>	<u>Low</u>	<u>Low</u>
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In deciding whether the removal of a landmark tree is necessary under subsection D.1 or 2 of this section, the planning director shall consider all land use regulations applied to the subject property, such as: Chapter [15.19](#) BIMC, Site Assessment Review, Chapter [16.12](#) BIMC, Shoreline Master Program, Chapter [16.20](#) BIMC, Critical Areas, or any other tree retention regulations applied through a land use permit.

E. If the planning director grants an application for removal of a landmark tree upon a finding that the removal is necessary to enable construction on or reasonable use of the property, and no other alternative is feasible, then the property owner that submitted the application shall be required to provide mitigation through the planting of replacement trees on the property from which the landmark tree was removed in accordance with the following:

1. The quantity of replacement trees is calculated by multiplying the diameter breast height of the subject landmark tree by 50 percent to establish the number of replacement inches; and
2. The total number of replacement trees is determined by the total caliper inches of Replacement Trees equaling or exceeding the required tree replacement inches established in subsection E.1 of this section.

F. In lieu of planting the replacement trees prescribed in subsection E of this section, an applicant may satisfy the tree replacement requirements by:

1. Planting at least three replacement trees on the property from which the landmark tree was removed; and
2. Contributing to the Bainbridge Island tree fund at a rate of \$500.00 per each replacement inch not accounted for in the planting of replacement trees; and
3. The sum of the tree replacement inches accounted for by contributing to the Bainbridge Island tree fund and the total caliper inches of the replacement trees planted shall not be less than the total replacement inches calculated in subsection E of this section. (Ord. 2018-45 §§ 3, 4, 2018; Ord. 2018-42 § 1, 2018; Ord. 2018-32 § 2, 2018; Ord. 2018-25 § 2, 2018)

16.32.040 Emergencies.

A. In emergency situations involving immediate danger to life or real property, removal of a landmark tree is permitted without first obtaining approval from the planning director; provided, that the following conditions are satisfied:

1. The person, corporation, or other legal entity that removed the landmark tree submits an application for removal of a landmark tree under this chapter within 14 days after the emergency situation is stabilized; and
2. The person, corporation, or other legal entity that removed the landmark tree provides, within 14 days after the emergency situation is stabilized, the city with documentation establishing the existence of the emergency situation, with such documentation including at least four high resolution photographs evidencing the existence of the emergency situation; and

3. The planning director subsequently approves the removal pursuant to this chapter.

B. If the conditions of subsection A of this section are not satisfied, the person, corporation, or other legal entity that removed the landmark tree without first obtaining approval from the planning director will be in violation of this chapter. (Ord. 2018-42 § 1, 2018: Ord. 2018-32 § 3, 2018: Ord. 2018-25 § 2, 2018)

16.32.050 Appeals.

A. The planning director's decision on an application for removal of a landmark tree may be appealed to the hearing examiner as described in BIMC [2.16.020](#).R.1.

B. All appeals must be filed within 14 days following the issuance of the planning director's decision on the application. (Ord. 2018-42 § 1, 2018: Ord. 2018-32 § 4, 2018: Ord. 2018-25 § 2, 2018)

16.32.060 Violations and penalties.

A. This chapter shall be enforced, and penalties for violations of this chapter will be imposed, pursuant to Chapter [1.26](#) BIMC, except that no notice of infraction may be issued under Chapter [1.26](#) BIMC for a violation of this chapter. In addition to notices of violation issued under BIMC [1.26.050](#) or [1.26.060](#), BIMC [1.26.070](#) will also govern the review and appeal of any notice of violation issued under Chapter [1.26](#) BIMC for a violation of this chapter.

B. In addition to the civil penalties imposed under BIMC [1.26.090](#), an additional civil penalty will be imposed on any person, corporation, or other legal entity that removes a landmark tree without prior approval of the planning director. This additional civil penalty will be in the amount of \$25,000 for each landmark tree removed. The city attorney will take appropriate action to collect this additional civil penalty.

C. In the event of a conflict between the requirements of this chapter and any other requirement of the Bainbridge Island Municipal Code, this chapter will govern and control. (Ord. 2018-42 § 1, 2018: Ord. 2018-32 § 5, 2018: Ord. 2018-25 § 2, 2018)

Code reviser's note: Ord. 2019-17, Section 6 states "This ordinance amending the interim official control shall extend the duration of the interim official control for an additional six-month period, until December 26, 2019, unless terminated earlier by the City Council. This ordinance does not change the effective date of the interim official control, which is June 26, 2018. The Council may, at its sole discretion, renew the interim official control for one or more six-month periods in accordance with state law. This ordinance or a summary thereof consisting of the title shall be published in the official newspaper of the City." Ord. 2019-39 (passed December 10, 2019) Section 6 extends the duration of the interim official control until June 26, 2020.

18.15.010 Landscaping, screening, and tree retention, protection and replacement.

All development shall comply with the following regulations addressing landscaping and screening unless other applicable regulations require additional or different forms of landscaping or screening, in which case the more specific standard or criteria shall govern.

A. Purpose.

1. General. The purpose of this section is to preserve the landscape character of the community, link the Island's natural amenities with landscape greenbelts along roads, improve the aesthetic quality of the built environment, promote retention and protection of existing vegetation, reduce the impacts of development on wetlands, streams and the natural environment, enhance the value of current and future development and increase privacy for residential zones, and encourage preservation of significant and heritage trees by:

- a. Retaining existing vegetation, tree stands and significant trees by incorporating them into the site design.
- b. Incorporating native vegetation and drought resistant plant material into new landscape developments.
- c. Providing vegetated screening between different intensities of residential uses, and between development and roads.
- d. Providing visual relief of parking areas in the neighborhood centers, the Winslow Mixed Use Town Center, and the light manufacturing, (water-dependent) industrial, High School Road and urban multifamily districts.
- e. Providing vegetated screening between residential and nonresidential areas.
- f. Preserving, protecting, and enhancing critical areas.
- g. Protecting the natural forested areas.

2. Specific Zone Districts. In addition to the regulations listed in subsection A.1 of this section:

- a. For single-family residential development and redevelopment in the R-2.9, R-3.5, and R-4.3 residential districts the intent is to preserve and enhance the city's physical and aesthetic character by retaining and maintaining trees within the residential landscape.

- b. For single-family residential short plats and subdivisions in residential districts, the intent is to preserve the greenbelts along designated scenic roadway corridors.
- c. In the R-8 and R-14 multifamily residential districts, the intent is to screen urban multifamily projects from adjacent lower density residential properties and to soften the appearance of surface parking areas.
- d. For nonresidential uses outside the Winslow Mixed Use Town Center, High School Road I and II, NC, B/I, and WD-I districts, the intent is to retain the natural landscape qualities of the island by retaining existing vegetated buffers to screen views of structures and parking areas and to buffer between areas of high and low intensity uses.
- e. In the Winslow Mixed Use Town Center central core and ferry terminal overlay districts, the intent is to provide an urban character by incorporating landscape standards; and to provide landscape development to screen uses from single-family residential properties; and to soften the appearance of surface parking areas.
- f. In the Winslow Mixed Use Town Center, Ericksen Avenue and Madison overlay districts, the intent is to retain the character of landscape front yards; and to provide landscape development to screen uses from single-family residential properties; and to soften the appearance of surface parking areas.
- g. In the Winslow Mixed Use Town Center gateway overlay district, the intent is to retain the greenbelt located adjacent to SR 305 consistent with the greenways plan and to provide landscape development to screen uses from single-family residential properties.
- h. In the High School Road I and II districts, the intent is to provide landscape development to screen uses from adjacent single-family residential properties and to soften the appearance of surface parking areas.
- i. In the NC district, the intent is to incorporate landscape standards that support pedestrian scale neighborhood uses compatible with the intensity of the surrounding residential neighborhood; to minimize the impact of lighting, noise and views of surface parking areas; and to provide a buffer between higher and lower intensity uses.
- j. In the B/I district, the intent is to provide a year-round vegetated screen and a noise and site lighting buffer of industrial development from adjacent nonindustrial properties and roadways.

k. In the WD-I district, the intent is to provide landscape development that screens parking lots and large structures, but allows visual access to the shoreline and small scale active industrial facilities.

B. Applicability.

1. All new development, except single-family residential building permits in the R-0.4, R-1, and R-2 zones, shall be subject to the requirements of this section, except as modified by subsections B.2 and B.3 of this section.

2. Projects subject to the conditional use permit process may be required to exceed the requirements of this chapter.

3. Specific submittal requirements for landscaping plans (tree protection, retention and planting plans) are included in the city's administrative manual.

4. Specific landscape requirements applicable to development in each zone district are indicated with an "X" and summarized in the following Table 18.15.010-1.

Table 18.15.010-1: Landscape Requirements by Zone District

Landscape Requirements for Land Uses and Districts		General Regulations	Perimeter Landscape	Roadside Buffer	Parking Lot Landscaping	Total Site Tree Unit Requirements BIMC 18.15.010.G	Planting Requirements	Irrigation	Maintenance
Single-Family Residential Properties in R-2.9, R-3.5, and R-4.3 Zones		X				X	X	X	X
R-8 and R-14 Multifamily Districts		X	X	X	X	X	X	X	X
Nonresidential Uses in Residential Districts		X	X	X	X	X	X	X	X
Winslow Mixed Use Town Center [1]	Central Core Overlay	X	X	X [2]	X	X	X	X	X
	Ericksen Ave. Overlay	X	X	X [2]	X	X	X	X	X
	Madison Ave. Overlay	X	X	X [2]	X	X	X	X	X

Table 18.15.010-1: Landscape Requirements by Zone District

Landscape Requirements for Land Uses and Districts		General Regulations	Perimeter Landscape	Roadside Buffer	Parking Lot Landscaping	Total Site Tree Unit Requirements BIMC 18.15.010.G	Planting Requirements	Irrigation	Maintenance
	Gateway Overlay	X	X	X [2]	X	X	X	X	X
	Ferry Terminal Overlay	X	X	X [2]	X	X	X	X	X
High School Road District		X	X	X [2]	X	X	X	X	X
NC District		X	X		X	X	X	X	X
B/I District		X	X	X	X		X	X	X
WD-I District		X	X	X	X		X	X	X

[1] Refer to Chapter [18.18](#) BIMC for additional landscape requirements specific to the Mixed Use Town Center districts.

[2] Roadside buffer requirement is adjacent to Highway 305 only.

C. General Regulations. Where Table 18.15.010-1 indicates that development must comply with the requirements of this subsection C, all development shall comply with the following requirements. These requirements are intended to supplement any regulations in Chapters [16.12](#) (Shoreline Master Program) and [16.20](#) (Critical Areas) BIMC, which remain the primary source of regulation for environmentally sensitive areas in Bainbridge Island. In the event of any inconsistency between the requirements of this

subsection C and the requirements of Chapters [16.12](#) and [16.20](#) BIMC, the requirements of Chapters [16.12](#) and [16.20](#) BIMC shall apply.

1. Retention.

a. Intent. The intent of these regulations is to preserve the forested character of the Island by preserving existing vegetation, trees and tree stands, and incentivizing tree protection and replacement in certain districts through a tree unit system, thereby mitigating the development impacts of increased stormwater runoff, impervious surface, and loss of carbon dioxide absorption capacity. This shall be accomplished in a manner consistent with the comprehensive plan and the requirements of Washington law and to discourage the removal of significant tree(s) and tree stands.

b. Perimeter Tree Retention Requirements. Trees and tree stands located in the perimeter areas required to be landscaped pursuant to subsections D and E of this section shall be retained and protected as described in subsection C.4 of this section, unless an applicant can demonstrate during the land use permit review process that the existing trees and vegetation will be compromised after the development is complete, and would likely become hazardous as described in subsection C.1.c of this section. If the applicant can demonstrate that hazard, then new trees and vegetation may be planted pursuant to the planting standards of subsection D.4 of this section. Perimeter landscape widths may be averaged to save significant trees, but shall not be reduced to less than the allowed minimum perimeter dimension.

c. Exceptions. Significant trees and tree stands may be removed if it is determined by a consulting arborist who is certified by the American Society of Consulting Arborists with TRAQ, or a ~~TRACE~~ TRAQ ISA Arborist ~~certified professional as established by the PNW Chapter of the International Society of Arboriculture~~, and whose services are paid for by the applicant, that the vegetation is:

i. ~~A safety hazard due to potential root, trunk, or primary limb failure, or due to exposure of mature trees that have grown in a closed, forested situation~~ Between moderate to extreme risk as determined using the tables 1 and 2 in 16.18.050.; or

ii. ~~Damaged, d~~Diseased, or standing dead trees that cannot be safely retained as wildlife snags.

d. Protection of Tree Stands. Notwithstanding a determination under subsection C.1.c of this section, if trees have been removed from a closed, forested location, a buffer of smaller trees shall be retained or planted on the fringe of the closed, forested area. The buffer of smaller trees shall be adequate to protect the health of the remaining mature trees in the closed, forested area, as determined by a consulting arborist who is certified by the American Society of Consulting Arborists, and whose services are paid for by the applicant.

2. Replacement.

a. Intent. The intent of these regulations is to ~~discourage~~ prevent the unauthorized removal of significant tree(s) and tree stands; and to establish a replacement or fine if such activity occurs. All replanting plans must be prepared or approved by a landscape architect licensed by the state of Washington, a Washington certified nursery professional or a Washington certified landscaper, a consulting arborist who is certified by the American Society of Consulting Arborists, or ~~a TRACE certified professional as established by the PNW Chapter of the International Society of Arboriculture~~ an ISA certified Arborist.

b. Requirements for Mitigation of Unauthorized Removal. If trees required to be retained pursuant to subsection C.1 of this section are not retained or if protection measures described in subsection C.4 of this section are not fully implemented, they shall be replaced by at least one-and-one-half times (150 percent) of the number of tree units removed. The trees removed shall be replaced with trees of the same type, evergreen or deciduous. Native shrubs and ground cover shall also be replaced when replacing tree stands due to unauthorized removal. Shrubs shall be one-gallon size planted four feet on center spacing; ground cover shall be one-gallon size planted three feet on center spacing. The shrubs and ground cover shall be planted within the limits of the previous tree stand canopy.

c. Requirements for Permitted Removal. A property owner may request removal of trees required to be retained pursuant to this chapter by applying for a clearing permit (Chapter [16.18](#) BIMC). Trees will be approved for removal only if they meet the hazard tree requirements of subsection C.1.c of this section. The clearing permit application shall include a replanting plan. In designing the replanting plan, the landscape or tree professional must consider what landscape function the tree(s) to be removed are serving on the property (e.g., parking lot, street tree, perimeter screening), and what species and location(s) for replanting strives to replace that function. New planting areas may need to be created to achieve this goal.

3. Enforcement and Penalties. Failure to retain, replace or transplant trees will be enforced as follows; provided, that any fine shall be no less than three times the value of the trees, as determined by the current standards of the International Society of Arboriculture found in section 18.15.010.G.3.a.iii of the BIMC. If unauthorized tree(s) or vegetation removal occurs within the public right-of-way, all permits in force on the subject property shall be suspended and no new permits issued until the tree(s) or vegetation has been replaced or all penalties have been satisfied. The director is authorized to make site inspections and take such actions as are necessary to enforce this title in accordance with Chapters [1.16](#), [1.24](#), and [1.26](#) BIMC. The director may require an evaluation by a tree professional, a qualified engineer, landscape architect, soils engineer, testing lab, or other specialist at any time during the tree plan review process or tree removal inspection as necessary to ensure compliance with the provisions of this chapter and/or the terms of the clearing permit. Applicant shall be responsible for any associated costs.

a. Notice of Infraction. It is unlawful for any person to:

i. Initiate or maintain, or cause to be initiated or maintained, the use, construction, placement, removal, alteration, or demolition of any structure, land, vegetation or property within the city contrary to the provisions of this chapter.

ii. Misrepresent any material fact in any application, plans or other information submitted to obtain permits or authorizations under this title or not following the conditions of an approval.

iii. Remove or deface any sign, notice, complaint, or order required by or posted in accordance with this chapter.

iv. Fail to submit or implement a planting plan as required by this section.

b. Stop Work Orders. The city shall have the authority to issue a stop work order to cease all development work, and order restoration, rehabilitation, or replacement measures, including applicable sureties, at the owner's or other responsible party's expense to compensate for the use, construction, placement, removal, alteration, or demolition of any structure, land, vegetation or property within the city contrary to the provisions of this chapter.

c. Additional Remedies. In addition to any other remedy provided by this chapter or under the BIMC, the city may initiate injunction or abatement proceedings or any other appropriate action in courts against any person who violates or fails to comply with any provision of this chapter to prevent, enjoin, abate, and/or terminate violations of this title and/or to restore a

condition which existed prior to the violation. In any such proceeding, the person violating and/or failing to comply with any provisions of this chapter shall be liable for the costs and reasonable attorneys' fees incurred by the city in bringing, maintaining and/or prosecuting such action.

d. Notice of Infraction. Except as provided in subsection C.3.f of this section, conduct made unlawful by the city under this chapter shall constitute a civil infraction and is subject to enforcement and fines as provided in BIMC [1.26.035](#), and additionally, is subject to fines as provided in Table 18.15.010-2. A civil infraction under this section shall be processed in the manner set forth in Chapter [1.26](#) BIMC.

e. Civil Penalty.

i. In addition to any civil infraction fine, criminal penalty, and/or other available sanction or remedial procedure, any person engaging in conduct made unlawful by this chapter shall be subject to a cumulative civil penalty in the amount of \$1,000 per day for each violation from the date set for compliance until the date of compliance. Any such civil penalty shall be collected in accordance with BIMC [1.26.090](#).

ii. A person who fails to comply with the requirements of this chapter or the terms of a permit issued hereunder, who undertakes an activity regulated by this chapter without obtaining a permit, or fails to comply with a cease and desist or stop work order issued under this chapter shall be subject to a civil penalty as set forth in Table 18.15.010-2. Each unlawfully removed or damaged tree shall constitute a separate violation.

iii. Any person who aids or abets in the violation shall be considered to have committed a violation for purposes of the civil penalty.

iv. In addition to the penalties addressed under subsection C.3.e.ii of this section, failure to retain, replace or transplant trees will be enforced as provided in this code; provided, that any financial penalty assessed will be the greater of the amount indicated in Table 18.15.010-2 or three times the value of the trees, as determined by the current standards ~~of the International Society of Arboriculture~~ found in section 18.15.010.G.3.a.iii of the BIMC, whichever is greater. The director may elect not to seek penalties if he or she determines that the circumstances do not warrant imposition of civil penalties in addition to restoration.

Exception to director’s discretion statement above: Any tree identified on a development project’s required landscaping plan as retained and given a monetary value per subsection G.3.a.iii of this section that is removed, or dies during the surety period due to improper protection during construction, shall be subject to an automatic fine of three times the tree’s stated value. All of the project’s active permits shall also be suspended until the fine is paid and all restoration work completed.

Table 18.15.010-2: Penalties

Types of Violations	Allowable Fines per Violation
1. Removal of tree(s) approved to be removed, but prior to final tree retention and planting plan approval or issuance of a city tree removal permit	\$100.00 per tree
2. Removal or damage of tree(s) that are or would be shown to be retained on an approved tree retention and planting plan or any other violation of approved tree protection plan	\$1,000 per tree
3. Removal of tree(s) without applying for or obtaining a required city land use permit	\$1,000 per tree
4. Removal of tree(s) without applying for or obtaining a required city clearing permit	\$1,000 per tree
The financial penalty will be the amount indicated in this table or three times the value of the trees, as determined by the current standards of the International Society of Arboriculture <u>found in section 18.15.010.G.3.a.iii of the BIMC</u> , whichever is greater, pursuant to subsection C.3.e.iv of this section.	

f. Repeat Offenders. Any person who again violates this chapter within 12 months after having been found by the Bainbridge Island municipal court to be in violation of this chapter commits a misdemeanor and any person who is convicted of that misdemeanor shall be punished as provided in BIMC [1.24.010.A](#).

4. Protection During Construction and Development.

a. Intent. The intent of these regulations is to provide the best protection for existing vegetation, trees and tree stands, including protection for trees on adjacent properties,

protection of LID BMPs during construction and development activities, and preservation of the ecological function of the landscaping area by protecting existing soil.

b. Requirements.

i. No cutting of trees shall be allowed on a site until the tree retention and planting plans have been approved by the director and a clearing, grading or building permit issued.

ii. In order to preserve future ecological function, the applicant shall identify areas of prohibited disturbance, generally corresponding to the dripline or critical root zone (as identified by a consulting arborist) of the existing vegetation, trees and/or tree canopy of tree stands to be retained, buffers, areas of existing vegetation to be maintained, future LID BMPs, and future planting areas larger than 400 square feet (i.e., landscape islands in parking lots). The prohibited disturbance areas shall be reviewed and approved by the director as part of the land use permit review process.

iii. A temporary five-foot-high chain link fence with tubular steel poles or "T" posts shall delineate the area of prohibited disturbance defined in subsection C.4.b.ii of this section, unless the director has approved the use of a four-foot-high plastic net fence as an alternative. The fence shall be erected and inspected by city staff before clearing, grading and/or construction permits are issued and shall remain in place until construction has been completed, and shall at all times have affixed to it a sign indicating the protected area.

iv. No impervious surfaces, fill, excavation, vehicle operations, compaction, removal of native soil or storage of construction materials shall be permitted within the area defined by the required construction fencing. If avoiding construction and compaction in future planting areas is unavoidable, the landscape plan for the project shall include methods for aerating and/or augmenting compacted soil to prepare for new planting, pursuant to subsection H.2 of this section.

v. A rock well shall be constructed if the grade level around the tree is to be raised more than one foot. The inside diameter of the well shall be equal to the diameter of the dripline or critical root zone (as identified by a consulting arborist) of the tree or tree canopy of tree stands.

vi. The grade level shall not be lowered within the larger of (A) the dripline or critical root zone (as identified by a consulting arborist) of the tree, or the tree canopy of tree stands, or (B) the area recommended by a consulting arborist.

vii. Alternative protection methods may be used if recommended by a consulting arborist and determined by the director to provide equal or greater tree protection.

viii. Wherever this subsection C.4 allows or requires the involvement of a consulting arborist, that individual shall be ~~selected from the city's list of current arborists~~ certified by the American Society of Consulting Arborists or the International Society of Arboriculture (ISA), and have a valid TRAQ credential, and his or her services shall be paid for by the applicant.

ix. Protect LID BMPs during construction and development activities in accordance with Chapter [15.20](#) BIMC.

x. To ensure the best outcomes for significant trees that are retained, any situation not directly addressed above shall follow standards laid out in Section 2 of the Community Forest Best Management Practices Manual.

5. Modification of Requirements. If the significant tree and tree stand retention requirements of this section create an unnecessary hardship, the applicant may request a modification. The director may administratively approve a modification of the significant tree and tree stand requirements of this section if the director finds that the following standards have been met:

a. The modification is necessary because of special circumstances relating to the location of existing significant trees and tree stands that prevent compliance with this section; and

b. The special circumstances of the subject property make the strict enforcement of the provisions of this section an unnecessary hardship to the property owner; and

c. The special circumstances of the subject property are not the result of the actions of the applicant; and

d. The approving of the modification will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and land use district in which the subject property is located; and

e. The modification is consistent with the purpose and intent of this chapter; and

f. The site design incorporates the retention of other natural vegetation in consolidated locations that promotes the natural vegetated character of the site.

D. Perimeter Buffering and Screening.

1. Intent. The intent of this subsection D is to provide an effective vegetated screen over time between uses or land use districts, to screen parking areas and structures located adjacent to public rights-of-way, and to allow visual and physical access to pedestrian and other nonmotorized oriented uses, such as a multipurpose trail or bikeway if those trails could be accommodated without compromising significant vegetation or hazardous slopes. Additional buffers may be required per BIMC [16.20.170](#), The Winslow Ravine – Special rules in Mixed Use Town Center.

2. Requirements by District. In addition to meeting the general requirements of subsection D.4 of this section, applicants shall meet the specific requirements of Table 18.15.010-3 applicable to the zone district or overlay district in which the property is located. In the case of a conflict between the requirements of this subsection D.2 and the requirements of subsection D.4 of this section, the requirements of this subsection D.2 shall apply. The tree retention, replacement, and protection standards of subsection C of this section apply to perimeter buffers. These perimeter landscape requirements are in addition to required roadside landscaping in subsection E of this section and parking lot landscape requirements in subsection F of this section. These requirements do not apply to projects involving only interior renovations of existing buildings.

Table 18.15.010-3: Perimeter Landscaping Requirements by Land Use and Zoning District

Abutting Zoning or Land Use District	Perimeter Landscape Type	Perimeter Width (ft.)	Minimum Perimeter Width (ft.)
Multifamily in R-2, R-1 and R-0.4 Districts			
Single-family residential	Full Screen	25	25
R-8 and R-14 Multifamily Districts			
R-4.3 (urban residential)	Partial Screen	20	15
Nonresidential Uses in Areas Outside Winslow Mixed Use, HSR, NC, B/I, WD-I Districts			
Residential including multifamily	Full Screen	25	25

Table 18.15.010-3: Perimeter Landscaping Requirements by Land Use and Zoning District

Abutting Zoning or Land Use District	Perimeter Landscape Type	Perimeter Width (ft.)	Minimum Perimeter Width (ft.)
Nonindustrial uses	Partial Screen	20	10
Winslow Town Center Mixed Use District [1]			
Non-B/I <u>Single-family residential</u>	[2]Full Screen	50 <u>20</u>	35 <u>15</u>
HSR I and II Districts			
Single-family residential	Full Screen	20	15
NC Districts			
Residential including multifamily	Full Screen	20	15
B/I Districts			
Non-B/I	Full Screen [2]	50	35
WD-I Districts			
Residential including multifamily	Full Screen	40	30
Nonindustrial uses	Full Screen	25	15
<p>[1] For perimeter landscaping requirements in the ferry terminal district transition area, north of Winslow Way, reference BIMC 18.12.030.C.</p> <p>[2] This perimeter buffer applies even when a private access road separates a B/I property from non-B/I property.</p>			

3. Perimeter buffers for residential and commercial subdivisions are required pursuant to BIMC [17.12.070.O](#). The buffers shall be pursuant to the standards set forth in subsection D.4 of this section. The tree retention, replacement, and protection standards of subsection C of this section apply to perimeter buffers for residential and commercial subdivisions.

4. General Requirements.

a. Full Screen. The intent of this buffer is to provide an effective vegetated screen over time between uses, land use districts, or to screen parking areas and structures from the public rights-of-way. Where full screen perimeter landscaping is required, the applicant must provide:

- i. Minimum 70 percent evergreen trees ranging in height from four feet to six feet at the time of planting with at least 50 percent being six feet high; and
- ii. Deciduous trees with a caliper of at least two inches at the time of planting; and
- iii. At least 50 percent of the trees shall be native species or drought resistant; and
- iv. The number of trees is determined by calculating the area of the perimeter buffer and dividing by 250 square feet, or one tree for every 10 feet of buffer length, whichever is greater; and
- v. Minimum 70 percent evergreen shrubs at least 21 inches in height at the time of planting, to achieve minimum six feet height at maturity; and
- vi. The number of shrubs is determined by calculating the area of the perimeter buffer and dividing by 50 square feet or one shrub for every 20 feet of buffer length, whichever is greater; and
- vii. Living ground cover shall be planted and spaced to achieve total coverage within five years; and
- viii. Trees and shrubs shall be spaced to result in a full screen over time.

b. Partial Screen. Where partial screen perimeter landscaping is required, the applicant must provide:

- i. Minimum 50 percent evergreen trees ranging in height from four feet to six feet at the time of planting with at least 50 percent being six feet high; and
- ii. Deciduous trees with a caliper of at least two inches at the time of planting; and
- iii. At least 50 percent of the trees shall be native species or drought resistant; and

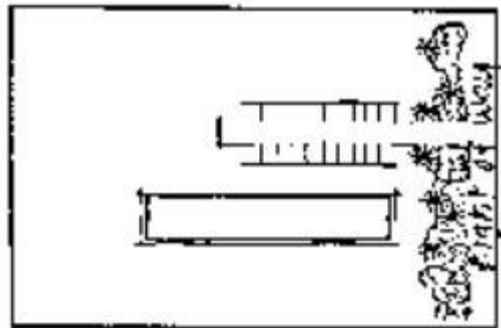
iv. The number of trees is determined by calculating the area of the perimeter buffer and dividing by 400 square feet or one tree for every 20 feet of buffer length, whichever is greater; and

v. At least 50 percent evergreen shrubs at least 21 inches in height at the time of planting, to achieve minimum six feet height at maturity; and

vi. The number of shrubs is determined by calculating the area of the perimeter buffer and dividing by 100 square feet or one shrub for every five feet of buffer length, whichever is greater; and

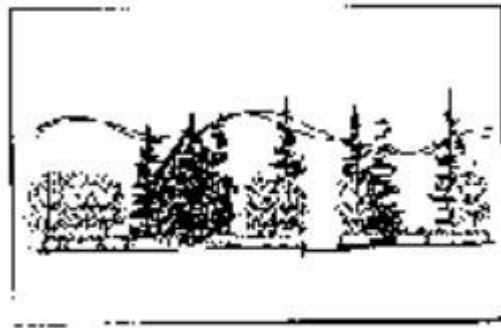
vii. Living ground cover shall be planted and spaced to achieve total coverage within five years; and

viii. Plants should be clustered within the landscape perimeter to screen structures and



Partial Screen Plan

parking areas.



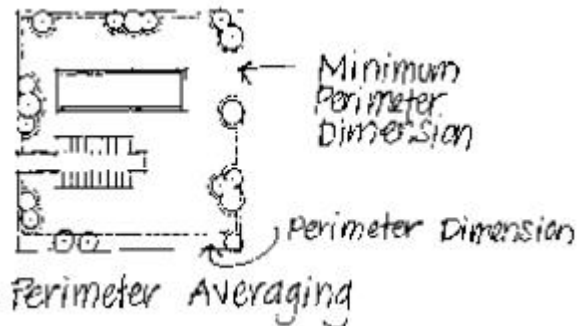
Partial Screen Section

c. Edge Planting Standard. Where edge planting standard perimeter landscaping is required, the applicant must provide:

- i. One hundred percent deciduous trees two-inch caliper spaced no more than 30 feet on center; and
- ii. Evergreen shrubs minimum 21 inches in height at the time of planting spaced no more than three feet on center to provide a continuous hedge achieving a maximum height of six feet at maturity; and
- iii. Living ground cover shall be planted and spaced to achieve total coverage within five years.

5. Standards. The following standards apply to the full screen, landscape buffer and edge planting area perimeter landscape requirements contained in this section.

- a. Existing vegetation may be used in lieu of new plant material. Although existing vegetation may meet the minimum number of trees or shrubs for a required full screen, the director may require additional trees and/or shrubs to achieve an effective full screen.
- b. A full screen will be required to screen utilities located above ground from adjacent uses.
- c. Perimeter landscaping shall be clustered in areas to screen structures, utility structures, loading areas, parking lots, trash enclosures, storage areas and mechanical equipment.
- d. The director may approve the averaging of perimeter landscape widths to provide adequate screening if it meets the criteria contained in this section.



- e. Earth berms in combination with shrubs and trees may be used to achieve the initial planting height requirement.
- f. Minimum landscape perimeter dimensions are allowed when perimeter averaging is applied. The landscape perimeter can be averaged only if the total required perimeter dimension square footage is achieved. The director may allow landscape perimeter averaging if the

following criteria are met: (i) plant material is being clustered to more effectively screen parking areas and structures; (ii) the quality of the perimeter landscape is not diminished; and (iii) significant trees are being retained.

6. Park Buffers and Buffers for Dedicated Conservation Lands.

a. Notwithstanding the provisions of subsections D.2, D.3, and D.4 of this section, a 25-foot-wide buffer shall be provided along a property line where the land immediately adjacent to the subdivision boundary is a park or a future park in a municipal plan, or dedicated conservation land area that has been set aside for open space, wildlife habitat or public conservation purposes by deed or conservation easement.

b. In order to buffer the visual impact of the proposed subdivision and protect off-site views, edge planting standard landscaping, pursuant to subsection D.4 of this section, shall be required within park buffers and buffers for dedicated conservation lands buffers where mature trees and shrubs cannot provide such screening.

E. Street Frontage Landscaping.

1. Roadside Buffers for Commercial, Institutional and Multifamily Development. The following table indicates the type of landscaping required when the subject property directly abuts a right-of-way. Roadside buffers may be required for commercial, institutional, or multifamily development where a site plan review or conditional use permit is required. The buffers shall be pursuant to the screening standards set forth in subsection D.4 of this section. Required landscape buffer widths may be reduced to the minimum widths stated in Table 18.15.010-4 through buffer averaging in accordance with the criteria in subsection D.5 of this section. The tree retention, replacement, and protection standards of subsection C of this section apply to roadside buffers. These requirements do not apply to projects involving only interior renovations of existing buildings.

a. A buffer is required along Highway 305, which is designated as a scenic highway. The 50-foot roadside buffer requirement can be reduced by the director, after consultation with an acceptable tree professional as identified in subsection C.1.c of this section, if it is determined that (i) a 50-foot buffer would cause the property to be undevelopable, and (ii) the reduced buffer will provide as much screening of site activities from Highway 305 as practicable in light of site topography and conditions.

2. Roadside buffers for residential and commercial subdivisions are required pursuant to BIMC [17.12.070.P](#). The buffers shall be pursuant to the standards set forth in subsection D.4 of this section. The tree retention, replacement, and protection standards of subsection C of this section apply to roadside buffers for residential and commercial subdivisions. These requirements do not apply to projects involving only interior renovations of existing buildings.

Table 18.15.010-4: Roadside Buffer Requirements by District and Land Use [1]

Existing Zoning/Use	Adjacent Right-of-Way Type	
	Right-of-Way (not including Highway 305)	Highway 305
Mixed Use Town Center [2]	N/A	50' Full Screen [3]/35' Minimum
High School Road	N/A	50' Full Screen/35' Minimum
Multifamily Development	20' Partial Screen	50' Full Screen/35' Minimum
Nonresidential Uses within Residential Zone Districts	25' Partial Screen/15' Minimum	50' Full Screen/35' Minimum
Business/Industrial (B/I)	50' Full Screen/35' Minimum	50' Full Screen/35' Minimum
Water-Dependent Industrial	25' Full Screen/15' Minimum	N/A
Commercial and Multifamily Subdivisions [4]	N/A	50' Full Screen

[1] All roadside buffers must be planted if not already existing.

[2] For perimeter landscaping requirements in the ferry terminal district transition area, north of Winslow Way, reference BIMC [18.12.030.C](#).

[3] Beginning 100' north of Winslow Way.

Table 18.15.010-4: Roadside Buffer Requirements by District and Land Use [1]

Existing Zoning/Use	Adjacent Right-of-Way Type	
	Right-of-Way (not including Highway 305)	Highway 305
[4] Properties being subdivided with less than one acre are not subject to roadside buffer requirements.		

F. Parking Lot Landscaping. The requirements of this subsection F are in addition to required perimeter landscaping under subsection D of this section. When more than one building is placed on a lot or a building is placed in the center of the lot with parking all the way around it, the street perspective is used to determine which landscaping standards to follow for parking lot landscaping.

1. NC, B/I, and WD-I Districts and Nonresidential Uses Outside Winslow Mixed Use Town Center Overlay Districts and High School Road Mixed Use Districts. All applicants in these areas shall provide the following types and amounts of landscaping. Parking lots shall meet the requirements of BMC [18.15.020](#). Applicants may refer to the standards contained in this section for optional planting locations within parking areas.

a. Intent. The intent of this section is to screen views of parking lots. To provide shade and visual relief within parking lots, to limit impacts of impervious surfaces and to reinforce safe pedestrian access to buildings.

b. Requirements for Parking Lots Located Adjacent to Public Rights-of-Way.

i. One tree for every four parking stalls; and

ii. Minimum 30 percent evergreen trees; and

iii. Deciduous trees minimum two-inch caliper, evergreen trees minimum six feet high at the time of planting; and

iv. Evergreen shrubs minimum 18-inch height at the time of planting spaced no more than three feet on center, to provide a continuous hedge achieving a maximum height of three feet at maturity located adjacent to the rights-of-way (this may be achieved with the perimeter landscape); and

v. Evergreen ground cover planted and spaced to achieve total coverage within two years; and

vi. A landscaped area at the end of parking aisles.



Parking Adjacent to Right-of-Way



Safe Pedestrian Access

c. Requirements for Parking Lots Not Abutting Public Rights-of-Way.

i. One tree for every eight parking stalls; and

ii. One hundred percent of the trees may be deciduous; and

iii. Deciduous trees minimum two-inch caliper, evergreen trees minimum four feet height at the time of planting; and

iv. Evergreen ground cover and/or shrubs planted and spaced to achieve total coverage within two years; and

- v. A landscaped area at the end of parking aisles.



d. Standards.

- i. Maintain shrubs at a maximum three feet height within parking lots so views between vehicles and pedestrians will not be blocked.
- ii. Landscape in planting islands or strips shall have an area of at least 100 square feet and with a narrow dimension of not less than five feet if wheel stops are provided to prevent vehicle overhang. A narrow dimension of not less than eight feet may be provided if the vehicle overhang area is included in the planting area.
- iii. Provide permanent curbs or wheel stops to protect the plantings.
- iv. Significant trees and tree stands may be used in lieu of new landscape requirements if they are in addition to the significant tree and tree stand retention requirements.
- v. Clustering of new plant material within parking lots may be approved or required by the director if the intent of this section is met.
- vi. Refer to the landscape materials matrix in the administrative manual for tree species appropriate for parking lots.

2. Winslow Mixed Use Town Center Overlay Districts, High School Road Districts, R-8 and R-14 Districts. All applicants in these areas shall provide the following types and amounts of landscaping. Parking lots shall meet the requirements of BIMC [18.15.020](#). Applicants may refer to the standards contained in this section for optional planting locations within parking areas.

a. Intent. The intent of this section is to soften the appearance of surface parking lots. To provide more intensive landscaping when surface parking lots are exposed to public view.

b. Parking Lots Located in the Front of Buildings and Adjacent to Public Rights-of-Way.

i. One tree for every two parking stalls; and

ii. One hundred percent of the trees may be deciduous; and

iii. Deciduous trees minimum two-inch caliper; and

iv. Evergreen shrubs planted to form a hedge, minimum 18-inch height at the time of planting, spaced no more than three feet on center, not to exceed a mature height of three feet located adjacent to the public rights-of-way (this may be achieved with the perimeter landscape); and

v. Deciduous trees minimum two-inch caliper spaced no more than 30 feet on center located along the public rights-of-way (this may be achieved with the perimeter landscape); and

vi. Evergreen ground cover and/or shrubs planted and spaced to achieve total coverage within two years; and

vii. A landscaped area at the end of parking aisles.

c. Requirements for Parking Lots Located to the Side of Buildings and Adjacent to Public Rights-of-Way.

i. One tree for every four parking stalls; and

ii. One hundred percent of the trees may be deciduous; and

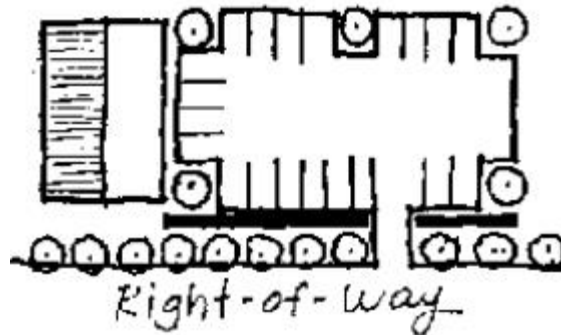
iii. Deciduous trees minimum two-inch caliper; and

iv. Evergreen shrubs planted to form a hedge, minimum 18-inch height at the time of planting, spaced no more three feet on center, not to exceed a mature height of three feet located adjacent to the public rights-of-way (this may be achieved with the perimeter landscape); and

v. A landscaped area at the end of aisles; and

vi. Deciduous trees minimum two-inch caliper spaced no more than 30 feet on center located along the public rights-of-way (this may be achieved with the perimeter landscape); and

vii. Evergreen ground cover and/or shrubs planted and spaced to achieve total coverage within two years.



d. Requirements for Parking Lots Located Behind Buildings and Not Adjacent to Public Rights-of-Way.

i. One tree for every eight parking stalls; and

ii. One hundred percent of the trees may be deciduous; and

iii. Deciduous trees minimum two-inch caliper, evergreen trees minimum four feet height at the time of planting; and

iv. Evergreen ground cover and/or shrubs planted and spaced to achieve total coverage within two years; and

v. A landscaped area at the end of aisles.

e. Standards.

i. Maintain shrubs at a maximum three feet height within parking lots so views between vehicles and pedestrians will not be blocked.

ii. Landscape in planting islands or strips shall have an area of at least 100 square feet and with a narrow dimension of not less than five feet if wheel stops are provided to prevent vehicle overhang. A narrow dimension of not less than eight feet may be provided if the vehicle overhang area is included in the planting area.

- iii. Provide permanent curbs or wheel stops to protect the plantings from vehicle overhang.
- iv. Significant trees and tree stands may be used in lieu of new landscape requirements if they are in addition to the significant tree and tree stand retention requirements.
- v. Clustering of new plant material within parking lots may be approved or required by the director if the intent of this section is met.
- vi. Refer to the suggested landscape materials matrix in the administrative manual for tree species appropriate for parking lots.

G. Total Site Tree Unit Requirements.

1. Intent. The overall purpose of this section is to preserve the landscape character of the community through development standards by encouraging the retention of existing vegetation and significant trees by incorporating them into site design. The intent of this subsection G is to ensure that, to the degree practicable, (a) each development approval in the MUTC, HSR I and II, R-5, R-8, R-14, and NC zone districts, (b) each development approval for nonresidential development in the R-4.3, R-3.5, R-2.9, R-2, R-1, and R-0.4 zone districts, and (c) new and existing single-family residential development in the R-2.9, R-3.5, and R-4.3 zone districts leaves the development parcel with at least a specified minimum amount of tree coverage, measured in tree units per acre, that reflects the degree of tree coverage prior to development or redevelopment and that discourages avoidable site disturbances that would require tree removal.

2. Applicability. The regulations of this subsection G apply to development applications involving (a) any modification to a parcel located in the MUTC, HSR I and II, R-5, R-8, R-14, or NC districts, (b) a permitted nonresidential development in the R-4.3, R-3.5, R-2.9, R-2, R-1, and R-0.4 zone districts, and (c) new and existing single-family residential development in the R-2.9, R-3.5, and R-4.3 zones. If a ~~substantial~~ any portion of a significant tree trunk, dripline and/or critical root zone extends ~~onto~~ across an adjacent property line, ~~both properties may use the tree units~~ each property may use half the tree units of that tree to meet the requirements of subsection G.4 of this section, ~~upon mutual agreement~~. These provisions shall not apply to projects involving only interior renovation of existing buildings.

3. Site Specific Evaluation of Total Impact on Tree Coverage.

a. In order to show how the tree unit requirements of subsection G.4 of this section are being met, the applicant shall submit the following information as part of the landscaping plan information for a land use permit application:

- i. Identify and survey all existing trees to be retained as part of the proposed development. New and existing single-family residential development in the R-2.9, R-3.5, and R-4.3 zone districts are required to only identify, not survey, trees to be retained;
- ii. If opting to meet tree unit requirements pursuant to subsection G.4.a.iv of this section, the applicant shall identify the species and DBH of each tree to be removed;
- iii. The applicant shall also submit valuation of all trees to be retained, using the ~~valuation standards of the International Society of Arboriculture (see administrative manual for submittal requirements for landscaping plans)~~ COBI table provided below. This provision does not apply to new and existing single-family residential development in the R-2.9, R-3.5, and R-4.3 zone districts.

Table 18.15.010-5: City of Bainbridge Island Tree Valuations Table

<u>DBH Range (inches)</u>	<u>Restoration Value</u>
<u>3 - 11.9</u>	<u>\$500</u>
<u>12 -23.9</u>	<u>\$1,500</u>
<u>24-35.9</u>	<u>\$5,000</u>
<u>36+</u>	<u>\$10,000</u>

iv. Applicant may choose to hire a qualified professional to complete a tree appraisal in lieu of using the City table. That appraisal must follow Council of Tree and Landscape Appraisers (CTLA) Tree Appraisal Guidelines set out in the most current manual released by the CTLA.

b. In determining which trees will be retained on a property to meet the tree unit requirements of subsection G.4 of this section, an applicant shall attempt to retain trees greater than 15 inches, trees in tree stands, and trees adjacent to tree stands on adjacent properties, unless such retention would prevent reasonable use of a property and no other alternative is feasible.

c. A tree removal/vegetation maintenance permit pursuant to Chapter [16.18](#) BIMC is required to request removal of any tree that is contributing to a property meeting the tree unit retention requirements of subsection G.4 of this section. Replanting may be required to ensure that the property continues to meet the retention requirements.

4. Requirements.

a. A development application covered by subsection G.2 of this section shall only be approved if it complies with the requirements of subsections C (General Regulations), D (Perimeter Buffering and Screening), E (Street Frontage Landscaping), and F (Parking Lot Landscaping) of this section, and also complies with subsection G.4.a.i, ii or iii of this section.

i. In the MUTC central core and ferry terminal overlay districts, the development parcel shall have at least 30 tree units per acre following the proposed development or redevelopment.

ii. In the MUTC Ericksen Avenue, Madison Avenue, and gateway overlay districts, and each site in the R-5, R-8, R-14, HSR I and II, and NC districts, and for permitted nonresidential development in the R-4.3, R-3.5, R-2.9, R-2, R-1, and R-0.4 zone districts, the development parcel shall have at least 40 tree units per acre following the proposed development or redevelopment.

iii. In the R-4.3, R-3.5, and R-2.9 zone districts, existing single-family residential development, developing single-family residences, and vacant parcels shall have at least 30 tree units per acre following the proposed development, redevelopment, and as part of ongoing property maintenance for existing single-family development.

iv. As an alternative to subsections G.4.a.i, ii, and iii of this section, and at the applicant's option, the development parcel will contain at least the same number of tree units after the proposed development or redevelopment as it had before that development or redevelopment.

b. Existing and new trees in roadside, perimeter, and shoreline buffers and/or critical areas and their buffers do not count towards the tree unit requirements of this section. If an applicant is choosing to meet their tree unit requirements using subsection G.4.a.iv of this section, the existing trees in those protected areas and buffers will not count towards the “pre-development” amount of tree units.

5. Calculation of Tree Units.

a. Each tree preserved on a development parcel shall earn the number of tree units shown in Table 18.15.010-5, based on its diameter at breast height (DBH) as measured in inches. If the DBH measurement results in a fraction, the requirement shall be rounded to the nearest whole number (greater than or equal to 0.5 is rounded up; less than 0.5 is rounded down).

Table 18.15.010-5~~6~~: Tree Unit Conversion Table for Preserved Trees [1]

DBH	Tree Units	DBH	Tree Units	DBH	Tree Units
3 – 5	1.0	24 – 26	6.2	39 – 40	10.8
6 – 10	1.2	27 – 28	7.0	41 – 42	11.4
11 – 12	1.4	29 – 30	7.8	43 – 44	12.0
13 – 15	2.0	30 – 31	8.4	45 – 46	12.6
16 – 18	3.2	32 – 33	9.0	47 – 48	13.2
19 – 20	3.8	34 – 36	9.6	49+	13.8
21 – 23	4.6	37 – 38	10.2		

[1] For multi-stemmed trees, measure the DBH of each trunk separately, multiply each of these measurements by itself, add up these amounts, and calculate the square root of that total to find the DBH for the tree as a whole.

b. Each new or replacement tree planted shall earn one tree unit. New trees planted to meet the minimum parking lot landscaping requirements of subsection F of this section do not count towards meeting tree unit credits under this section. New trees planted in or around a parking lot that exceed the minimum requirements of subsection F of this section can be counted towards meeting required tree units.

c. If, after complying with subsections C, D, E, and F of this section, additional trees need to be planted to meet the minimum tree unit requirements in subsection G.4 of this section:

i. In the MUTC central core and ferry terminal overlay districts, those trees may be planted either at ground level or above ground level (such as a patio, terrace, or rooftop); and

ii. In the MUTC Ericksen Avenue, Madison Avenue, and gateway overlay districts, R-8, R-14, HSR I and II, NC districts, as well as for nonresidential developments within residential districts, those trees shall be planted at ground level.

H. Planting Requirements.

1. Intent. The intent of this section is to encourage the use of native species and recommend planting conditions adaptive to Bainbridge Island.

2. Requirements. Landscape designs shall conform to the following provisions:

a. Areas not devoted to landscape required by this chapter, parking, structures and other site improvements are encouraged to be planted or remain in existing vegetation.

b. New plant materials shall include native species or nonnative species that have adapted to the climatic conditions of the coastal region of the Puget Sound region.

c. New plant materials shall consist of drought resistant species, except where site conditions within the required landscape areas assure adequate moisture for growth.

d. New tree plantings shall be a minimum of two inches in caliper if deciduous or six feet in height if evergreen. New shrubs planted in roadside or perimeter buffers shall be of a variety that achieves a minimum six feet height at maturity. Soil planting types and depth shall be sufficient for tree planting.

e. When the width of any landscape strip is 20 feet or greater, the required trees shall be staggered in two or more rows.

f. Existing vegetation may be used to augment new plantings to meet the standards of this chapter.

g. Grass may be used as a ground cover where existing or amended soil conditions assure adequate moisture for growth.

h. Ground cover areas shall contain at least two inches of composted organic mulch at finish grade to minimize evaporation. Mulch shall consist of materials such as composted yard waste, composted sawdust, and/or manure that are fully composted.

i. Amend existing and/or compacted soils in accordance with Chapter [15.20](#) BIMC.

j. Specific submittal requirements for landscaping plans (tree protection, retention and planting plans) are included in the city's administrative manual.

3. Performance Assurance.

a. Performance assurance is required to assure the city that the landscape required by this section is properly installed and will become established and be adequately maintained.

b. The required landscape shall be installed prior to the issuance of a temporary certificate of occupancy for the project. The Washington landscape architect, Washington certified nursery professional or Washington certified landscaper shall submit a landscaping declaration to the director to verify installation in accordance with the approved plans.

c. The time limit for compliance may be extended to allow installation of landscaping during the next appropriate planting season as approved if the director determines that a performance assurance device, for a period of not more than one year, will adequately protect the interests of the city. The performance assurance device shall be for 150 percent of the cost of the work or improvements covered by the assurance device. In no case may the property owner delay performance for more than one year.

d. The form and type of the performance assurance device shall be determined by the director.

4. Maintenance Assurance.

a. The property owner shall replace any unhealthy or dead plant materials in conformance with the approved planting plan.

b. A maintenance assurance device shall be required for a period of five years after acceptance by the city of the new planting or transplanting of vegetation to ensure proper installation, establishment, and maintenance.

c. The maintenance assurance device amount shall not be less than 20 percent of the cost of replacing materials covered by the assurance device.

d. The form and type of the maintenance assurance device shall be determined by the director.

I. Irrigation.

1. Intent. The intent of this section is to provide temporary or permanent irrigation within new planting areas that do not have high soil moisture conditions. These regulations shall not apply where provisions of Chapter [16.12](#) or [16.20](#) BIMC or any state or federal law restricts irrigation, and in case of conflict with any provision of those laws, the provisions of those laws shall govern.

2. Requirements.

a. Except for areas of undisturbed existing vegetation, all landscape areas that do not have high soil moisture conditions shall have temporary or permanent irrigation systems. Temporary systems may be removed after 24 months or two growing seasons, whichever occurs first; provided, that the plantings are established.

b. Areas where existing site conditions assure adequate soil moisture for growth within the required landscape area shall have temporary irrigation systems only as required to sustain new plantings.

c. Landscape areas consisting of drought resistant vegetation may require temporary irrigation systems. Permanent irrigation systems located within required landscape areas should include the following features:

i. Moisture or precipitation sensors; and

ii. Automatic timers set for operation to assure adequate moisture levels; and

iii. Head-to-head spacing, if sprinkler heads are proposed; and

iv. Pressure regulating devices; and

v. Backflow prevention devices; and

vi. Separate irrigation zones for grass and planting beds; and

- vii. Other features required to comply with applicable state and city codes.
- d. Irrigation water shall be applied with goals of avoiding runoff, low head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas and impervious surfaces by:
 - i. Considering soil type and infiltration rates; and
 - ii. Using proper irrigation equipment and schedules, including features such as repeat cycles, to closely match application rates with infiltration rates; and
 - iii. Considering special problems posed by irrigation on slopes and in median strips.
- e. Irrigation systems shall be subject to the following additional provisions:
 - i. Systems in landscape strips less than five feet in width shall be designed to ensure that overspray and/or runoff does not occur by use of system design options such as low volume emitters; and
 - ii. Sprinkler heads with consistent application rates shall be selected for proper area coverage, operating pressure, and adjustment capability; and
 - iii. Separate control valves shall be used to irrigate plants with differing water needs.

J. Maintenance.

1. Intent. All new landscape plantings and significant trees and tree stands to be retained shall be maintained to preserve the Island's forested character.

2. Requirements.

- a. All landscaping, significant trees and tree stands shall be maintained in a healthy growing condition.
- b. Landscape areas shall be kept free of trash.
- c. All plant material shall be managed by pruning so that plant growth does not conflict with public utilities, restrict pedestrian or vehicular access, or create a traffic hazard.

K. Screening of Certain Facilities.

1. Outdoor Storage. In the NC and B/I districts, outdoor storage areas shall be screened. The screen height is determined by the height of the material or equipment being screened. Chain link fencing with neutral colored slatting is permitted along with vegetative screening when vegetative screening alone is not sufficient to block the outdoor storage from public view and where the fencing is not visible from a street. Exterior storage should be confined to portions of the site least visible from public view.

2. Trash Dumpsters and Outdoor Equipment.

a. In the NC and B/I districts, trash dumpsters or any outdoor equipment, whether on roof or side of a structure, or on the ground, shall be screened from view. Screening shall be architecturally consistent with the adjacent structure in terms of materials. Mechanical equipment should be located below the highest vertical element of the building.

b. In the B/I districts, trash and recycling containers shall be located to mitigate noise impacts to nearby residential properties.

c. Small wind energy generators do not need to be screened.

3. Business/Industrial. In the B/I districts, light manufacturing uses shall visually screen the development year-round from adjacent, nonindustrial properties and from adjacent roadways. Landscape screening shall be provided in accordance with subsection D of this section. (Ord. 2019-03 §§ 11 – 15, 2019; Ord. 2018-19 §§ 2 – 5, 2018; Ord. 2017-02 §§ 1, 23 (Exh. C), 2017; Ord. 2016-28 §§ 13 – 16, 2016; Ord. 2016-01 § 1, 2016; Ord. 2015-04 §§ 2 – 8, 2015; Ord. 2012-11 § 2 (Exh. A), 2012)

16.20.100 Aquifer recharge areas.

A. Applicability. Aquifer recharge areas are areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. In accordance with WAC [365-190-100](#), the entirety of Bainbridge Island is classified as an aquifer recharge area to preserve the volume of recharge available to the aquifer system and to protect groundwater from contamination.

B. Permit Review and Procedures

1. Any development, use or activity described in subsection B.3.b or c of this section shall require a critical area permit.

2. Critical area permits shall be reviewed pursuant to the criteria in BIMC [16.20.070](#).

3. Applications for critical area permits for aquifer recharge areas shall include:

a. City of Bainbridge Island master land use application

(<http://www.bainbridgewa.gov/161/Documents-Forms-Applications>); and

b. Proposals for any development, use or activity not associated with permitted principal and accessory residential uses pursuant to BIMC [18.09.020](#) that has the potential to generate a pollutant identified as a potential source of drinking water contamination (either in Appendix A of the Washington State Critical Aquifer Recharge Area Guidance Document or on the North American Industry Classification System as used by the city's department of public works) or known to be deleterious to the environment or human health shall require submittal of a hydrogeologic assessment, as set forth in BIMC [16.20.180.A](#). If the applicant has completed a site assessment review (SAR) in accordance with Chapter [15.19](#) BIMC that includes sufficient information to address the elements listed in BIMC [16.20.180.A](#), the SAR will suffice to fulfill this requirement. Additional in-depth site assessment elements as detailed in BIMC [16.20.180.A](#) may be required by the city or if requested by affected public water purveyors (Group A and B), affected tribes, or the Kitsap Public Health District upon review of the SAR.

c. Proposals requiring designation of an aquifer recharge protection area pursuant to subsection E.1 of this section shall require submittal of a site assessment review application.

C. Prohibited Activities and Uses. The following activities and uses are prohibited within critical aquifer recharge areas due to the probability or potential magnitude of their adverse effects on groundwater:

1. Landfills. Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, wood waste, and inert and demolition waste landfills;
2. Underground Injection Wells. Class I, III, and IV wells and subclasses 5F01, 5D03, 5F04, 5W09, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 of Class V wells;
3. Chemical wood preservation and/or treatment facilities;
4. Storage, Processing, or Disposal of Radioactive Substances. Facilities that store (other than minor sources such as medicinal uses or industrial testing devices), process, or dispose of radioactive substances;
5. Hazardous liquid transmission pipelines;
6. Commercial mining and chemical washing of metals, hard rock, sand, and gravel;
7. Hydrocarbon extraction, reprocessing, refinement, and storage;
8. Electroplating/metal finishing;
9. Facilities that treat, store, process, or dispose of hazardous waste; and
10. Other Prohibited Uses or Activities.
 - a. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source; and
 - b. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a stream.

D. Development Standards – General.

1. No development, use or activity may exceed water quality standards or otherwise violate the antidegradation requirements specified in Chapter [173-200](#) WAC.
2. Any development or activity that is not exempt or excluded by subsection E.1 of this section shall ensure sufficient groundwater recharge, defined as maintaining 100 percent of the annual average pre-construction groundwater recharge volume for the site. The primary means to ensure sufficient groundwater recharge shall be through the designation of an aquifer recharge protection area in accordance with subsection E of this section.

E. Development Standards – Aquifer Recharge Protection Area (ARPA).

1. Any proposed development or activity requiring a site assessment review (SAR) pursuant to Chapters [15.19](#) and [15.20](#) BIMC located within the R-0.4, R-1 or R-2 zoning designations requires designation of an ARPA; except, designation of an ARPA is not required for the following:

- a. Removal of invasive species;
- b. Construction of public trails provided the standards set forth in BIMC [16.20.110.G.5.a](#) through e are met;
- c. Replacement of hard surfaces; and
- d. Development and activities located on properties protected in perpetuity by a legal instrument acceptable to the city attorney wherein at least 65 percent of the site meets the development standards for aquifer recharge protection areas of this section.
- e. Activities related to the development and maintenance of utility corridors, when located on lands not owned by the subject utility provider.

2. ARPA General Requirements.

- a. The location and configuration of the ARPA shall be determined through completion of a site assessment review (SAR) in accordance with Chapter [15.19](#) BIMC. The city may require a professional forester, ISA-certified arborist or landscape architect to determine the location and configuration of the ARPA if needed to ensure the ARPA design standards set forth in subsections E.3.a through c of this section are met;
- b. The ARPA shall include all existing native vegetation on a site, up to a maximum of 65 percent of the total site area. A lower percentage is allowed if necessary to achieve a development area of at least 12,500 square feet on a parcel;
- c. The maximum area of the required ARPA may be reduced to 50 percent for public schools and public parks allowed in the underlying zoning district;
- d. The location and configuration of the ARPA may change over time; however, the total area required pursuant to subsection E.2.b of this section shall be retained once established. Any alteration to the location or configuration of the ARPA shall be approved by the director and documented on a site plan included with a notice to title in accordance with

BIMC [16.20.070](#).G. The city may require an ARPA stewardship plan prior to approving a change to the location and configuration of the ARPA.

3. ARPA Design Standards.

a. Healthy, existing trees and vegetation should be retained to the maximum extent possible. Healthy significant trees shall be priority trees for retention. Trees shall be retained in one or more stands or clusters.

b. The ARPA shall be delineated to include:

i. A low perimeter-to-area ratio;

ii. A minimum width of 12 feet; and

iii. The critical root zone of all significant trees.

c. The ARPA shall be contiguous with abutting, off-site areas of other ARPAs, open space or critical areas to the extent feasible.

d. The ARPA may include landscaping or open space requirements pursuant to BIMC [18.15.010](#).D and E and Chapter [17.12](#) BIMC, respectively, and other critical areas and their buffers or setbacks pursuant to other sections of this chapter.

4. ARPA Use Standards. The following developments and activities are allowed within a designated ARPA:

a. Any structure or activity as long as the new structure or activity is shown to not negatively impact the amount of groundwater recharge on the site. Specifically, any structure or activity is allowed as long as the structure or activity (including mitigation measures, if any are needed) maintains 100 percent of the annual average groundwater recharge volume that existed on the site prior to the structure or activity as demonstrated by the 2012 Western Washington Hydrology Model (WWHM2012) recharge module, as amended.

b. Tree and vegetation activities specified in BIMC [16.20.090](#).

c. Installation of native plants.

d. Removal of invasive plant species.

- e. Passive recreation, including pervious trails.
- f. Potable water wells and well houses.
- g. Low impact fencing or signs marking the ARPA boundary.
- h. On-site sewage drainfield facilities, if construction of the system will not require the use of heavy equipment or removal of significant trees.
- i. Storm drainage facilities if the applicant can demonstrate that (i) the system meets the low impact design (LID) standards of Chapter [15.20](#) BIMC, and (ii) construction of the system will not require the use of heavy equipment or removal of significant trees.
- j. Accessory solar panels, small wind energy generators, composting bins, rainwater harvesting barrels, and cisterns, as defined in Chapter [18.36](#) BIMC.
- k. Other structures or hard surfaces with a total footprint of no greater than 200 square feet.
- l. Driveways may be allowed to pass through the ARPA if (i) siting of the driveway within the ARPA is determined by the director to be necessary to achieve greater native vegetation retention and use of nonstructural low impact design practices, (ii) site utilities are installed within the footprint of the driveway, (iii) siting of the driveway avoids removal of significant trees to the maximum extent feasible and (iv) the total area required pursuant to subsection E.1 of this section is achieved, which may require replanting of areas comprised of nonnative vegetation.
- m. Removal of any significant tree, other than hazard tree removal, with city review and preapproval of an aquifer recharge protection area stewardship plan prepared in accordance with BIMC [16.20.180](#).H.

5. ARPA Protection.

- a. The ARPA, including the critical root zone of significant trees, shall be protected during construction as provided in BIMC [18.15.010](#).C.4 or as specified by an ISA-certified arborist.
- b. The ARPA shall be documented on a site plan included with a notice to title in accordance with BIMC [16.20.070](#).G. (Ord. 2018-01 § 2 (Exh. A), 2018)

Community Forest Best Management Practices Manual



2020

City of Bainbridge Island
Bainbridge Island, WA

First Draft: Kevin McFarland
Second Draft: Tree Solutions Inc., Ann Hirschi & Eliza Davidson
Revised – 2010 by Community Forestry Commission
Revised – 2020 by Nick Snyder, City Arborist PCD

BAINBRIDGE ISLAND COMMUNITY FOREST
BEST MANAGEMENT PRACTICES

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INTRODUCTION

Bainbridge Island is endowed with abundant trees that give the landscape a special, forested character. This “Urban and Community Forest” is the sum total of trees in both our urbanized and suburban-rural “interface” areas, and its many benefits are well described in the 2006 **Community Forest Management Plan**. Our community forest is a source of pride and identity for Island residents. The State of Washington and the National Arbor Day Foundation has recognized Bainbridge Island as a **Tree City-USA**.

Our present challenge is to maintain enough healthy tree canopy to safeguard forest benefits for generations yet to come. Facing intense development pressure, our community is well served by making good use of every setting where trees can - or already do - grow. Some loss of trees may be inevitable as Bainbridge Island matures, but we still have abundant opportunities to fortify our common forest, where we live, shop, drive, play and exercise, worship, learn, commune with nature, and send our storm water. Available settings run the gamut from wild to urban. With commitment and foresight, we can accommodate trees almost anywhere.

Sustaining trees in Bainbridge Island’s already-developed areas presents a great challenge, and entails careful planning and vigilant maintenance. Also, after more than a century of settlement, the vestiges of native island forest are increasingly rare and vulnerable. To meet these formidable challenges, the City and local citizen leaders serving on the Community Forestry Commission together have developed a **Community Forest Management Plan**. This plan has built the foundation for this **Community Forest Best Management Practices Manual**.

The BMP Manual **provides a toolbox** of standards needed in order to reach CFMP goals for tree preservation, management and replenishment for future generations. The goal of this document is to assemble the best available science and most widely accepted practical and professional techniques now in use in urban forestry. This BMP Manual should be reviewed and updated periodically, because, like trees, knowledge is dynamic.

CFMP and BMP Manual: What Is the difference?

Community Forest Management Plan (CFMP) 2006	Community Forest Best Management Practices (BMP) Manual 2007
<p>Defined: A roadmap for maintaining the ecological function and benefit of Bainbridge Island's forest, while integrating trees as green infrastructure in the developing urban landscape.</p>	<p>Defined: A tool box of standards for achieving the Island goals described in the CFMP for tree preservation, tree management and planting new trees for future generations.</p>
<p>What? Current State of the Community Forest:</p> <ul style="list-style-type: none"> • A mixed deciduous and coniferous forest with most trees on private land. • Island tree canopy cover was 72% in 2004, only 42% in Winslow and falling fast. 	<p>What? Tree Basics:</p> <ul style="list-style-type: none"> • Structure & Growth - Roots, Trunk and Canopy • Spare that Tree! - How to protect what we have (root zone, soil health, construction impacts). • it's not just the trees; it's the forest as well.
<p>When? Future Forest: Maintain a 70% canopy cover for the Island and 35% for Winslow (<u>2006</u>).</p>	<p>When? Future Forest: Ongoing actions to ensure future canopy cover (Tree siting, planting & maintenance techniques, tree risk management).</p>
<p>How? Implement Plan Policies and Actions:</p> <ul style="list-style-type: none"> • Protect and restore existing tree resources • Promote urban tree management • Enhance community awareness • Control invasive species destructive to forest health • Use the BMPs to make it all happen! 	<p>How? Provide and Maintain Trees for Specific Situations and Land Uses:</p> <ul style="list-style-type: none"> • Urban Core • Streets & Roads / Parking lots • Residential settings • Institutional settings • Natural Areas, Green Belts and Environmentally-sensitive Areas.

This document is intended for builders, developers, landscape contractors, city planners, inspectors, engineers and operations crews, architects, landscape architects, garden designers, wetland and restoration specialists, heavy equipment, tree care & landscape maintenance operators, homeowners and do-it-yourself gardeners, community volunteers and civic leaders.

“Best management practices (BMPs)” means:

Conservation practices or systems of practices and management measures that:

- a. *Control soil loss and protect water quality from degradation caused by nutrients, animal waste, toxins, and sediment; and*
- b. *Minimize adverse impacts to surface water and groundwater flow, and to the chemical, physical, and biological characteristics of critical areas.” (from City of Bainbridge Island Code)*

SECTION 1: TREE BASICS

Overview

Trees form an essential part of our infrastructure, just as do roads, schools and our water supply. Bainbridge Island's trees are a valuable asset, and unlike other types of infrastructure, appreciate in value over time. Trees perform essential biological functions that benefit the environment and all of us in substantial ways.

Trees perform hard labor by accomplishing the following:

- intercepting rainwater (100 mature trees catch ~250,000 gallons per year) and dispersing it more slowly into the ground
- filter smoke and other fine particulate matter from the air – Evergreens are the most efficient at this
- cleansing the air by consuming carbon dioxide and producing oxygen (100 trees remove~ 5 tons of CO₂)
- buffering noise, dust, fumes, wind and glare
- sheltering wildlife and protecting native biodiversity
- creating calm settings to rejuvenate and relax
- creating a pleasant and safer sidewalk environment
- shading street pavement, increasing its useful life
- screening the view of parking lots and utility areas from public streets
- encouraging safe driving with street trees and planting islands
- building civic pride by enhancing the beauty of public thoroughfares
- increasing aesthetic and monetary value of property
- sheltering buildings from summer heat and winter chill, reducing electricity consumption
- buffering extremes of precipitation and heat accompanying climate change

Unlike other assets, trees are *living* things with biological requirements for survival and growth. “Operating Instructions” for trees aren’t universally understood by everyone, whether homeowner, student, contractor, merchant, public servant, retiree or design professional. This chapter provides information to fill common knowledge gaps, about both individual trees and trees growing together as the urban forest.

Trees suffer abuse, especially where they come into contact with the human environment . Although damage is generally not intentional, it does represent a lack of understanding and respect. Because trees can absorb and adapt to some degree of mistreatment or neglect, we may not notice signs of decline. Eventually, cumulative stresses reach a tipping point, beyond which a vulnerable tree can’t garner enough soil nutrients or sun energy to photosynthesize at a rate that will keep it alive.

If we understand **how trees grow** and how they function in the environment, we can prevent damage and manage them proactively. We must plan for growth **with trees in mind**, using the principles of “low impact development” in relation to our community forest, so we can improve the odds that future Islanders will enjoy the benefits of a healthy green canopy.

What Tree Biology teaches us:

- Trees cannot run away – protect their roots or tops!
- Trees need oxygen, water & light – please don't cut off supplies!
- People and trees share space – think of BOTH before changing it.
- There is strength in numbers– consider the forest and soil, not just the trees.

1.1 Individual Tree structure and growth

Understanding tree biology is the starting point for appreciating and using best management practices for planting, protecting, and maintaining trees.

Definition of a tree:

A woody plant that grows to 15 or more feet in height, usually with a single trunk, growing to more than 3 inches in diameter at maturity, and possessing an upright arrangement of branches and leaves.

Trees are commonly referred to by their size at maturity:

- Small Trees: less than 25 feet tall
- Medium Trees: 25 to 50 feet tall
- Large Trees: more than 50 feet tall

Trees, like people, are complex organisms composed of many types of cells arranged into tissues and organs. New cells are produced in specialized structures called **meristems**. Those located at the ends of roots and shoots produce elongation, resulting in new growth, those near the periphery of stems increase a tree's girth.

Unlike people, trees are only generating systems: they cannot regenerate cells in the place of damaged or destroyed cells. This means that when a tree trunk is wounded, it can only "wall off" the damaged area and grow new wood around it. The damage itself cannot be mended.

Starting from the ground up, the three main parts of a tree are: roots, trunk and crown.

1.11 The Roots

The three most important things to know about tree roots are:

- There are two basic types of roots: **Woody and non-woody**
- 95% of tree roots are located in the top 18 inches of soil
- Tree roots spread far wider than the canopy edge...as much as 3 times

Tree roots grow out from the trunk a distance of 2 to 3 times the radius of the tree's crown. A tree that is 80 feet tall can have roots extending out in a 240 ft. diameter circle. Roots are located near the soil surface like a disk, to access needed nutrients, moisture and oxygen. Roots rarely penetrate deep into the earth.

Woody roots are the underground structures that **anchor** the tree. They are large, ropelike, and usually number from 4 to 11. They taper rapidly as they move away from the trunk. Woody roots develop in response to the tree's particular environment, working together to keep it stable in wind and extreme weather.

Non-woody roots are many, small, and fibrous. They absorb water and nutrients essential for tree survival and growth. On their fine root hairs grow beneficial fungi that form *mycorrhizae*, structures that mutually benefit both the fungus and the tree. Mycorrhizae increase root surface area, thus maximizing the water and nutrient uptake passing into the water-transporting cells within the wood of the tree.

Root Depth and Spread can be difficult to measure exactly. In the PNW it is widely understood that up to 95% of a tree's root system is within the first 18 inches of soil depth. This means that even activity only within the first few inches of soil can have a serious impact to tree roots. While relatively limited in depth tree roots are not usually so confined in terms of spread. Roots routinely extend up to two times the distance of the dripline and some species have been documented with roots extending over 8x the distance of the dripline!

What does this mean in the Practice?

- Excavating through a tree's root zone could sever one or more of the structural roots anchoring the tree. The tree could be destabilized and pose an increased risk of failure during an extreme weather event in the future.
- When soil in the root zone is compacted for any reason (by, heavy equipment use, construction, vehicle parking, even heavy foot traffic) the air spaces (pores) that make soil porous and allow non-woody roots to function, are crushed. Without these pores, feeder roots die and the tree begins to starve.
- Compacted soil leaves less space for water to seep down into the root zone. The results can be ponding and poor drainage, surface run-off and dry soil below.
- Leveling of a site by the addition of fill can result in roots not being able to obtain enough oxygen.

1.12 The Trunk

The trunk is the main woody stem of the tree that supports the crown. While most trees have one stem or trunk, other trees, such as vine maples, are characteristically multi-stemmed. Carbohydrates and other substances necessary for tree growth are stored in the trunk, roots and other woody portions of the tree.

Beneath the bark—the outer protective layer that covers the trunk, limbs, branches, and roots—there is a very thin layer of specialized cells known as the **cambium layer**. This is where growth in trunk and root diameter takes place each year. It also functions as the nutrient transport system for the tree. Water is transported up through the trunk in vascular tissues (**xylem**) to other parts of the tree. Sugars produced in the leaves flow down through the trunk in other vascular tissues (**phloem**) servicing all parts of the tree including roots.

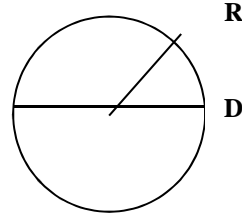
Every growing season, cambium cells divide repeatedly to form a new layer of phloem to the outside and an annual ring of new wood to the inside. The wood laid down in the early part of the growing season (early wood) contains more space for water conduction than the denser late wood that supplies more mechanical strength.

The annual rings produced by the cambium are not of uniform width or wood quality throughout the entire tree. Instead, the cambium responds to the prevailing load at any particular point by regulating the quantity and quality of new wood that it produces. By looking at a cut stump you can identify growth rings that are larger during rainy years, or asymmetrical where they have produced reaction wood to respond to a prevailing wind.

Measuring Trunk Diameter

Tree size is often measured as DBH or “diameter at breast height,” which is at 4.5 feet above ground. You can calculate trunk diameter by measuring trunk circumference at 4.5 feet above the ground with a standard tape measure and dividing by pi or 3.14, a constant. A standard forester’s tape converts a circumference measurement into diameter measurement.

$$\text{Diameter} = \text{Circumference} \div 3.14$$



What does this mean in the practice?

- When a backhoe clearing a building site removes a notch of the bark from a tree that is scheduled to be retained, its cambium layer has been damaged. Loss of this vascular life support system will make it more difficult for the tree to recover and thrive.
- Often, the diameter of the trunk is a better indicator of a tree’s age than the height. –Some trees, by species characteristics are stouter per height than others. A crowded conifer forest will have tall trees reaching for light with narrow stems and a low live crown ratio.
- Trunks enlarge yearly but only become taller by adding new tissue at the top. Branches don’t move upward as trees grow. Since a limb 4 feet above the ground stays at 4 feet, clearance beneath the canopy does not increase with time. Thus, a sweeping-branched Western red cedar does not make a great street tree in a tight location without surgical pruning.

1.13 The Canopy/ Crown

The crown is the woody and leafy component of the tree. It is composed of large, scaffold limbs that support smaller branches, twigs, leaves, and buds. The main function of the leaves is to capture energy from sunlight and convert it to energy stored in the form of sugars and starch.

This process is known as photosynthesis.

The sugars are transported in solution to the parts of the tree where they are needed for growth or for storage--downward and inward through the stem and roots, and a short distance upward into the growing shoots.

New growth appears as meristematic cells divide at the tips of shoots and roots.

Tree crown size is measured in square feet, based on the diameter of the branches at their greatest reach. In urban areas, a very small canopy is 150 square feet . A large canopy ranges to 1600 square feet (40 x 40 feet) or more where favorably sited.

What does this mean in the Real World?

- When planning new construction near a tree to be preserved, consider how upper building stories may impact tree branches. Branches can be temporarily roped back to avoid being torn off by equipment or placement of scaffolding. Buildings could have upper levels set back to accommodate wide canopy.
- Pruning a tree too radically greatly reduces leaf area and the tree is unable to photosynthesize at its previous rate. This throws roots and shoots out of balance and may cause shock and decline.
- Crown width indicates the “drip line”, even though roots usually extend at least another crown width beyond that. The area below the drip line is known as the Critical Root Zone (CRZ) that needs protection to ensure tree survival.
- If a tree planted below utility lines is a species that grows to great stature, it will require maintenance pruning indefinitely. This poses unnecessary hardship on the trees manager AND the tree. Remember to plant the “right tree in the right place.”

1.2 What is the Community Forest?

Understanding how a single tree functions is vital to giving it the right care. It is equally vital to think of trees together in groves, stands, woodlots and remnant forests. Because tree groves provide exponentially greater public benefit in terms of storm water interception and porous soils, we should consider the forest, not just the trees.

*The Community Forest Management Plan (CFMP) identifies the **Community Forest** as **any individual trees, small stands of trees or forested areas, and associated understory plants, that are found growing in natural and built environments, and which contribute important ecological, social and/or economic benefits to the community.***

The CFMP discusses the ecosystem services that trees provide such as improved air quality, storm water interception, reduction of soil erosion and energy costs, and wildlife habitat...not to mention the general enhancement of our quality of life. In cities larger than Bainbridge this collective green infrastructure is also known as the **Urban Forest**.

Why does it need Managing?

There are often conflicts where people and trees coexist. As the Journal of Arboriculture stated in January 1997: “*We cannot separate sustainable urban forests from the people who live in and around them...Urban forests require active consistent, continuing management.*”

The study and practice of community and urban forestry continues to evolve as municipalities recognize the huge value that trees provide. Increasingly, this value is being quantified and progressive communities like Bainbridge Island see their forests as necessities, not just amenities.

SECTION 2: TREE PROTECTION

Overview

We have chosen to place tree protection practices near the front of this manual. An important aspect of tree protection is to **first save the best of the trees you have**. This option will *always* preserve greater ecological value, higher real estate value and probably cost less than waiting for newly planted landscape trees to mature. While not feasible in all cases, it is sensible to survey existing trees first and design for protection, rather than assume a new structure can be built right next to a prized tree without consequence.

When contemplating new construction, paving or a building addition, a property owner should first obtain a site survey. The survey will locate accurately the edges of your property and the public right-of-way, as well as existing trees. Local codes encourage saving a site's significant trees. Thoughtful site planning with trees in mind is the best first step, and buildings designed to allow retention of worthy trees have instant payback in amenity value.

If site soils are compacted into hardpan by heavy equipment, vehicles or stored materials, they will no longer be porous enough to absorb storm water or provide room for roots. What is done to soil cannot easily be undone, so it is wise to understand and protect soil before beginning construction. Protecting the soil also helps ensure a future for valuable site vegetation, especially trees.

This chapter includes information on maintaining healthy soils. The humble material beneath your feet is actually:

- The basis for stable building foundations
- The sponge that soaks up Northwest rains
- A factory of organic decay and renewal
- Home for vegetation that will provide returns well into the future.

2.1 Identification of Significant and Valuable Trees

A "**significant tree**" as defined in BIMC 18.36 has 4 possible definitions:

1. In the Mixed Use Town Center (MUTC) and High School Road zoning districts, any tree eight inches in diameter or greater, measured four and one-half feet above existing grade
2. *Deciduous trees outside the MUTC and Highschool Road Zones: 12 inches in diameter or greater, measured four feet above existing grade.*
3. *Evergreen trees outside the MUTC and Highschool Road Zones: 10 inches in diameter or greater, measured four feet above existing grade.*
4. *all trees located within a "critical area and/or buffer" as defined in BIMC Chapter 16.20.*

Begin with an inventory of what you have. Assemble a list of trees, noting species, size and condition. A general rule of thumb is that groups of trees with associated understory plants are easier to protect and return greater value than single trees preserved in the center of a building site.

Although it is impractical to put time and money into saving a tree that is terminally flawed or diseased, it is equally important to understand the value that tree canopy provides to the overall ecological health of Bainbridge Island. A Tree Professional should provide unbiased information on tree health and will not provide justification for tree removals, if none exist. They can also help dispel fears of tree failure, which can lead to unnecessary removals of healthy and structurally sound trees.

Landscape buffers are almost always required for new subdivisions or commercial projects. On Bainbridge Island, these narrow strips of remnant forest more often than not include Douglas fir or other native conifers that are tall and slender with little canopy. Trees such as these, that begin their lives surrounded by forest, produce foliage at the top, where sunlight is abundant, while their lower branches often die back from light starvation. When site clearing creates a new woodland edge, these slim trees are exposed to a condition to which they are not adapted – standing alone. Blowdowns or breakage frequently result, and property owners understandably begin to fear tall trees.

This problem can be mitigated by planting smaller trees and shrubs that normally grow at the forest edge, removing conifers close enough to pose a risk to people or buildings and replanting young trees that can adapt to buffer conditions. The best solution is to preserve larger blocks of vegetation where the perimeter to area ratio is as low as possible.

2.2 Protection and Conservation During Construction

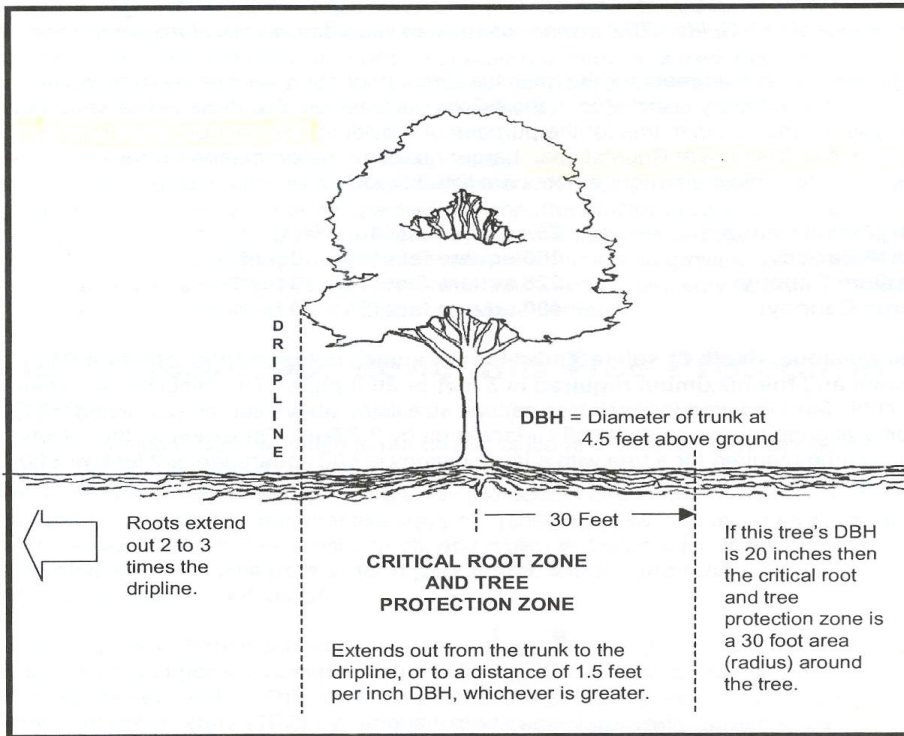
Please reference City code requirements, available from the City of Bainbridge Island Planning and Community Development Department, (206) 842-2552.

Property owners should meet with the City arborist or planner, architect, developer, and contractors to discuss tree protection issues and required permits before parties become invested in a particular site plan. This will save trees, money and headaches down the road.

2.21 Critical Root Zone (CRZ) and Tree Protection Zone (TPZ)

Most of a tree's roots lie within its dripline (or under-canopy area). Ninety-five percent of the roots of most trees grow in the top 12-18" of soil. Roots that supply nutrients and water concentrate just below the soil surface. Since fine feeder roots can only penetrate a thin layer of soil, they must spread far out from the tree to adequately supply it, well beyond the edge of the canopy above.

For existing trees, there is a minimum amount of space, above ground (for trunk and crown) and below ground (for soil health and the root system) needed to sustain a tree and preserve its health. The ground area is called the **Critical Root Zone (CRZ)**. The CRZ is usually far smaller than a tree's entire root spread. Thus, protecting the CRZ saves a portion, but not all the roots. The greater the protected area, the better a tree's odds for survival. You can calculate the CRZ as illustrated and described below.



The CRZ falls within an imaginary circle on the ground with a radius of between 1 and 1.5 feet for every inch of tree diameter at 4.5 feet above the ground, (but never less than a seven-foot radius). For example, a tree with a trunk diameter (dbh) of 20 inches has a CRZ of 20-30 feet (20 inches x 1-1.5) around the tree.

2.22 Activities Requiring TPZ Determination

The **Tree Protection Zone (TPZ)** is the area to be fenced around the CRZ, in this case having a 20- 30 foot radius, and a diameter of 40-60 feet. When this configuration is not practical, a Tree Professional, based on the location of a specific tree's structural roots and other site conditions, can establish a TPZ in the field.

A TPZ is a restricted activity zone where no soil disturbance is permitted. Site work planned near the critical root zone (CRZ) of a single tree or groups of trees to be preserved, requires a TPZ. TPZ fencing should be in place before undertaking any activities that might involve trenching or other disturbance to the tree's roots, such as:

- Access roads
- Staging, storage, and temporary parking areas
- Paving or other impervious surfaces
- Temporary utility lines
- Installation of pipe drainage, irrigation or other services
- Stormwater management devices
- Grading that requires cut and fill

2.23 Activities Prohibited within TPZ

- Storage or parking of vehicles, building materials, refuse, excavated spoils or dumping of poisonous materials on or around trees and roots such as paint, petroleum products, concrete or stucco mix, dirty water
- The use of tree trunks as a winch support, anchorage, as a temporary power pole, sign posts or other similar function.
- Cutting of tree roots by utility trenching, foundation digging, placement of curbs and trenches and other miscellaneous excavation
- Soil disturbance or grade change
- Drainage changes.

A site visit by a Tree Professional is needed if advance planning fails and a trench must pass through the TPZ. Depending on specific site conditions, tree species, health, and position of any potential targets, trenching may be approved. If not, it could require risk mitigation, restoration, and payment of a bond by the contractor. Alternative remedies can include tunneling or re-routing utilities, and relocating or re-engineering walls to avoid roots of important trees. Walls and pipes can be moved, but a damaged tree cannot be repaired or readily replaced.

2.24 Activities Permitted/Required within TPZ

- Mulching. During construction, spread wood chips within the TPZ 4" to 6" deep, leaving the trunk itself clear. Mulching helps prevent inadvertent compaction and moisture loss from occurring. 2-inch unpainted, untreated wood chips or equivalent is recommended for mulch material.
- Root Buffer. When areas under the tree canopy cannot be fenced, create a temporary buffer to cover the root zone (such as wood chips and plywood) that remain in place until final grading.
- Irrigation, soil aeration with an air spade, fertilizing or other beneficial practices.

2.25 Protective Measures

Protective Measures for Retained Trees, Street Trees or Designated Trees

Tree Protection Fencing

- keep branches and foliage clear from contact by equipment, materials and activities;
- preserve roots and soil conditions from compaction;
- make it clear to all contractors on site that the tree protection zone (TPZ) cannot be violated.

Recommended fencing includes orange plastic or chain link fencing that is 4– 6 feet tall. For best results, use **chain link fence** on galvanized poles. After placement under supervision of a Tree Professional, this fencing will enclose the entire TPZ for the duration of the construction project.

To protect street trees, a **plywood box** that physically protects the trunk from gouging by nearby equipment is the best option.

Prune trees with branches that hang over into the building envelope zone before construction damages them. They may be temporarily roped back to allow for clearance during construction. A Tree Professional can perform this type of work in a way that will protect the tree.

Post a Sign

A brightly colored sign shall be posted on each fence and /or plywood box enclosure to clearly state: *WARNING - Tree Protection Zone*

Erosion Control

If a tree is adjacent to or near a steep slope or other critical area, approved erosion control or silt barriers may be necessary to prevent siltation and/or erosion within the TPZ. **Do not install silt fence within the Critical Root Zone, CRZ.** Far too often contractors trench through a tree's root zone to meet requirements for silt fence installation, causing more harm than good. Protective mulch (above) and permeable erosion control blankets can substantially reduce runoff within the CRZ.

Root Pruning

See Section 4.4 (Root Pruning) if damage to tree roots occurs during excavation on a building site. It is far better for the tree to avoid root damage in the first place.

2.3 Post-Construction Management

Once construction is complete and the site clean, the arborist should reassess the site and identify maintenance measures that may be required for retained trees. Factors to consider include:

- Stress or damage to protected trees and associated vegetation/understory
- Risk assessment
- Odds for the trees to remain healthy in the altered landscape

A maintenance plan should help relieve tree stress from construction damage, including:

- disruptions to drainage
- restricting impervious surfaces or compacted soil
- impacts of fill
- impacts of root or canopy loss, or trunk damage
- potential increased storm water runoff and erosion due to tree/vegetation loss
- interference with, or impact on, surviving or neighboring trees

2.31 Maintenance and Monitoring Strategies

Successful tree protection does not end with construction, but continues with maintenance that takes place over a number of years. It requires a sustained stewardship commitment, fulfillment of after-care responsibilities, and may require that a landscape maintenance surety device be in place before granting a Certificate of Occupancy.

Regular site monitoring and weeding are of great importance following construction. Additional management includes mulching with compost or arborist's chips and summer irrigation for the first 3 years until retained trees have recovered from construction stress and new plants are well established. During the growing season, check at least monthly that weedy plants are controlled before smothering or setting seed, and that sufficient moisture is reaching plant roots to prevent wilting, browning or dieback.

IMPORTANT NOTE:

Avoid excessive or regular watering on or near the tree trunk and do not plant incompatible, water-loving plants within the tree's dripline. Combined with poorly-drained soil, these factors often activate normally dormant fungi to become opportunistic and infect the tree, causing the decline and eventual death of the tree. This decline can be slow and may not be evident for many years.

Performance Standards to track success of vegetation establishment (or restoration) should be clear. It is imperative to monitor tree and/or plant condition at the beginning and end of each growing season, relative to these standards. If problems arise, modify maintenance methods or frequency as needed. **Target success rates** should fall within the following guidelines:

- 95% survival of retained trees protected by approved plan
- 60-80% survival of new trees and plant material after 3 years
- Tree and shrub cover establishment resulting in 30-50% growth after 3 years
- After initial clearing of invasive species all invasive grow-back should be aggressively addressed to prevent infestation for, at minimum, 3 years
- Any newly installed plants that die should be replaced within 3 years of planting

2.4 Soil Health

Preserving soil health is essential to preserving tree root health. Construction is one of the main activities responsible for *damaged* soil. While it appears that some trees will grow anywhere, most trees are particular about the soil conditions under which they will thrive. All roots need porosity in the soil to grow towards nutrients and water.

2.41 Soil Attributes

Native soils are highly complex systems that provide essential ecosystem services including bio-filtration of pollutants, nutrients for plant growth, and the storage and slow release of stormwater. The ability of soil to effectively store and slowly release water is dependent on soil texture, structure, depth, organic matter content, and biota (Washington Organic Recycling Council (WORC), 2003).

Soil fertility can be evaluated using standard tests that measure the amounts of phosphorous, potassium, calcium, magnesium, zinc, and manganese in a sample. Soil tests can determine the soil pH (acidity/alkalinity), concentration of key trace elements, and the amount of organic matter present by weight. The Kitsap County WSU Cooperative Extension Service provides soil sampling advice and soil sample analysis services. Special tests can determine the presence of soil pathogens affecting plant health.

2.42 Organic/Hydrologic Soil Balance

Organic matter is the critical component of a functioning soil system. Typically, native Puget Sound forest soils have an organic matter content of 4 to 6 percent and the sub-soils less than 1 percent.

Construction activity removes the upper layers of soil, and site equipment compacts exposed sub-soils low in organic matter. This alters the site's hydrologic characteristics by converting the predominantly subsurface flow regime of the pre-disturbance site to primarily overland flow (*Low Impact Development Technical Guidance Manual for Puget Sound*, 2005).

To restore the hydrologic and other environmental functions of disturbed soils on developed sites, added topsoil should have the following characteristics:

- A minimum organic matter content of 10 percent by dry weight for all planting beds and other landscaped areas (except turf requiring access during wet months)
- Organic matter content in turf areas that requires maintenance or supports foot traffic during the wet months should be 5 percent by dry weight
- PH between 5.5 and 7.0 or a pH appropriate for installed plants – Some acid loving plant such as conifer require a pH of 4.0 to 5.7.
- A minimum depth of 8 inches (except in TPZ)
- Planting beds mulched with 2 to 4 inches of organic material
- Subsoils below topsoil applications should be scarified to a depth of a least 4 inches and some topsoil material incorporated to prevent stratification

2.51 Soil maintenance: Enhancing Soil Composition

When beginning a construction project where retained trees will be protected:

Set Aside and Protect Native Soil and Vegetation Areas

The most effective and cost efficient method for providing the hydrologic benefits of healthy soil is to designate and protect native soil and vegetation areas that already exist on the site.

Stockpile Topsoil from Cleared and Graded Areas and Replace Prior to Planting

Strip and stockpile topsoil in approved locations. Cover with weed barrier or other breathable material that sheds moisture, yet allows for air transmission. Before replacing, test stockpiled material and if needed, amend with organic matter or topsoil to achieve required organic content to an 8-inch depth where redistributed. Replace stockpiled topsoil prior to planting.

If replaced topsoil plus compost or other organic material will amount to less than 12 inches, scarify or till subgrade to achieve 12 inches of loosened soil after topsoil and amendment are placed. The entire surface should be disturbed by scarification, and then dressed with the amendment. **Do not scarify (roughen) soil within drip-line or determined TPZ of existing trees to be retained.** To reduce damage to roots within 3 feet of tree drip-line or TPZ, incorporate amendment no deeper than 3 to 4 inches.

Import Topsoil that Satisfies Required Organic Matter Content Standards

If topsoil from the site is inadequate, bring in good quality organic compost and apply and incorporate as described above. Imported topsoil that is not blended into the subsoil layer can cause serious drainage and plant establishment problems.

2.52 Soil Stresses and Mitigation Measures

During development, compaction of the soil is the largest single factor responsible for the decline of older trees. Ninety percent of the damage to the upper eighteen inches of soil occurs with the first pass of heavy equipment – and **cannot be reversed**. Every effort must be made to avoid compaction of soil porosity within the TPZ. Correct placement of the TPZ fencing and strict adherence to the “no-fly” zone will prevent soil compaction. If, however, the completed development results in soil compaction near the trees that are to be protected, there are ways to help reduce impact injury.

If a compaction event does occur to the upper 12-inch soil horizon, one or more of the following mitigation measures, performed under the supervision of a Tree Professional, can help:

- Aeration system
- Vertical mulching
- Soil fracturing
- Core venting
- Radial trenching
- Deep mulching
- Another method recommended by an ISA Certified Arborist

Mitigation for drought stress and excess soil moisture is covered in Chapter 4.2 Watering and Irrigation.

SECTION 3- TREE SELECTION AND PLANTING

Overview

Trees should be chosen carefully, since their value increases over the decades, and is fully achieved only if growing site and species are well matched. Bainbridge Islanders can grow a wide variety of native and ornamental species, in a range of habitats. Site characteristics, aesthetics, and habitat value should all be evaluated before deciding which tree fits best.

The tree itself should be of good quality, regardless of size. Flaws in nursery stock often cannot be corrected, and may prove fatal over time. Quality matters. The City has developed an approved Landscape Materials Matrix (Appendix J), and can be used to select trees and shrubs.

Northwest native species contribute special environmental and heritage value, and are highly recommended.

3.1 Tree Selection Criteria

Potential trees need to work for the environments they will call home. A tree can't move; it can only try to adapt. Species characteristics are genetically derived, based on habitat of origin. Since neither site nor species attributes are easily changed, both must be considered in advance to ensure a successful outcome.

Before buying a tree, investigate key planting site characteristics:

- Light level (deep shade, open shade, partial shade, full sun, extreme exposure)
- Soil type (sand, silt, clay, gravelly, glacial till, humus, loam, bedrock)
- Availability of water (droughty or saturated soils, well-drained or moisture retentive soils, seasonal fluctuations, perched water table)
- Size of intended planting area (above or below ground restrictions)

If a particular site presents multiple challenges based on this evaluation, another planting location might be a better choice. If your heart is set on a certain tree, seek out a more compatible spot if necessary. For multiple-tree planting areas, the same principles apply, and the match must work for all selected species.

With site constraints in mind, the next step is to choose a suitable species among the huge range of available options. It is at this point that landscape character and desired aesthetic or functional attributes come into play. A good plant list provides detailed information to help filter options:

- Tree size (height & spread, ultimate stature, longevity & growth rate)
- Environmental tolerances (light, water, pollution, soil type & pH, etc.)
- Seasonal attributes (flower, fruit, bark, fall color, silhouette, etc.)
- Functional attributes (screening, light shade, fragrance, wildlife value, etc.)
- Drawbacks and conflicts (fruit and leaf drop, shallow roots, failure profile)

As a final selection step, you can seek out examples of good candidate species in a nursery, park or mature public or private garden such as the Island's own Bloedel Reserve. Looking at trees in actual landscapes is invaluable for envisioning a future tree's character and stature. Photos in books or on-line are also helpful. This deliberate process helps develop familiarity with both a tree and its landscape home, and provides the basis for wise decisions.

3.2 Tree Quality Standards

All trees planted on Bainbridge Island, as either street or landscape trees, should meet the standards defined in American Standard for Nursery Stock (ANSI Z60-1-1996). This standard specifies height, caliper, and rootball diameter for nursery stock. In addition, it provides standards for container tree stock and shrubs.

In addition to specifying that stock meet the ANSI standard, trees selected should:

- Have strong central leaders for all but small or multi-stemmed, spreading trees
- Have symmetrical canopy and evenly-spaced scaffold branches
- Show evidence of cultural pruning by the nursery, including corrective pruning and crown raising but without extensive heading-back (which creates branch congestion)
- Be free of damage from nursery lifting, insects, diseases, and other pests
- Have intact rootball, not broken from rough handling.
- Have weed-free, non-desiccated rootball or container soil

3.3 Miscellaneous Material

3.31 Stakes

Not all new trees need staking. In fact staking can lengthen the time it takes a tree's roots to take hold in the soil. Trees planted in natural areas as part of restoration efforts, or those in protected areas do not need staking. Movement of the young tree's stem is important for developing trunk taper, which provides future strength. The use of planting stock with more substantial stem is preferable to staking.

In more urbanized settings like Winslow, where highly exposed to wind, or where there are close encounters with people and vehicles, new trees should be staked, but for **one year** only.

Install stakes and ties immediately after planting. Use stakes of sound, untreated wood, approximately 2 in. x 2 in. or 2 in. diameter, 6-8 feet long (depending on tree size), and pointed at one end. Use plastic chain-link ties to secure the tree to the stakes. Remove thin bamboo stakes and trunk-binding tape that come with some container-grown trees. Tape can girdle a tree as it adds growth rings, strangling or weakening it structurally to the point of failure.

Remember to remove all stakes after 1 year, except where necessary for trunk protection.

Do not drive a stake through a tree's root ball

Do not tie a tree directly to a stake (this immobilizes the trunk and inhibits proper growth)

Do not leave stakes – and especially ties – in place long-term

3.32 Mulch

Mulch all trees, shrubs and other plantings with an organic mulch that has been previously approved by a qualified tree professional. A mixture of composted wood chips and compost is ideal, but wood chips alone are usually sufficient. Avoid using peat moss or fine bark alone, since these actually shed water when dry, deflecting moisture from thirsty plants.

- Place mulch 4 to 6 inches deep around trees and shrubs out to the edge of the drip line. Take care that no mulch touches the trunk itself, even on small plants.
- Do not pile or mound mulch against tree trunks; This smothers roots and invites basal rot or insect attack.

3.33 Tree grates

Where sidewalk width is less than 8 feet and new trees are to be installed in tree wells, metal tree grates can successfully protect roots from soil compaction. Grates should be approved by Bainbridge Island Public Works Department, and should be at least 4' x 4', with breakouts to accommodate future trunk growth. Tree grates offer a good opportunity for integrating work of local artists in the Winslow core. Tree grate areas should be cleaned and re-mulched periodically, and inspected to be sure trunks have room to expand. Enlarge grate openings as needed.

3.4 Timing of Planting

Overall, Fall is the best time to plant in the Puget Sound region. Mild winters and rain favor root establishment before spring growth spurts. Exceptions are magnolias and a few other species, and conifers in landscape (not natural) areas; these survive better when planted in the spring. Here are guidelines for planting time:

- Balled and Burlapped (B&B) trees and shrubs: October 20th to May 1st
- Bare root trees and shrubs: January 1 to April 1st
- Container-grown trees and shrubs: All year, but best October 20th to May 1st.

Schedule plant purchase and delivery as close to planting time as possible after the site is prepared. Plants that cannot go in the ground immediately upon delivery should be held in a shady location, protected with wet wood chips and kept well watered. Plant within 4 days of delivery if possible.

3.5 Site Preparation

Call for utility locate service prior to digging a tree hole (Dial 811, open 24/7).

A percolation test is required to ensure that there is adequate drainage for planting new trees. A minimum of one test per site shall be reviewed with the contractor and a landscape architect or ISA certified arborist. Mitigation measures shall be applied to locations with poor drainage.

Planting site must be free of weeds, construction debris and spilled materials.

For trees in a confined planter pit or sidewalk area:

- Dig the planting hole to a depth that establishes the top of the rootball 2-inches below the bottom of the tree grate.
- The width of the planting hole shall be at least 4-feet. Scarify (roughen) the sides of the pit.

For trees in all other areas:

The depth of the planting hole shall be no deeper than the height of the new tree's root ball. Trees shall be set at the same relationship to finish grade as they were to the ground from which they were dug. *Beware of excess soil piled up in the root ball or container – find the plant's root flare and remove any soil above this level before (and after) planting.* Excavate the hole a minimum of three times wider than the diameter of the root ball or container, and deep enough to allow the root ball or container to rest solidly on firm ground. If initially dug too deep, refill the hole with mineral soil and tamp to bring root ball or container up to the correct level before proceeding with planting.

3.6 Tree Planting

- Move the tree using only the root ball or container; avoid using the tree trunk as a 'handle' to move the tree.
- Remove ropes, strings, and wrapping from the root ball after the tree has been set. Cut apart the wire basket and remove before backfilling.
- Make sure the roots are not currently buried in their pot or burlap by carefully excavating the surface of the root ball until the first root is found, then stop.
- Prune roots of bare root trees at the time of planting to remove damaged or undesirable roots (those likely to become a detriment to future growth of the roots system). Consult with an ISA Certified Arborist prior to pruning. Bare root trees should have the roots spread to approximate the natural position of the roots and centered in the planting pit. Work planting soil backfill firmly into and around the roots, with care taken to fill in completely with no air pockets. Watering the back fill soil will aid in keeping roots moist and removing air pockets.
- Trees must be plumb and braced in position until prepared backfill has been placed around the root ball.
- Utilize the native soil from the planting hole for backfilling, unless specified otherwise. Studies have shown this is better for long term tree health than potting soil or other amendments.
- Water twice during planting--once when the planting hole is half backfilled, and again thoroughly when full to eliminate air pockets. Soil in the hole should be moistened if necessary before setting the plant. Dry soil can kill fine roots on contact.
- Mulch all trees, shrubs and other plantings as described elsewhere in this manual.

3.7 Recommended Species

Included in the BMP Manual Appendix is a matrix of plant materials recommended for use on Bainbridge Island. All commercial, industrial, and residential projects, whatever the scope, should use this list as the basis for plant selection.

Always select species based on site-specific conditions that affect plant growth: sun exposure, soil type, moisture availability, shoreline conditions, adjacent site improvements, and any particular constraints on space or function. If above- or below-ground utilities are present, plant selection must conform with utility company requirements to avoid conflicts. Otherwise, a promising tree may later suffer damaging root disturbance or disfiguring topping, compromising its longevity and landscape value.

Suggested landscape materials matrix— APPENDIX J

SECTION 4- TREE MANAGEMENT AND MAINTENANCE

Overview

The recommended practices (BMPs) in this section describe basic tree care activities, and when or where to use them. Regardless of their location, all trees require some care, particularly in the early stages of life. The level of care generally increases with the level of human interaction a tree experiences. Established trees in large landscapes, buffers, riparian zones, and drainage areas require little more than periodic inspection and passive protection. Trees growing along road frontages, in parking lots, in plazas and downtown settings, in schoolyards and developed parklands and in some utility corridors require a much higher level of care since our interaction with them is frequent. People have direct impacts on trees, and trees on people. Tree maintenance and management are all about keeping people safe and trees healthy.

4.1 Mulching

Mulching is the application of organic material on top of the ground over a tree's root system, to enhance root and tree growth. The objective of mulching is to recreate the conditions found in undisturbed, natural woodlands. All trees should be mulched regularly unless nature provides it.

The main reasons for mulching are:

- to improve soil moisture retention
- to improve soil structure by reducing compaction and allowing aggregates to form
- to enhance beneficial microbes and soil macro-fauna biodiversity (bugs & worms)
- to protect roots from extreme heat and cold
- to return nutrients to the soil for plant uptake
- to reduce runoff and erosion

4.11 Basic Mulching Guidelines

- Use organic materials such as aged wood chips, leaves, and compost; avoid grass clippings, fir bark, and inorganic materials like plastic and rocks.
- For newly planted trees, mulch the area out to the dripline of the tree.
- For established trees, mulch out to the drip line or as far out as practical. Completely remove underlying turf before mulching. This also can be accomplished by sheet-mulching. Sheet mulching is the practice of laying down "sheets" of cardboard, burlap, newspaper or any other material that will bio-degrade over time underneath a layer of organic mulch.
- Spread mulch in an even layer, 4-6 inches in depth; do not mound the mulch around the tree trunk.
- Keep mulch at least 3 inches away from the tree trunk to avoid creating favorable conditions for disease and insect infestation.
- Mulch twice per year if possible, in late spring and/or in fall as leaves drop.
- Do not use string weed trimmers around the base of trees to remove weeds within mulch beds. Trimmers damage bark and cambium at ground level, which diminishes tree health. Hand pull weeds. Avoid the use of contact herbicides.

4.2 Watering and Irrigation

In this era of diminishing resources, the ultimate goal for irrigation is to eliminate supplemental watering. The reality is that even the most drought tolerant species, well-mulched, require a period of watering to establish root systems and fend for themselves – typically 3 to 5 years. For a variety of reasons, we also sometimes use trees that aren't genetically adapted to our summer drought weather pattern. Without supplemental irrigation, such trees will either die or become stressed, stunted and susceptible to diseases and pests.

4.21 Basic Watering Guidelines

When watering is necessary, follow these basic guidelines:

- Water between 10 p.m. and 10 a.m. if possible. Early morning is best because winds are calmest, and the weaker morning sun will dry wet foliage without damage.
- Water less often with more water, rather than more often with smaller amounts of water. This practice encourages deep rooting. Except trees in containers, no established tree should need watering more than twice weekly.
- Apply water evenly throughout the outermost 75% of the CRZ (drip line).
- Do not directly spray water on tree trunks.
- Apply water slowly to avoid losing it as runoff outside the CRZ.
- Mature trees need approximately 1 inch of water every 3 - 4 weeks. In extreme drought or heat waves, look for signs of distress and water deeply, more often if needed.
- Over-watering can cause as many problems as insufficient watering and symptoms may look the same: wilting, yellowing, dropping leaves, dieback, but usually there is associated soggy soil.
- If you are unsure if your tree needs water, put your finger in the soil and see if it is dry deeper than 3 inches down. If so, water; if not, don't.
- Maintain organic mulch to retain moisture.

4.22 Newly Installed Trees

Newly installed trees, including drought tolerant and native species, are dependent upon supplemental irrigation until established, (3-5 years), but for a minimum of two years. Periods of extreme heat, wind or drought may require more or less water than recommended here. Amounts will vary, depending upon soil composition, heat, wind, rainfall, soil drainage characteristics, and type and extent of ground cover.

During the establishment period, water trees thoroughly to their full root depth as frequently as needed. Develop a schedule for dry months, prior to planting, as follows:

Tree Caliper (inches)	Gallons per Week
1	5
2	10
3	13
4	18
5	23

Alternatively, in the absence of adequate rainfall, apply 1 inch of water per week during the growing season, throughout the root zone of newly planted trees, damaged trees, or trees under stress. Brief Summer rains add little usable moisture to the ground.

4.23 Mature Trees

Established and mature native vegetation should not require watering unless changes have occurred within the tree’s CRZ. Root impacts such as construction damage, grade changes, compaction, root cutting, or other disturbances to the root zone may necessitate watering to improve or maintain the health of the tree. Mature trees could become stressed due to periods of drought and subsequently require watering to sustain them.

Water should be applied over a period of time to thoroughly moisten the soil to a depth of 18 inches or more.

The amount needed depends on several factors, including plant species, current soil moisture, soil texture (sand, loam, clay), and drainage. The amount of air in the soil is as important as moisture. These must be kept in balance to ensure continued plant health.

If soil texture is sandy, trees will need to be watered more frequently than in clay soil. Clay soils have a high water-holding capacity and may only need water during very dry periods. If your soil is compacted, it will be more difficult for water to penetrate the soil and aeration may be necessary.

To determine the amount of water to apply to a tree’s root zone:

- Calculate the radius of the CRZ
- Calculate the number of seconds it takes to fill a 5-gallon bucket of water with the hose or water delivery system you are using
- Match that time to the closest number of seconds listed in the following table
- For tree’s CRZ radius (Step 1) check under this Delivery Rate column to find total application time required to water the tree
- These numbers assume that you are watering the outermost 75% of the CRZ
- This can represent a huge amount of water, take the time to figure accurately.

Approximate Watering Time to Apply One Inch of Water Across Critical Root Zone

Radius of CRZ (ft)	Volume of Water (gals) to equal 1”	Total Application Time (minutes and hours) at a Delivery Rate of 5 Gallons Per x Seconds					
		X =	5 Sec	15 Sec	30 Sec	45 Sec	60 Sec
10	147		3 min	7 min	15 min	22 min	30 min
15	330		6 min	17 min	33 min	50 min	1 hr
20	587		10 min	29 min	1hr	1 hr 30 min	2 hrs
25	917		15 min	46 min	1 hr 30 min	2 hrs 30 min	3 hrs
30	1,322		22 min	1 hr	2 hrs	3 hrs 30 min	4 hrs 30 min
35	1,799		30 min	1 hr 30 min	3 hrs	4 hrs 30 min	6 hrs
40	2,349		39 min	2 hrs	4 hrs	6 hrs	8 hrs
45	2,973		50 min	2 hr 30 min	5 hrs	7 hrs 30 min	10 hrs
50	3,670		1 hr	3 hrs	6 hrs	9 hrs	12 hrs

4.24 How and When to Water

A soaker hose is the best tool for properly watering trees. Position the hose at the dripline and let it run for 1 - 1 1/2 hours at a slow drip so the water has a chance to penetrate the soil. A standard garden hose can be used in place of a soaker hose. Turn the hose on to a slow trickle and set it under the canopy for 2 - 4 hours. Water a minimum of four sites around the tree and out to at least the dripline. Watering should take place during the dry months of the year, historically July-October. Annual weather variations may alter this range.

4.25 Mitigation for Drought Stress

If for some reason watering doesn't occur when needed, make up the deficit as soon as possible by irrigating sufficiently to wet the soil within the CRZ (or on a construction site, the TPZ) to a depth of 18-inches or more. More aggressive options include sub-surface irrigation at regular specified intervals by injecting on approximate 3-foot centers, 10-gallons of water per inch trunk diameter within the TPZ. Apply water slowly to avoid runoff outside of the CRZ. Duration should be until October rains, unless specified otherwise by local authorities or a project arborist. Don't forget to mulch trees to reduce the volume of water required.

4.26 Mitigation for Excess Soil Moisture

Construction on- or off your property can result in excess surface moisture collecting around valued trees. Such changes can stress or put a tree into decline. More water is not always better, especially for long-established trees used to a particular environment. Take measures to prevent or alleviate excess water saturation and sedimentation within a retained tree(s) TPZ due to site construction activity. If a tree's adjacent grade exceeds 8% (23 degrees), silt barriers can be installed outside the TPZ to prevent excessive soil saturation, siltation and/or erosion within the TPZ. Divert water from low-lying areas of trees where it could pool for long periods and stifle roots. Some trees can survive periods of soil saturation, but others cannot. Acceptable levels of saturation vary with tree species, soil type, time of year and the pre-construction growing environment.

4.3 Fertilization

Do not apply fertilizer to newly planted trees, and avoid mixing additives into backfill soil. For established trees in managed landscapes, place 2 -3" of aged manure or compost to tree CRZ and on beds once a year at most, in spring or fall. Unless soil tests indicate deficiencies, a tree should need no further supplemental fertilizer applications. In nature, trees recycle the nutrients they need through leaf and decaying wood returning nutrients to the soil.

When applying fertilizer based upon recommendations resulting from a soil test, use the following guidelines:

- Apply fertilizer when the roots are actively growing--late winter, early spring, and early summer
- Use slow release organic fertilizers with a salt index of less than 50
- Apply fertilizer to the CRZ of trees, from the trunk to the dripline
- For surface applications do not incorporate or till fertilizers into the topsoil
- Apply sub-surface applications of fertilizer where turf or groundcover exists, or where runoff is likely
- Make sub-surface applications of fertilizer 4-12 inches deep, in holes that are 2-4 inches in diameter and spaced 12 to 36 inches apart
- Follow recommended application rates: more is not better, and may pollute the groundwater

4.4 Pruning

For trees in managed landscapes, the most compelling reason to prune is to develop a strong, safe tree structure, or to correct significant defects or damage. Generally, no more than one fourth (25 percent) of the tree's functioning leaf and stem area should be removed within one calendar year. An arborist certified by the International Society of Arboriculture, or supervised by an ISA certified arborist should complete pruning. It should conform to the current American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning), ANSI A300 (2001).

- Excessive Pruning (over 25%) is prohibited except for clearance pruning of overhead electrical utility lines, for traffic safety, or to abate a public nuisance
- Topping is prohibited, unless approved by an ISA Certified Arborist. There may be special cases when it is better to remove large portions of a tree rather than remove it totally.

4.41 Pruning Young Trees

Early structural pruning is a proven, cost-effective measure to improve life expectancy. Added benefits are safer trees with fewer branch failures. Prune newly planted and young trees as follows:

- Newly planted trees should only receive minor pruning to remove dead wood and branches damaged during transport and planting
- Prune in successive years to provide sidewalk and street clearance, improve the branch structure and maintain central leaders
- No more than 25% of foliage should be removed during a growing season

4.42 Pruning Mature Trees

There are seven types of pruning that may be required for use on mature trees. Prior to entering the tree, the tree worker is required to be familiar with these types of pruning as stated in the Performance Standards of the current ANSI A300 (2001).

Types of pruning include:

- Crown Cleaning: selective pruning to remove one or more of the following parts: dead, diseased, and/or broken branches
- Crown Thinning: removal of watersprouts and dead, dying, diseased, crossing, and hazardous branches from a tree
- Crown Raising: lower branches are removed, thus raising the overall height of the crown from the ground
- Crown Restoration: restoring the natural growth habit of a tree that has been topped or damaged in any other way
- Crown Reduction: reducing the height or spread of a tree by performing appropriate pruning cuts
- Utility Pruning: pruning around or near utility facilities with the object of maintaining safe and reliable utility service
- Re-trenchment: pruning that reduces the canopy size of old declining trees to enhance and prolong realized tree benefits.

Climbing and pruning practices should not injure the tree except for necessary pruning cuts; ascent into the canopy should be by rope. Climbing spikes (gaffs) should never be used unless the tree is identified for removal.

4.43 Root Pruning

Protecting tree roots during construction is a primary goal. If tree roots **are** exposed during excavation:

- They must be cut cleanly with sharp hand tools. Preserve the root bark ridge (similar in structure and function to branch bark ridge).
- Use hand pruners, loppers and/or an appropriate handsaw. **Do not** apply wound dressings, as this retains moisture and can encourage decay.
- Directional Root Pruning is the recommended technique, combined with hand excavation around tree roots. With Directional Root Pruning, objectionable and severely injured roots are properly cut to a lateral root that is growing downward or in a favorable direction.
- The project arborist or City Arborist should review the removal or cutting of roots greater than 2 inches in diameter. The recommended review ensures that the stability and health of the tree is assessed.
- If soil and or sub-grade material must be removed from the CRZ, complete by hand excavation, air spade, or water and suction device.
- If backhoe excavation is implemented, over-burden removal should be conducted with the bucket facing the tree(s) and soil removal should be pulled back toward the backhoe or small excavator.
- Don't leave the CRZ exposed overnight. If exposure is to occur, then wet burlap or mulch should be applied temporarily.

4.5 Plant Health Care

Generally, insect populations do not threaten tree health to the point of mortality. More often, when their populations become too great they create a nuisance. If a tree is stressed due to other circumstances, pests can defoliate and severely damage a tree. If action is warranted, **Integrated Pest Management (IPM)** suggests that the pest source be identified and targeted with a specific and timely treatment. To preserve an ailing tree, property owners should implement the following guidelines and treat the problem in a timely fashion to prevent further deterioration of the tree.

4.51 Insect Control

One of the most common and detrimental mistakes made by owners and landscape maintainers is the unwarranted use of pesticides and herbicides. Use the IPM method to diagnose and decide upon an appropriate response. If chemical controls are called for, consult a pest control operator licensed by the Washington State Department of Agriculture (Chapter 17.21 RCW). A licensed applicator should be employed. Nontoxic materials should be used whenever possible to control damaging insects.

4.52 Disease and Decay – above ground

Disease that erodes the health or weakens the structure of a protected or designated tree may compromise the safety of people or property. A Tree Professional should be contacted for diagnosis and remedy options. (See Section 5 for tree risk management.)

4.53 Disease – below ground

Soil borne diseases, such as root rot (*Phytophthora*, *Verticillium*, *Armillaria*, etc.) are present in this area’s soils. Often, a poor landscape design encourages harmful, and often lethal, diseases in surrounding, old trees.

Avoid the following conditions that tend to favor a diseased root environment:

- compacting the soil within a tree’s dripline
- adding fill dirt
- roto-tilling within the drip line
- trenching and removing soil from the tree root area
- excessive or regular watering on or near the tree trunk area
- planting incompatible water-loving plants within the tree’s drip line

Combined with poorly-drained soil, these factors can activate normally dormant fungi that in turn may infect the tree, precipitating the decline and potential death of the tree. This decline can be slow and may not be evident for many years.

4.54 Diagnosing Health Issues; Biotic, Abiotic & Environmental

When planning landscaping around a protected or designated tree, an evaluation of the tree and soil should be performed to determine if a disease is present. If the tree is diseased and landscaping will contribute to decline, permanent damage, or render the tree hazardous, it is the obligation of the property owner to take reasonable measures to reduce or eliminate the conditions that may cause the decline of the protected or designated tree.

To identify cultural conditions that may lead to diseases such as *Verticillium* or *Phytophthora* or other soil borne fungi, consult with a plant health care specialist or Tree Professional.

Plants selected for use under established native trees should not need water more than once a month. Use a drip system to irrigate within the critical root zone of the established tree so that runoff does not flood the area. Procure plant material from a reputable source, to improve odds that new plants will be disease free. Sometimes landscape plants introduce serious pathogens that are hard to control, notably *Phytophthora*.

4.56 Diagnostic Techniques & Applications

The health and the safety of a tree are two distinct and separate functional characteristics. A vigorous and healthy tree may not necessarily be of sound wood or structure. To remove a protected or City-owned tree, it must first be evaluated and the tree determined to be “hazardous.” This must be verified in writing by a Tree Professional with a completed current International Society of Arboriculture ‘Tree Hazard Evaluation Form’ (see CHAPTER 5 Tree Risk Management).

SECTION 5: TREE RISK MANAGEMENT

Overview

Trees provide a multitude of benefits to the people living and working in their proximity. They have ecological and sociological importance as well as documented aesthetic and economic impacts. These benefits are understood to increase with size and age of the tree. In contrast to this fact, trees also become more likely to shed limbs or experience structural failures as they age, and the consequences of these failures can increase with age and size as well. Because trees are living, dynamic organisms it is impossible to maintain trees that are free of risk and reap their benefits. Given this, we must be ready to accept some degree of risk to experience the benefits that trees provide to our built and natural environments. A successful tree risk management regime aims to maximize tree benefits in our community while minimizing tree risk. The interplay between these values may shift over time as our forest ages and deals with increased pressure from climate changes, pests, wildfire, and increased development.

Thus, the tree risk manager should attempt to balance the risks that a tree poses with the benefits it provides to individuals and communities. To assist in this task tree owners should engage a Tree Risk Assessment Qualified (TRAQ) professional to perform a Tree Risk Assessment (TRA).

A Tree Risk Assessment(TRA) is a systematic process used to identify, analyze, and evaluate tree risk. Risk is assessed by categorizing or quantifying both the likelihood and the severity of a the failure. A complete Tree Risk Assessment report should identify the risk level and make recommendations for reducing the risk.

A hazard is widely defined as ‘A likely source of harm’. In relation to trees, a hazard is the tree part or parts that might fail and are likely sources of harm. An entire tree can be considered hazardous when it has been assessed and found to be likely to fail and cause an unacceptable degree of injury, damage, or disruption, or rather that it rates as high or extreme risk

The City of Bainbridge Island Municipal Code defines a Hazard Tree as:

The degree to which a tree is hazardous hinges on three factors:

- The Likelihood of Failure
- The Likelihood of Impacting the Target
- The Consequences of that Failure

In short, hazard designation requires both a tree defect and a proximate target. A giant tree collapsing in a remote forest poses negligible risk, while a single limb dropping on a busy street could cause tragedy. The level of potential risk depends on the size of the part likely to fail (whole tree or a part,) and the frequency that a target is present & occupied.

Three important things to keep in mind:

There are many options for reducing tree risk to acceptable levels without removing the whole tree.

Tree Risk Assessment should never be used as an excuse to remove trees that are healthy and ‘safe’.

All trees pose some degree of risk.

5.1 Responsibility

On private property, the property owner bears responsibility to mitigate or abate a tree with a known hazardous condition. Trees on City property that may be a public safety hazard should be reported to the City of Bainbridge Island, Department of Public Works for an assessment of risk by the City Arborist. Trees of concern on state property should be reported to the respective agency (WA DOT, Parks, etc.).

5.2 Recognizing Tree Risk

Determining whether a tree's defect constitutes a condition that makes it an imminent hazard requires a high degree of knowledge and expertise. In the case of a protected or designated tree, only a qualified tree professional who is familiar with tree physiology, can interpret external signs of weakness, can perform internal checks if necessary, and make recommendations for risk reduction should perform hazard assessment. Hiring a Tree Risk Assessment Qualified (TRAQ) arborist is the best way to be sure your assessor is properly trained. (see Appendix: Arborists – What you Need to Know)

5.3. Managing Public Tree Risk

The City of Bainbridge manages thousands of trees in the public right of way and on City-owned property. The two basic tools for proactive public tree management are a recurrent risk assessment regime and guidelines for risk tolerance. Creating and putting these tools to use requires a long-range commitment to public safety and community forest health.

5.4 Establishing a Recurrent Risk Assessment Regime

A baseline tree evaluation system should be developed in planning sessions before evaluations are conducted. The following represents a suggested approach toward developing a hazard tree detection and correction program for public property.

5.41 Stratify City Owned Property into Risk Zones on a Map

Low risk areas such as woods, open fields or areas with trees and low foot traffic and no built structures, as well as roads leading into such areas.

Moderate risk areas, such as open space with trail systems, open picnic areas without fixed picnic tables, etc.

High risk areas, such as streets, arterials, developed parks, municipal facilities, and other structures, parking lots, bus stops, and any other places where people might congregate.

5.42 Recurrent Site Assessments

Timing and frequency of assessments may vary, but developed sites should be evaluated for new evidence of hazardous trees at minimum every 3 to 5 years. In addition to this minimum screening, sites should be examined after major storm occurrences once the severe weather has passed.

Carry out site assessments systematically. They normally consist of a level 1 assessment of the risk zones, where each tree and all areas of the developed site are observed for new evidence of hazard or defect. Examine all trees within striking range of a target, either fixed (play structure) or transitory (swim beach).

Generally, only trees greater than 6 inches in diameter at breast height (DBH, 4.5' above grade) should be examined. Smaller trees cause little damage and are considerably less prone to failure under most conditions. Under certain circumstances, trees less than 6 inches in diameter may require periodic inspection if their proximity to a particularly sensitive target (a target that likely would be damaged by impact) suggests unacceptable hazard, but this is an exception.

5.43 Guidelines for Tree Removal & Retention

When annual or storm-related site examination identifies trees of concern, these must be assessed individually for risk by a Tree Professional, using standard TRAQ protocols. This evaluation provides the basis for “risk abatement” actions, which may entail removing defective part(s), moving a target, or partial or full tree removal. Proceed with risk assessment and prescribed remedies as promptly as possible to minimize liability and public endangerment. In the case of a high-value tree, a second professional evaluation may be warranted if removal has been recommended and time allows.

5.5 Risk Reduction

5.51 Pruning

When the primary objective is to reduce the danger to a specific target caused by visibly defined hazards in a tree, the property owner, manager and/or ISA-certified tree care contractor must choose an appropriate pruning type. Pruning for risk reduction should consist of one or more of the maintenance types described in the American National Standards Institute’s Pruning standards: crown cleaning, crown raising, crown reduction, crown restoration. (See Section 4.4 Pruning for details)

5.52 Wildlife Snags

Creation of wildlife snags or “habitat trees” is another risk abatement option. If a tree is dead or dying, a habitat snag can be an excellent alternative to full removal. Choose an appropriate height for the site conditions and monitor the snag as it decays. Created snags add important habitat for microbes all the way up the food chain. While not suitable for developed, high use locations, Bainbridge Island offers many good locations for snag retention. (see Appendix: Wildlife Snag Specifications)

5.53 Cabling, Guying, and Bracing

Occasionally a hazard can be adequately mitigated by artificially supporting the tree or tree part by connecting it back other healthy trees, tree parts or the ground. This is a strategy primarily used to protect large sections of high value trees that have natural structural deformities (co-dominant stems, over extended limbs etc.) that are of concern. This type of mitigation is generally inappropriate for trees with advanced rot or displaying physical wounds that are expected to deteriorate.

5.54 Tree Removal and Replacement

Limitations may exist on the removal or care of trees within certain regulated areas. For example, a regulated tree may not be removed without City review and approval. Therefore, a first step would be to verify that the removal is allowed under City law, by applying for a clearing permit and researching replacement requirements. Trees removed in violation of City law must be replaced by the property owner or, in the case of street trees, the developer. (Removal and replacement standards for public trees are included in the Appendix.)

To remove a protected or designated tree that has been confirmed as hazardous, as defined by the City of Bainbridge Island Municipal Code, a letter addressing the condition of the tree is required from an Arborist. Submission of a replanting plan may also be required, following review by City staff. This approval document must be available on site before the tree is removed, unless emergency conditions exist.

5.7 Public Tree Replacement Criteria

When a public tree is removed, it should be replaced on a minimum 1:1 basis in the next available planting season, since canopy equivalent to that loss will take years to grow. This ensures the continuation of the ecosystem service that the trees provide. Bainbridge Island's Community Forest Management Plan addresses expected population growth by establishing canopy cover goals by zone. In the Winslow Core and the MUTC where density is concentrated, the loss of even a single tree matters. Private citizens are also encouraged to replant or contribute time or funds toward tree replenishment on public sites instead. Contact the City Department of Planning and Community Development for suitable options.

5.7.1 Public Tree Replacement Considerations

Budget Considerations

- Develop a realistic budget covering the "life cycle cost" of added trees, including
 - Purchase of planting stock,
 - Site preparation (removal of existing trees, installation, landscape amenities such as grates)
 - Establishment care (watering, weeding, pruning, monitoring, etc.)
 - Ongoing maintenance (watering, fertilizer, mulch, pruning, etc.)
 - Administrative costs

Site Review & Planning

- Review available growing space
- Planting strip width, cut outs, behind sidewalk or curb, etc.
- Underground utilities
- Competition from existing plant roots
- Suitability of soil (compaction, toxins, drainage issues, etc.)

Review Above Ground Site Constraints

- Utility lines
- Utility poles, traffic lights, street lights, security lights
- Signs (public or private)
- Awnings
- Building structure (surrounding hardscape)
- Vehicular and pedestrian clearance
- Existing vegetation (trees and shrubs)

Standards Compliance

- ADA Standards,
- Other City requirements and standards.

Site Design/Streetscape

- Long-term viability or size at maturity
- Stormwater mitigation potential and other ecological function
- Suitability for “complete streets” that combine various functions including bicycles, pedestrians, utilities, etc.

Selection of Tree Species

- Aesthetic design
- Existing trees’ condition and character

5.8 Designated Hazard Tree Forms

The ISA adopted the most current Tree Risk Assessment Qualification (TRAQ) process in 2017, and this approach is now considered the present Standard of Care. This method provides assessors a structured process, based on good science and arboriculture, to assign recommended thresholds for action for the purpose of informing risk managers.

TRAQ utilizes the Basic Tree Risk Assessment Form. When this form is completed by a TRAQ Tree Professional, it provides a standard rating methodology for tree risk. The risk rating is determined by categorizing the likelihood of failure potential, the likelihood of impacting the target, and the consequences of that failure in a set of matrices.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

The **Likelihood of Failure** is assigned one of four categories based on the judgment of the Assessor.

Improbable – The defect is not likely to lead to failure and no further action is required. In many cases these defects might not even be recorded.

Possible – One or more defects that are well established but would typically not lead to failure for several years. Corrective action might be useful to prevent future problems but only if time and money are available. Not the highest priority for action, these are the “retain and monitor” situations that can be used to inform budget and work schedules for subsequent years.

Probable – One or more defects areas well-established, but not yet deemed to be a high priority issue. Additional testing may be required or, the assessor may feel the problems are not serious enough to warrant immediate action, but do warrant placing the tree on a list of trees to be inspected more regularly. These are Retain and Monitor trees.

Imminent – The defect is serious and imminent failure is likely and corrective action is required immediately. These cases require treatment within the next few days or weeks. Often failure has already begun.

The **Likelihood of Impacting the Target** is categorized as Very Low, Low, Medium, or High.

Very Low – The target is at the edge of the possible strike zone or only comprises an extremely small portion of that zone, or is only within the strike zone for a short duration.

Low – The target has less than a 50% chance of being struck by the expected failure

Medium – The target has about a 50/50 chance of being struck

High – The Target has more than a 50% chance of being struck in the event of failure

The **Consequences of Failure** is categorized based on the following target descriptions.

Negligible – If the part were to fail and strike the target the expected damage or disruption could be easily repaired in an hour or two, this also includes minor injuries that require no first aid (bruise or scratch), and minor disruptions that impact neighborhood streets, and open space.

Minor – – If the part were to fail and strike the target the expected damage could be repaired in a day or two, this also includes minor injuries that typically do not require attention from a medical professional, and neighborhood level disruption of individual services.

Significant – – If the part were to fail and strike the target the expected damage would be substantial personal injury or moderate to high value property damage. This includes injuries that require medical care, or disruptions to primary powerlines or arterial streets.

Severe – – If the part were to fail and strike the target the expected damage would be serious personal injury or death or high-value property damage. Disruptions to regional or critical infrastructure would be considered severe.

5.81 Options for Mitigation of Risk Trees include

Remove the Risk by cutting off one or more branches, removing dead wood, or possibly removing the entire tree. Extreme risk rating situations should be closed off until the risk is abated.

Modify the Risk of Failure In some cases it may be possible to reduce the probability of failure by adding mechanical support in the form of cables braces or props. Strategic pruning can also decrease the loads experienced by identified defects and reduce the likelihood of failure

Modify the Risk of Impact by moving the target. Risk ratings can sometimes be lowered by moving the target so that there is a much lower probability of the defective part striking anything.

Retain and monitor. This approach is used where some defects have been noted but they are not yet serious, and the present risk level is Moderate or Low.

CHAPTER 6- BMP's FOR SPECIFIC LAND USES & LANDSCAPE TYPES

Overview

In this section, we address several specific environments and discuss how to tap the opportunities each presents for preserving and adding trees. It is worth recounting that our *green infrastructure* accomplishes the following:

- cleanses the air by consuming carbon dioxide and producing oxygen
- buffers noise, dust, fumes, wind and glare
- intercepts rainwater and dispersing it more slowly into the ground
- shelters wildlife and protects native biodiversity
- creates calm settings to rejuvenate and relax
- creates a pleasant and comfortable sidewalk environment
- shades street pavement, increasing its useful life
- screens the view of parking lots and utility areas from public streets
- encourages safe driving with street trees and planting islands
- builds civic pride by enhancing the beauty of public thoroughfares
- increases aesthetic and monetary value of property
- shelters buildings from summer heat and winter chill
- buffers extremes of precipitation and heat accompanying climate change

Tree care is the property owner's responsibility, including the city for trees within the right-of-way or on city-owned property. Most island residents are responsible for the care and protection of some portion of our community forest. Some willingly shoulder extra responsibility as community volunteers.

Common threads you will find running through these recommendations are to:

- Save the best of what you have, evaluating existing trees, using careful site design, and following the principles of "Low Impact Development."
- Understand specific characteristics and limitations of sites when choosing trees.
- Take good care of trees, knowing and embracing the role(s) you play.

6.1 Parking Lots

Parking lots have long been recognized as thermal "hot spots", as well as collectors of significant storm-water runoff and associated pollutants. Trees growing in parking lots within commercial, industrial, and residential land use areas help to offset some of the many negative aspects of these sites. A parking lot is one of the few places where species with wide canopies can be allowed to grow and spread to full maturity.

Parking lots are not, however, a healthy environment for trees. Just picture how many times you have opened a car door onto the trunk of a struggling specimen tree or watched a busy shopper jam the grocery cart into a tree trunk. Successful conservation, planting and maintenance of trees in parking lots depends on providing adequate soil volume, water, nutrients and protection.

Tree species planted or retained in parking lots should be:

- selected to provide abundant shade
- tolerant of heat and pollution, and often, compaction and drought
- effective at intercepting, evaporating, storing and conveying rainwater, enhancing infiltration and reducing erosion
- free of structural, pest or disease problems, aggressive roots and fruits or nuts
- protected to provide optimal opportunity for healthy growth

Certain design features are encouraged, where feasible:

- Continuous planting islands, to accommodate multiple tree and increase the soil volume available to roots
- Planting islands that serve double-duty by incorporating surface water runoff treatments such as bio-swales and rain gardens in their design
- The use of structural soil mixes, which increase rootable soil volume and reduce the potential for root invasion into parking lot paving. (Appendix F)
- Incorporating understory plantings to shade and protect roots; prickly low shrubs discourage cut-through foot traffic better than groundcovers

6.11 Drainage / Water Quality Options

With early planning and design, it is possible for tree planting requirements to meet regulations for on-site treatment of stormwater. Trees planted within stormwater runoff areas should be limited to species adapted to heavy to moderate irrigation, such as riparian species (see Appendix).

6.12 Best Management Practices for Parking Lots

1. Integrate bio-retention into parking lot islands or planter strips distributed throughout the parking area in the forms of swales or linear shallow depressions
2. Utilize the opportunity to choose a species that will be big and spreading when mature. Plant one large canopy tree (>40') for every seven (7) parking spaces in parking lots
3. Select trees that can withstand the hot, dry microclimates and poor soil conditions of parking lots
4. Use Silva Cells (an underground frame) or a structural soil mix beneath pavement to increase the volume of soil available to tree roots
5. Group trees in islands so they can share rooting space.
6. Provide a required minimum open soil surface area for very small, small, medium, and large trees of 25, 100, 225, and 400 square feet respectively
7. Use pervious pavements to increase the moisture penetration and gas exchange for tree roots
8. The maximum distance between trees in linear tree islands should be 30 feet unless they are a species that will require more space.
9. Tree planting islands should have a minimum width of 12 feet
10. Maintain sight lines so motorists can see pedestrians and other vehicles, through proper tree selection and regular appropriate pruning

11. A clearing permit may be required from the City of Bainbridge Island to remove parking lot shade or ornamental trees if those trees had been required for retention through a land use permit. At this time, there is no cost associated with obtaining these permits
12. All pruning work shall be completed pursuant to the current International Society of Arboriculture (ISA) and American National Standards Institute (ANSI) standards
13. Removed trees must be replaced with healthy specimens of similar species and size
14. Maintain an 8-foot minimum height to branching for vehicular and pedestrian clearance
15. Provide curbs or wheel-stops around tree planting areas and plant trees at least 30-inches (2.5 feet) inside the curb or wheel-stop to avoid vehicle injury to the trees
16. Provide designated paths through planting areas that follow “desire lines” to prevent soil compaction by foot traffic.
17. Irrigate tree islands to ensure new tree survival and improve long-term tree health
18. Incorporate understory plantings to shade and protect roots, and prickly low shrubs to discourage cut-through foot traffic better than groundcovers

6.2 Plazas, Courtyards and Winslow Core Areas including Street Trees

Plazas, Courtyards and Core Areas are places where people gather to work, shop, eat, meet, and relax. They are found predominantly within commercial, institutional, and dense residential areas.

Growing space for trees in these areas is limited. The majority of trees are planted, as opposed to conserved, and usually grown as single trees. Trees are often arranged in a linear or rectangular grouping and planted in small tree wells (4 x 4 feet) or infrequently, larger landscape islands.

These settings are characterized by an abundance of impervious pavement, poor quality soil, inadequate soil volumes, close proximity to buildings and streets, air pollution, and high levels of human activity. They are also appropriate for the integration of ideas put forward in the Bainbridge Island Arts Plan.

6.21 Best Management Practices for Plazas, Courtyards and Winslow Core

1. Match the mature size of trees selected to the amount of available growing space
2. Select trees to enhance architectural design, without blocking important building or structural detailing
3. Plant trees where limbs will not impede access for delivery or emergency vehicles, pedestrian circulation, or sight lines
4. Don't assume that site conditions are the same throughout a plaza; plazas can have dramatic changes in temperatures from one side to another due to microclimatic conditions created by surrounding buildings

5. Use alternative (permeable or open) paving systems that accommodate pedestrians and vehicles while increasing opportunities for moisture and air to reach tree roots
6. Use structural soils beneath the pavement and innovative design to increase the volume of soil available to tree roots
7. Locate trees where underground utilities and compacted soils won't constrict the available area for tree roots
8. Look above for overhead utilities that will limit mature tree size
9. Protect trees from vandalism or other damage by pruning and protecting with sturdy fencing
10. Budget for increased tree maintenance costs in downtown "high contact" areas, to ensure new tree survival and long-term health; include irrigation and pruning to maintain pedestrian and vehicular clearance

6.22 Street Trees and Road Frontage Areas-- (Please refer to the "City of Bainbridge Island Civic and Street Tree Plan" for specific information)

Road Frontage Areas consist of public rights-of-way (including streets, alleyways, circles and medians) and immediately adjacent land in residential, commercial, institutional, industrial, and agricultural zones. Frontage areas include both street trees and adjoining yard trees that are part of a property's landscape design and function. These trees may be planted ornamentals, or pre-existing vegetation like native woods. Street trees are found growing both singly (most often) and in groups.

Removal and replacement of trees that damage city sidewalks or other city infrastructure shall be reviewed by the City Arborist prior to tree removal. The City encourages the use of creative alternatives that favor tree protection, such as "bumpouts" and rubber sidewalks that allow for tree root expansion.

6.23 Best Management Practices for Road Frontage Areas

1. Plant trees where there is adequate overhead and underground room to accommodate their mature size
2. Vary the spacing and species of trees along road right-of-ways to add interest and diversity to roadway plantings. In appropriate locations, evergreen trees should be considered in order to provide year-round foliage, as long as they comply with infrastructure and sight line restrictions
3. Maintain sight lines so drivers can see pedestrians and vehicles when pulling out of driveways or through intersections. Plant trees and hedges a minimum of 15 feet from driveways and 15 feet down each lot line on corner locations from road intersections for minor collectors. For major collectors and arterials, the distance will be greater to accommodate faster speeds
4. Provide 15 feet of vertical clearance for large vehicles along tree-lined streets and drives
5. Provide at least 8 feet of vertical clearance for pedestrians and bicycles, to avoid hazards created by low branches too close to sidewalks and drives

6. Avoid over-thinning natural stands of trees in or by road frontages, to reduce susceptibility to wind damage and failure
7. Bump out planting strips or jog sidewalks to accommodate tree trunk and root growth where necessary
8. In order to avoid damaging tree roots, tunnel or bore instead of trenching during utility line installation
9. Allow special consideration for designated Heritage trees that may be in right of way areas
10. Avoid planting trees directly over property lines or corners
11. Tree lawns (Planting strips) – the planting area between the sidewalk and curb – should be a minimum of 5 feet wide
12. Install root barriers along sidewalks and curbs to prevent tree roots from heaving and breaking pavers, sidewalks curbs, and road pavement. Other alternatives include load-bearing soil (developed by Cornell University—see appendix), rubber sidewalks or other innovative material that does not crack from root growth
13. Where the sidewalk is directly adjacent or very close to the street, plant trees behind the sidewalk. If necessary utilize private property tree planting easements to provide growing space and vehicular and pedestrian clearance

6.3 Utility Corridors and Easements

Utility corridors are linear landscape areas that contain power, gas, water, or sewer service. These corridors can be as narrow as 20 feet or as wide as 150 feet. They often run parallel to roadways, and contain above and/or below ground lines. Within these corridors, vegetation must be managed to allow safe maintenance and repair of the utilities. These long, narrow bands create continuous vegetation ‘edges’ that actually can improve ecological function. Wildlife is attracted to forest edges for food, nesting and protective cover, as well as to adjacent open areas to forage. The down side of exposed edges is their vulnerability to invasive plants, which can move in from any side.

6.31 Best Management Practices for Utility Corridors

1. Avoid trees with aggressive or damaging root systems near underground water and sewer lines. (See Appendix for recommended trees list.)
2. Plant only small-maturing trees beneath overhead electrical lines to minimize “topping” needed for future line clearance.
3. Maintain adequate clearance from all overhead and underground utility lines to facilitate access for repairs and minimize impacts to tree canopies and roots.
4. Plant medium sized trees at least 20 feet off the centerline of overhead electrical distribution lines.
5. Plant large sized trees at least 40 feet off the centerline from overhead electrical distribution lines.
6. When trees are pruned within overhead utility line maintenance zones, adhere to Best Management Practices for Utility Pruning of Trees [companion publication to the current ANSI A300 Part 1. Shrub, and Other Woody Plant Maintenance-

Standard Practices, (Pruning). Only specially-trained arborists should perform tree work near live electrical lines.

7. Employ crown reduction pruning rather than tree “topping” to reduce tree size beneath utility lines.
8. Tunnel instead of trenching beneath tree roots within the CRZ for installation or repair of cable, phone, electric, gas, water, or sewer lines.
9. Never use spikes to climb trees during overhead utility line maintenance, installation or repair. Exemptions include tree removal or emergency situations, such as storm work and worker rescue situations.
10. Annually monitor edges for invasive plant infestations and remove or limit encroachments before they penetrate to interior of corridor

6.4 Residential Lots

Although the potential for large canopied trees is limited in urban core areas, trees remain an important part of residential landscapes. Their value as “green infrastructure” is so great from a storm water management standpoint, that many communities credit homeowners on utility bills for choosing tree canopy rather than increased impervious surface.

In suburban and rural lots, especially where new houses are built on wooded tracts of land, property owners should embrace the opportunity to practice enlightened site design early in the planning process. Consideration of tree protection and healthy soils can result in the preservation of promising young and mature native trees, that buffer roads, provide screening and habitat value, and reduce the visual intrusiveness of large new buildings. Rainwater mitigated on site can reduce the costs of below-grade storm water drainage systems.

6.41 Best Management Practices for Residential Lots

Assess the existing vegetation and plan new construction or additions to save as many high quality existing trees as possible.

1. Evaluate your yard for above- and below-ground conflicts: utilities, soil type, buildings, view, shade, sun, other trees, and safety
2. Plant trees only where there is adequate room both overhead and underground for the mature size of the tree you are planting
3. Avoid planting trees directly over, or too close to, property lines or corners.
4. Identify tree priorities—whether for beauty, wildlife habitat, shade, windscreen or a visual buffer
5. Consider the maintenance needs of the tree you choose by matching the preferences of the tree (i.e., drought tolerant, likes “wet feet”) with the site conditions.. Can the tree prosper in our Pacific Northwest climate without extensive care throughout its life?
6. Plant native species, which, if chosen wisely and sited appropriately for their microclimate, can reduce the need for ongoing care (i.e. irrigation) after establishment

7. Where room allows, install an informal hedgerow to replace a fence or laurel hedge. Hedgerows are mixed plantings that create habitat for birds, reduce hedge-pruning chores, and add seasonal interest – all while providing screening. A hedgerow should be at least 6 feet wide, but is much more valuable to wildlife if it is wider. Mixed hardwoods and conifers add significantly to the diversity of wildlife that will use the hedgerow. Plant shrubs and trees about 3 feet on center. Try to avoid breaks or openings in the hedgerow — these spaces are hazardous for many hedgerow dwellers, allowing easier access for larger predators. Native hedgerow species may include:

Red alder	Oregon grape	Elderberry
Douglas fir	Salal	Nootka rose
Western red cedar	Snowberry	Serviceberry
Vine maple	Ceanothus	Blueberry
Bigleaf maple	Red osier dogwood	Huckleberry
Willow	Red flowering currant	Salmonberry
Oregon white oak		

6.5 Institutional Campuses

Typical examples of institutional campuses found across the island are schools, churches, and health facilities. Larger tracts of land associated with institutions provide valuable opportunities for tree planting and preservation. By virtue of their size, they can preserve remnant forests that provide a link to Bainbridge Island’s wooded past. They also allow for planting of large new specimen trees and groves of trees and understory.

The Bainbridge City Hall, Bainbridge Performing Arts Center and Island History Museum located between Madison and Erickson Avenues make up the main downtown Civic Complex. A Tree Management Plan was completed for this campus in 2006, and is available at City Hall. Private developments may also lend themselves to landscape-level planning for vegetation retention and planting.

6.51 Best Management Practices for Institutional Campuses

1. Inventory and assess the site’s existing critical areas, flora and fauna to identify areas to protect and enhance as part of development or landscape improvements
2. Conduct a risk assessment of major trees every 5 years and after major storm events
3. Utilize native species in layered arrangements that echo the Island’s forest communities
4. Create surface storm water handling systems such as rain gardens and swales
5. Configure pedestrian circulation to invite visual contact between people and plants, while protecting them from physical damage and disturbance
6. Concentrate buildings and associated pavement, to maximize green area on site
7. Select a wide variety of trees to maximize biodiversity; include unusual species to pique public interest and test out tree performance
8. Choose tree species offering ease of upkeep, durability and a range of seasonal effects

6.6 Open Spaces, Parks and Natural Areas

Open spaces and Natural areas include forests, large gardens, parks, agricultural areas, pasture land, lake and stream margins, beaches and natural preserves. These fulfill many positive and fundamental functions on Bainbridge Island. They provide large areas of un-compacted soil that absorb stormwater, greater tree canopy for intercepting and distributing rain, and provide habitat and movement corridors for wildlife. Furthermore, they offer opportunities for sports, recreation, education and other individual and social activities. Well-managed open spaces are a positive contributor to quality of life in developed areas of the Island.

6.61 Best Management Practices for Parks, Open Spaces and Natural Areas

1. Assess and inventory individual sites related to critical areas, flora and fauna
2. Determine specific site uses and contributions, and reinforce the positive contributions
3. Maintain or reclaim optimal ecological health of the site
4. Establish a maintenance management system for Open Spaces, Parks and Natural Areas

6.62 Maintenance Recommendations

- Remove or prune trees if they pose undue risk to people or property
- Remove invasive species of plants
- Replant areas with non-invasive, mostly native species
- Create wildlife snags and retain fallen woody debris to improve wildlife habitat
- Develop wayfinding and artist-designed interpretive signs
- Build volunteer stewardship partnerships with local civic, religious, school, youth, neighborhood and social organizations, or budget for private contracted maintenance
- Cooperate with municipal, county, and state government agencies for permitting and technical advice

6.63 Suggested Maintenance Management System

The following basic steps are recommended to maintain environmental diversity, health, and recreational use within Island open spaces and natural areas.

1. Familiarize stakeholders with BMP's and any applications before the Planning Department or other agencies. Gather comment on management concerns and opportunities.
2. Conduct onsite evaluation to define vegetative zones.
3. Determine management priorities.
4. Plan for restoration and ongoing maintenance according to vegetative zone:
 - Determine and rank restoration and maintenance needs
 - Determine and comply with permitting and regulations relating to work within open space and natural areas
 - Remove exotic and invasive plant species in accord with recommended vegetation management techniques (see Section 6.9 and Appendices/References)
 - Replant areas of disturbance and set up maintenance programs for newly established areas
 - Monitor and record replanting survival rates and invasive plant resurgence; replace lost plants and remove invasive weeds promptly

Monitor and record trees with significant defects located within striking distance of persons or property, annually and after severe storms
Monitor and record erosion or other significant changes to landscape features
Monitor and record health of vegetation annually; budgeting resources to take timely corrective action when monitoring indicates a threshold of need

5. Monitor security issues

Increase volunteer presence for trail and vegetation maintenance projects,
Add trail patrols
Encourage recreational user awareness, appropriate use and communication
Tap “eyes and ears” of property owners adjacent to public open space/ parks

6.7 Buffers and GreenBelts

Buffers are the linear areas that border roadways, adjacent properties, or dissimilar land uses. Critical Area Buffers are vegetated areas that protect fragile landscape elements in accordance with the State-mandated Critical Area Ordinance. These areas include steep slopes, , shorelines, slide zones, wetlands, and streams. Trees provide very effective buffers, either alone or with other vegetation. They may be planted in either groups or rows, and spaced uniformly or in irregular patterns. On Bainbridge Island, many buffers contain natural woodlands or remnant forest areas. Plantings that combine overstory trees, understory canopy, shrub, and herbaceous layers make effective buffers. Wherever possible, buffers should be designed and/or enhanced to provide multiple vegetative layers.

In some cases, buffers may be limited in width and therefore in the amount of growing space available for trees. In most cases, however, trees in buffer areas remain relatively undisturbed after they are established and usually have an ample amount of growing space.

6.71 Best Management Practices for Landscape Perimeter and Park and Conservation Land Buffers

1. Select low branching or multi-trunk species to provide visual and physical screening to the ground
2. Plant a variety of tree species and mature tree sizes
3. Include all vegetative layers in buffer planting. Consider creating mixed-species hedgerows as compact, wildlife-rich buffers
3. Incorporate trees with dense, evergreen foliage to provide screening year-round (especially native coniferous trees)
4. Select trees for their suitability to the existing topography, soils, infrastructure (utilities, roads), light, moisture conditions, and vegetation
5. Conserve existing undisturbed woodlands with understory trees and shrubs for high quality buffers where width allows – preferably 50 feet or more. Create woodland buffers where there is room to create a “feathered” canopy edge with lower foreground trees to help tame and deflect wind.
6. Be aware of the remnant forest ‘New Edge’ effect on wind firmness of retained trees. Newly exposed interior trees are at risk for windthrow or failure. A too narrow buffer of slender, interior-stand trees within striking distance of frequently-occupied targets (homes, parking lots, playgrounds, etc.) may pose a risk. If necessary, consider enhancing the existing buffer or planting a new buffer that will mature into a multi-layered canopy with site-adapted, stable trees

7. Leave the soil, organic litter layer, and native groundcovers undisturbed
8. Plant trees in a staggered, naturalistic pattern, rather than in linear rows
9. Conserve at least the minimum undisturbed width of buffer required by the City Municipal Code

6.8 Riparian Zones and Drainage Areas

These areas are associated with streams, rivers, shorelines, and surface drainage-ways. They are characterized by wetlands, alluvial soils, high water tables, and periodic flooding. In many riparian zones, the topography includes a substantial slope from upland to lowland areas.

6.81 Best Management Practices for Riparian Zones and Drainage Areas

1. Review the City's Critical Areas Ordinance (BIMC 16.20), Shoreline Management Master Program (BIMC 16.12) and related State and Federal Codes
2. Retain, to the extent possible, existing woodlands with undisturbed understory trees, shrubs, herbaceous plants, leaf litter, and soil
3. Plant and conserve trees in mixed groups and stands
4. Select species that are adaptable to local soil conditions, whose root systems help prevent erosion (fibrous, non shallow-rooting habit)
5. Manage areas containing young trees to ensure development of valuable mature tree stands over time
6. Do not plant exotic species, as many are aggressive or have the ability to be transmitted easily along riparian corridors or shorelines
7. Plant trees and associated vegetation that can tolerate variable lowland or high water table conditions
8. Refer to Washington Department of Ecology manuals available on line that address vegetation management for steep slopes and stream corridors (see References)

6.9 Invasive Plant INFESTATIONS

Our community must be ever vigilant to the risks posed by noxious weeds and invasive exotic plants. These plants threaten the general ecological health and diversity of our native ecosystems on public and private lands throughout Bainbridge Island, including forests, parks, agricultural land, waterways, and developed landscapes. Guidance for protecting such areas may be found in Washington state noxious weed law, which acts to protect wildlife, property values, and public health and safety from the adverse impacts of invasive plant species. Kitsap County Weed Control Program provides monitoring and advice on controlling listed plants.

The key tools for noxious weed and invasive species management are: prevention, eradication and containment. For control, all three must be put to use. By definition, such plants respect no boundaries, so coordinated public and private efforts are essential to successfully dealing with this constant threat to our environment.

An **invasive plant** is one that has the ability to thrive and spread aggressively outside its natural range.

A **noxious weed** is an invasive, often herbaceous plant traditionally designated as a threat to farmland, pasture or wetlands. Some of our most serious invasive forest species are not official noxious weeds: English laurel, English holly, English ivy, and knotweed.

6.91 Best Management Practices for Invasive Plant Infestations

1. Properly identify the existence, extent and species of invasive plants within your site
2. Contact the Kitsap County Weed Control Program for direction on invasive control methods or when dealing with a Class A noxious species, mandatory eradication (contact information: http://kitsap.wsu.edu/noxious_weed/index.htm)
3. Determine the type or combination of control methods that apply to your situation and site and from this information develop a specific Maintenance Plan. Control options include biocontrol (using selected insects and pathogens), weeding, grazing, smothering (with sheet mulch), herbicides, and mechanical removal. Always select the most environmentally-friendly alternative you can, within the constraints of the situation
4. Use techniques developed through experience by others. See Appendix H (References) for excellent resources to help Bainbridge Island win the war against invasives, one infestation at a time
5. “An ounce of prevention” is key to invasive and noxious weed management. Protect desirable vegetation by monitoring, and weed out invaders as soon as they appear. Don’t waste energy attacking the worst first – instead save valuable, intact plant communities
6. Embrace the adage “prevention begins at home.” Engage local nurseries, landscapers, garden clubs, schools, service organizations, park managers, permitting agencies and realtors to raise public awareness about invasive plants
7. Encourage the use of non-invasive ornamental species in public and private landscapes. Eliminate them from civic landscapes and in their place demonstrate vigorous, attractive alternatives to popular invasive ornamentals like holly, laurel, ivy, butterfly bush and broom

Note on Ivy Removal:

In addition to hurting trunks and killing canopies, English ivy weighs down our Northwest trees and can cause them to fail in whole or in part, during storms. It is important to control ivy growth into trees by removing as much as possible. A qualified professional can climb the tree and remove ivy from high in the canopy.

An effective way to control ivy is to cut vine stems at the base of the trunk and 4 feet up. Strip away cut sections while leaving vines higher in the tree to die on their own without pulling them down, which can be dangerous, fruitless or damaging to a tree’s protective bark. For large vines, a crowbar or pruning saw may be needed to cut the vines, and a screwdriver to pry them off. The goal is to delay return growth and keep the tree healthy even if it inhabits a sea of ivy. For long-term control, remove ivy roots and replant with sword fern or other native ground covers. To discourage erosion, cleared slopes should be replanted in the fall before winter rains set in.

APPENDICES

The Appendices that follow are intended to provide more specific information for managing Bainbridge Island's important Community Forest resource.

APPENDIX A – Arborists – What you Need to Know

ISA Certified Arborist

A certified Arborist has at least 3 years experience in tree care industry and has passed an exam demonstrating knowledge in all areas of arboriculture. Continued Education credits are required for recertification every 3 years. www.isa-arbor.com.

ASCA Registered Consulting Arborist

This is the highest certification a consulting arborist can earn; RCAs are considered experts of the field. They must have extensive technical experience in landscape planning and development, tree preservation, hazard tree assessment, legal matters, tree appraisal and damage assessment. They must meet and maintain requirements for membership in ASCA, including Continuing Education requirements. They must have completed ASCA's rigorous Consulting Academy and passed a qualifying exam. They must also demonstrate extensive report writing competence through reports submitted for peer review. There are currently only 6 arborists in the State of Washington with this designation.

http://asca-consultants.org/join_rca.html

TRAQ

This is an additional Qualification administered by the ISA

Tree Professional

An individual with relevant education and training in arboriculture or urban forestry. The individual must be an arborist certified by the International Society of Arboriculture or a registered consulting arborist from the American Society of Consulting Arborists or have equivalent training from an organization such as Tree Care Industry Association and for Forest Management Plans may be a certified forester by the Society of American Foresters. A Tree Professional must possess the ability to perform tree risk assessments and prescribe appropriate measures necessary for the preservation of trees during land development. For Forest Management Plans, the qualified professional must have the ability to assess wooded sites and prescribe measures for forest health and safety.

What is Urban Forestry?

Urban forestry is the care and management of urban forests, i.e., tree populations in urban settings for the purpose of improving the urban environment. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban forestry is practiced by municipal and commercial arborists, municipal and utility foresters, environmental policymakers, city planners, consultants, educators, researchers and community activists. (Wikipedia)

There is no officially certified title of "Urban Forester" at this time, that we know of.

Selecting an Arborist

Hiring a tree care provider deserves careful consideration and caution. A mistake can be expensive and long-lasting, while the right choice can assure health, beauty and longer life for your trees and landscape.

- First decide if you need a diagnosis of a suspected problem, or a tree service company to perform work that has been prescribed
- Beware of *door-knockers* who may show up just after storms when there is an opportunity to earn quick money. These may not be professionals and may not have the skills or proper equipment to do the work safely
- Hire an arborist or tree worker who has been certified through a program of the International Society of Arboriculture (ISA) and has a business license
- Ask the arborist for a client or reference list so that you can assess their workmanship
- Check the phone directory, usually under trees or tree care service. Listings in the directory should indicate some degree of permanence. Look for professional membership affiliations. Membership does not guarantee quality, but a lack of it may cast doubt on the company's commitment to professionalism
- Get copies of proof of liability, personal insurance, property damage insurance and worker's compensation. Don't stop there – call the insurance company to verify that the policy is current
- Obtain more than one written estimate that clearly states their scope of work, but don't expect an arborist to lower a bid to match another's
- A good arborist will not use climbing spikes unless the tree is going to be removed
- Beware of an arborist who is too eager to remove a living tree, but keep in mind that living is not always equal to healthy or structurally sound

The Contract for Services

A contract should protect you and the tree professional. Most companies will provide their own contract and should include the following basics:

- Dates that work will begin and end.
- Specific Scope of Work
- Cleanup procedures should be listed and whether firewood will need to be cut (and into what lengths)
- Clarify if a tree removal includes grinding the stump and surface roots and if so, how deep? Will they remove grindings and backfill the hole?
- The total dollar amount you will be charged and how: (a) as a single price for the job, or (b) on an hourly basis plus materials "...but not to exceed...".

APPENDIX B-- Tree Protection Specifications (General Guidelines)

1. This specification must be followed for all trees that are in close proximity to any clearing and grading limits.
2. After the site has been surveyed, and clearing and grading stakes are in place, the Tree Professional will visit the site to determine the actual placement of tree protection measures based on the potential impact to tree root systems. Final adjustment of clearing limits will be made on site.
3. Tree Protection Zone (TPZ) fencing or other barriers shall be installed along all clearing limits to protect the Critical Root Zones (CRZ) of trees that are to be preserved. Optimal CRZ areas should be calculated at 1.5 foot radius for every 1 inch of tree DBH. Work required for removal of unwanted vegetation within the CRZ areas will be **hand work only**. TPZ fencing shall be 4' tall orange plastic fencing anchored with steel stakes or 6' chain link fence. The Tree Professional may also require plywood boxing around trees in certain high traffic areas, and will meet on site with the contractor to determine the specific types of fencing, placement, and specific clearing instructions for areas near preserved trees. Adjustment of the initial TPZ lay out may be required as construction progresses.
4. Within the TPZ areas no parking, materials storage, dumping, or burning is allowed.
5. When removing trees outside of the TPZ determined to be unacceptable for retention, use methods such as directional felling to avoid damage to trees and other valuable vegetation that is being retained. Small trees and other native vegetation in these areas should be carefully preserved.
6. Where the arborist has determined that roots of a preserved tree may be encountered during excavation or grading, a Tree Professional shall be on site to supervise any root pruning and to assess the potential impact of such pruning. Any root greater than 1.5" diameter that is encountered shall be carefully cut with a sharp tool. Roots cut shall be immediately covered with soil or mulch and kept moist.
7. Where access for machinery or any vehicle is required within the CRZ or TPZ of any preserved tree, the soil should be protected from compaction. Acceptable methods include 18" of wood chips or hog fuel, plywood, or steel sheets.
8. TPZ fencing shall not be moved without authorization from the Tree Professional or the site supervisor. All fencing is to be left in place until the completion of the project. Tree protection signage shall be attached to fencing only.
9. Landscaping specified within the TPZ areas shall be designed to limit disturbance of surface soils and preserved vegetation. No root pruning is permitted. New plants added in these areas should be of the smallest size possible to minimize disturbance.
10. Where backfill is required within a CRZ or TPZ area, the Tree Professional shall determine the amount and type of fill material to be used.
11. The Tree Professional will provide a recommendation using ANSI A300 American Standards for Pruning to remove dead wood, provide clearance, and cabling or bracing. Use of an International Society of Arboriculture Certified Arborist to perform the recommended work is strongly recommended.
12. Supplemental irrigation for all protected trees is required during the summer months or prolonged periods of dry weather. **THIS IS MOST IMPORTANT FOR SUCCESSFUL TREE RETENTION.**
13. Monitoring of all trees, especially those exposed to new environmental conditions such as exposure to wind, sun, or deep shade, shall occur annually to check for adverse changes to the tree health or stability.

APPENDIX C—Public Tree Removal Criteria

Trees may be removed in accordance with the BIMC. See sections 16.18.040 and 18.15.010 for Vegetation management regulations.

Public Tree Removal Considerations include:

- Vandalism
- Casualty/Accident
- Sight Line Obstruction (traffic lights, signs, view safety)
- Outgrew the site (various reasons)
- Capital Improvement (street widening, new entrances, sidewalk installation, etc.)
- Natural Disaster (storms, wind, landslide, fire, etc.)
- Disease
- Risk consideration (over mature, structural problems)
- Utility Conflicts (buckling paving and sidewalks, growing into overhead power lines)
- Maintenance
- Development (loss of 30% or more critical root area)

APPENDIX D-- Alternatives to Tree Removal

Create a Wildlife Snag

The object of creating a snag is to preserve as large a portion of a defective tree as the location permits, so it can serve as habitat for birds and insects and to blend in with the landscape. The cuts made by chainsaw should be disguised to look like a natural break

The height of a snag is dependent on the site. It is important to remember the tree will slowly decay and fall apart. In busy locations, it is best to choose a height that will not put anything at risk. Based on management concerns and budget, long-lived snag species may be monitored and reduced in height again as they break down.

Long lasting snags = 15 years or more

Douglas fir (*Pseudotsuga menziesii*),
Western red cedar (*Thuja plicata*)
Bigleaf maples (*Acer macrophyllum*)
Other maple species (*Acer spp.*)
Oak species (*Quercus spp.*)

Short lived snags = Less than 15 years

Western hemlock (*Tsuga heterophylla*)
Red Alder (*Alnus rubra*)
Bitter cherry (*Prunus emarginata*)
Black cottonwood (*Populus trichocarpa*)

Snag Creation techniques:

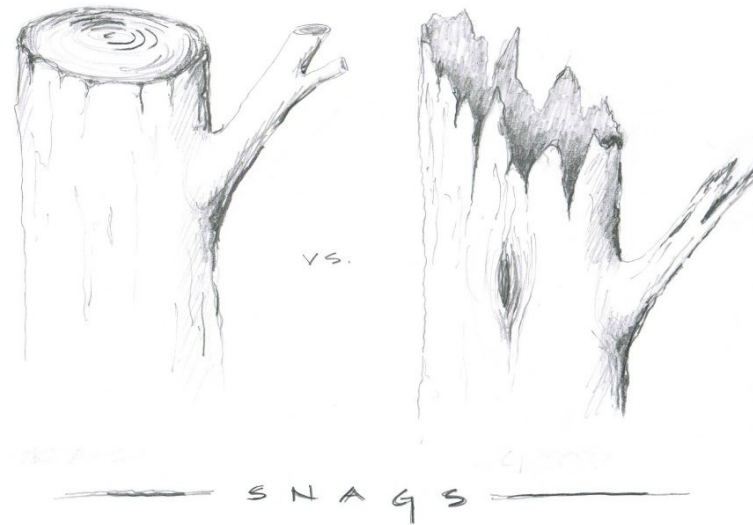
Birds love a perch, and so, it is important not to strip a snag tree of the lower branches. Branches can be cut back, but stubs should be left to serve as perches and to mimic nature. Ragged cuts at the end of branches will look best when the tree is finished.

The cut at the top is important to the look of the final project.

Try to mimic the way trees that break naturally look.

Many small slits in the edge of the trunk works well.

Use a small sledgehammer to break and bend the smaller pieces created with saw cuts.



Installing bird holes and bat slits:

Bird holes form as stumps decay and woodpeckers begin to work on the decayed wood. Bats often use narrow cracks or loose pieces of bark to roost in. This process can be speeded up by cutting in a birdhouse or bat slit in the created snag.

CAUTION; these techniques require advanced chainsaw skills. Use a small, sharp saw and extreme care.

Bore a triangular "pie" shaped piece from the trunk. Use a crowbar to pop the piece loose.

Send the piece to the ground and cut the back off, leaving a 1-2" thick slab of wood with the bark.

Drill an appropriately sized hole. Two northwest species that use trees are chickadee (1") and Flicker (2.5")

Deepen and enlarge the hole using the tip of the saw bar

Send the piece back up into the snag and screw or nail it back in place.

For bats, make a shallow cut upwards into the trunk of the tree; use the saw to widen the cut to about 1/2".

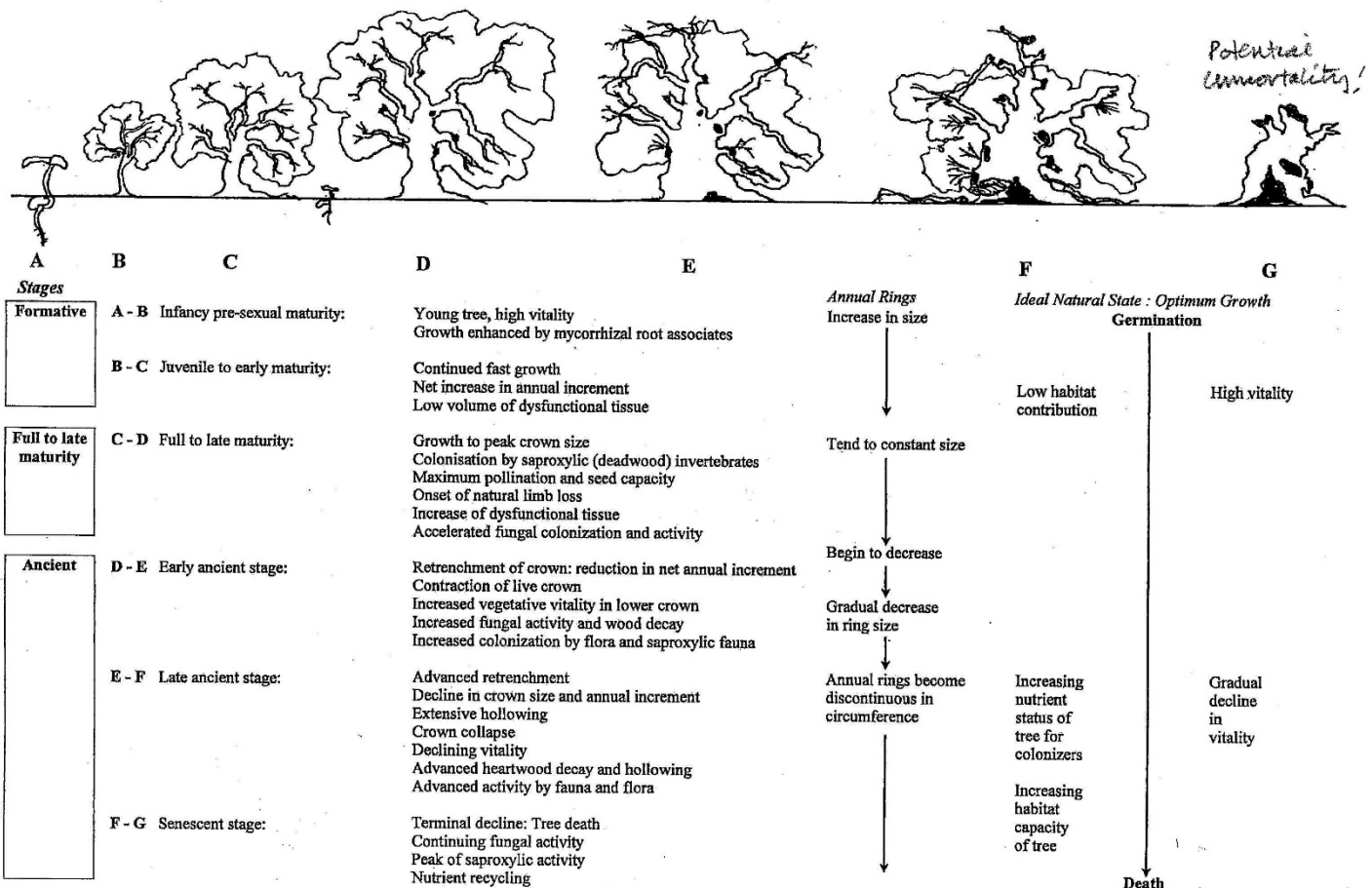
Veteranizing an Old Tree

“Veteranizing” – or re-trenchment pruning, is the current European practice of allowing mature and senescent trees to be managed to reduce risk, but stay as elder members of the Community Forest so they can continue to provide ecological value for a wide range of organisms.

Fay, Neville, (2002) Environmental Arboriculture, Tree Ecology and Veteran Tree Management.
The Arboricultural Journal, 26 (3) 213-238.

The Ageing Process: From Infancy to Death

By Neville Fay of TreeWork Environmental Consultancy, designer Christine Kirkley



APPENDIX E-- Best Management Practices for Pruning of Trees

The most current and up to date version of ANSI A300 standards for Tree, Shrub, and Other Woody Plant Management-Standard Practices should be reviewed for best pruning procedures.

TCIA, *the Tree Care Industry Association*, is a good resource for these standards. To order a copy visit the below URL:

http://www.tcia.org/TCIA/Build_Your_Business/A300_Standards/A300_Standards.aspx

APPENDIX F – Providing Space for Urban Trees

Overview of Alternatives

Evaluate streetscape alternatives to the classic street profiles (following in Appendix G) that incorporate some common sense technologies and research. The following list is a brief overview of ways to provide space for tree roots while reducing infrastructure damage.

Planting Space

Match tree species with available space. When possible, allow between 10 and 15 feet for large growing species, and take advantage of the added benefits of the increased canopy cover they provide.

Curving Sidewalks

Create additional space for trees by replacing existing sidewalks with ones that curve away from the tree. Build a new section or narrow the existing one to a minimum of 39 inches (for wheelchair access.)

Pop-Outs

Remove a section of curb and extend the planting space into the street, taking care to maintain water drainage. Combine with curved sidewalks to maximize tree space.

Tree Islands

Plant trees in groups, so they can share root space. This technique can be useful in non-linear settings, and they can double as traffic-calming devices.

Narrower Streets

Make more space for trees and people by widening sidewalks and planting spaces, and reducing the width of streets in appropriate locations. This has been shown to lower the number of accidents by slowing traffic. This will become more practical as cars get smaller and their numbers decrease in the coming decades.

Structural Soil

A structural soil mix, sometimes called an engineered or load-bearing soil, offers an alternative medium for planting in pits and under sidewalks. A formula developed by Cornell University researchers, consists of approximately 80 percent small triangular stones mixed with about 20 percent loam, along with a small amount of water retention material that also helps to keep the pore spaces open. The mixture helps prevent soil compaction, preserve large air spaces, and help ensure oxygen supply to the roots. When used under a sidewalk, there is promising evidence that this mix will support the pavement and keep it from lifting. Structural soil mix used under sidewalks can also expand the rooting space to extend under the pavement. It can be used to connect existing tree pits and increase available rooting space on the most congested urban thoroughfare.

Super Planting Pits

Where new construction is proposed, design large, unsealed surfaces (>130 sq.ft.) in combination with deep soil loosening, providing at least 525 cubic ft. of soil for each tree. A typical profile might be 24" topsoil, 24-32" exchanged mineral base soil, and 32-48" loosened original soil.

Root Barriers

Material installed vertically, directly adjacent to the paving should extend above the soil and mulch line. This will keep roots from growing over the top of the barrier. Ribbed material is more effective in directing roots downward and horizontally, instead of under sidewalks.

Rubber Sidewalks/ vaulted sidewalks

A modular sidewalk system made of recycled tires is relatively simple to install over existing tree roots. The material allows some flexibility of movement, and the modularity allows removal of specific portions for periodic inspection of tree roots. It also keeps tires out of landfills.

Appendix F is compiled from:

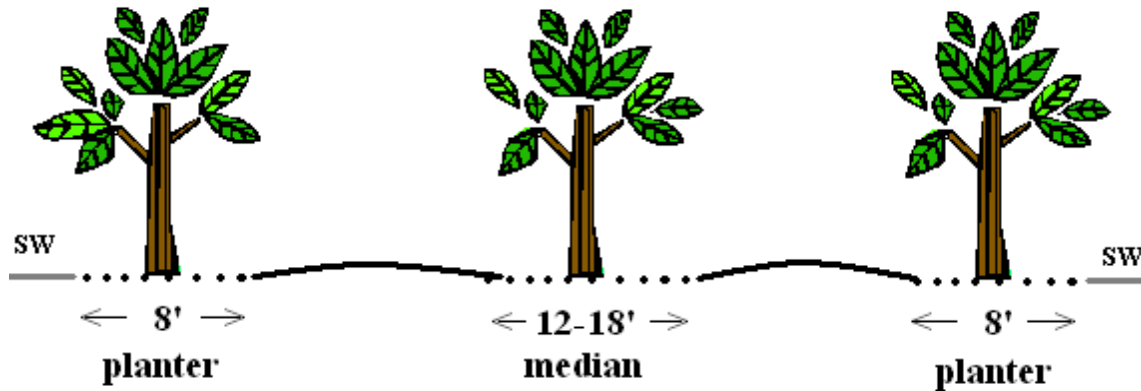
Buhler, Kristofferson & Larsen. *Growth of Street Trees in Copenhagen*, Scientific Journal of the ISA, Vol. 33, No.5. Sept. 2007.

Costello & Jones. *Designer Sidewalks*, ISA Arborist News Vo.I 14, No 5. Oct. 2005
Rubber Sidewalks, Inc. www.Rubbersidewalks.com

Urban, James, Up By Roots. ISA, 2008.

APPENDIX G-- Classic Street Profiles for Trees

The ideal street profile to create a tree-lined street with canopy forming trees would include 8' planter strips plus 12-18' wide medians. Future designs of major and minor arterials should consider this type of design where right-of-ways permit. This design provides adequate space above and below ground for trees, minimizing damage to curbs, sidewalks and streets. These guidelines enhance the driving, bike riding, jogging and walking experiences on these types of streets.



This is the ideal street design for development of maximum canopy, while providing separation between streets and sidewalks.



When space does not allow the development of a full median, 8' planter strips will offer enough room for large, canopy forming trees to be planted.

Planter strips should not be less than 6' wide. These narrow widths will only accommodate plantings of small to medium sized trees that will not produce the canopy effect.

Street designs that incorporate a 4' planter should not be planted with trees due to the limited above and below ground space. If trees are required as part of the street development or frontage improvement, then the trees should be planted at a minimum 4' behind the outside edge of the sidewalk if adequate space and rights-of-way are available.



Street trees are planted behind the sidewalk within public rights-of-way.

APPENDIX H--Additional References and Resources

The following websites provide related information and additional links.

Bainbridge Island Land Trust – www.bi-landtrust.org

City of Bainbridge Island – www.bainbridgewa.gov

City of Bainbridge Island Community Forest Management Plan

Matheny and Clark, Trees and Development: A Technical Guide to Preservation of Trees During Land Development

Kitsap County Extension (Washington State University) – www.extension.wsu.edu/kitsap/

The National Arbor Day Foundation – www.arborday.org

Pacific Northwest Chapter – International Society of Arboriculture – www.pnwisa.org

Tree Care Industry Association- TCIA - www.tcia.org

Trees Are Good <http://www.treesaregood.com/>

APPENDIX JI- Suggested Landscape Matrix

This matrix provides a list of suggested plant materials recommended for use on Bainbridge Island. Additional plants may be added to this list as deemed appropriate by the department. Plants shall be selected based upon site-specific conditions which may affect plant growth such as sun exposure, soil types, shoreline conditions, adjacent site improvements, etc. Plant material selection shall be coordinated with utility company requirements to avoid conflicts.

	Parking lot trees	Landscape buffer areas	Critical areas – Uplands	Critical areas – Wetlands/streams	Native species	Drought resistant	Shoreline	Trees near util. lines
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Large deciduous trees

<i>Acer macrophyllum</i>	Bigleaf Maple	.	.	✕	✕	✕	.	.	.
<i>Acer rubrum species</i>	Red Maple variety	✕	✕	✕	.
<i>Acer saccharum</i>	Sugar Maple	✕	✕	.	.	.	.	.	.
<i>Alnus oregona</i>	Red Alder	.	.	✕	✕	✕	✕	.	.
<i>Fagus sylvatica</i>	European Beech	.	✕	.	.	.	✕	✕	.
<i>Fraxinus latifolia</i>	Oregon Ash	.	.	✕	✕	✕	.	.	.
<i>Gingko biloba 'Sentry'</i>	Columnar Maidenhair	.	✕	.	.	.	✕	.	.
<i>Liquidambar styraciflua</i>	American Sweet Gum	✕	✕	.	.	.	✕	✕	.
<i>Liriodendron tulipifera</i>	Tulip Tree	.	✕	.	.	.	.	.	.
<i>Platanus x acerifolia</i>	London Plane	.	✕	.	.	.	.	.	.
<i>Populus trichocarpa</i>	Black Cottonwood	.	.	.	✕	✕	.	.	.
<i>Quercus species</i>	Oak variety	.	✕	.	.	.	✕	.	.
<i>Quercus robur 'Fastigiata'</i>	Upright English Oak	.	✕	.	.	.	✕	✕	.
<i>Quercus rubra species</i>	Eastern Red Oak	.	✕	.	.	.	✕	.	.
<i>Salix species</i>	Willow variety	.	.	.	✕	✕	.	✕	.
<i>Tilia cordata</i>	Littleleaf Linden	✕	✕	.	.	.	.	✕	.

Medium deciduous trees

<i>Acer campestre</i>	Hedge Maple	✕	.	.	.	.	✕	.	✕
<i>Betula species</i>	Birch variety	✕	✕	.	.	.	.	.	.
<i>Carpinus betulus</i>	European Hornbeam	✕	✕	.	.	.	✕	✕	.
<i>Cercidiphyllum japonicum</i>	Katsura Tree	.	✕	.	.	.	.	.	.

		Parking lot trees	Landscape buffer areas	Critical areas – Uplands	Critical areas – Wetlands/streams	Native species	Drought resistant	Shoreline	Trees near util. lines
<i>Cornus species</i>	Dogwood variety	.	.	✕	.	✕	✕	.	.
<i>Fraxinus pennsylvanica</i> 'Marshall'	Marshall's Seedless Ash	✕	✕	.	.	.	✕	.	.
<i>Populus tremuloides</i>	Quaking Aspen	.	.	.	✕	✕	.	.	.
<i>Prunus species</i>	Flowering Cherry variety	✕	✕	.	.	.	✕	✕	.
<i>Pyrus calleryana species</i>	Flowering Pear variety	✕	✕	.	.	.	✕	.	.
<i>Zelkova serrata</i> 'Village Green'	Sawleaf Zelkova	✕	✕	.	.	.	.	.	.

Small deciduous trees

	
<i>Acer circinatum</i>	Vine Maple	.	✕	✕	✕	✕	.	.	✕
<i>Acer davidii</i>	David Maple	.	✕	.	.	.	.	.	.
<i>Acer ginnala</i>	Amur Maple	✕	✕	.	.	.	.	✕	✕
<i>Acer palmatum</i>	Japanese Maple	.	✕	.	.	.	.	.	✕
<i>Amelanchier species</i>	Serviceberry variety	.	✕	✕	✕	✕	.	.	✕
<i>Carpinus species</i>	Hornbeam variety	✕	✕	.	.	.	✕	✕	.
<i>Cornus florida</i>	Eastern Dogwood	.	✕	.	.	.	.	.	✕
<i>Cornus kousa</i>	Kousa Dogwood	✕	✕	.	.	.	.	.	✕
<i>Crataegus species</i>	Hawthorn variety	.	✕	✕	.	✕	✕	✕	✕
<i>Magnolia species</i>	Magnolia variety	✕	✕	.	.	.	.	✕	✕
<i>Malus species</i>	Flowering Crabapple	.	✕	.	.	.	.	.	✕
<i>Prunus species</i>	Flowering Cherry Plum	.	✕	.	.	.	✕	✕	✕
<i>Rhus typhina</i>	Staghorn Sumac	.	✕	✕	.	✕	✕	.	✕
<i>Styrax japonica</i>	Japanese Snowball	.	✕	.	.	.	.	.	✕

Evergreen trees

	
<i>Abies grandis</i>	Grand Fir	.	✕	✕	.	✕	.	.	.
<i>Cedrus deodara</i>	Deodar Cedar	.	✕	.	.	.	✕	✕	.
<i>Chamaecyparis lawsoniana</i>	Port Orford Cedar	.	✕	✕	.	✕	✕	✕	.
<i>Chamaecyparis nootkatensis</i>	Alaska Cedar	.	✕	✕	.	✕	✕	✕	.
<i>Calocedrus decurrens</i>	Incense Cedar	.	✕	.	.	.	.	.	.
<i>Picea sitchensis</i>	Sitka Spruce	.	✕	.	✕	✕	.	✕	.
<i>Pinus contorta</i>	Shore Pine	✕	✕	✕	.	✕	✕	✕	.
<i>Pinus contorta latifolia</i>	Lodgepole Pine	.	✕	.	.	.	✕	✕	.

		Parking lot trees	Landscape buffer areas	Critical areas – Uplands	Critical areas – Wetlands/streams	Native species	Drought resistant	Shoreline	Trees near util. lines
<i>Pinus densiflora</i>	Japanese Red Pine	.	✕	.	.	.	✕	.	.
<i>Pinus monticola</i>	Western White Pine	.	✕	✕	.	✕	✕	.	.
<i>Pinus nigra</i>	Austrian Black Pine	.	✕	.	.	.	✕	✕	.
<i>Pinus ponderosa</i>	Ponderosa Pine	.	✕	.	.	.	✕	.	.
<i>Pinus sylvestris</i>	Scotch Pine	✕	✕	.	.	.	✕	✕	.
<i>Pinus thunbergii</i>	Japanese Black Pine	.	✕	.	.	.	✕	✕	.
<i>Pseudotsuga menziesii</i>	Douglas Fir	.	✕	✕	.	✕	✕	✕	.
<i>Sequoiadendron sempervirens</i>	Coastal Sequoia	.	✕	.	.	.	.	✕	.
<i>Taxus brevifolia</i>	Western Yew	.	✕	.	✕	✕	.	✕	.
<i>Thuja plicata</i>	Western Red Cedar	.	✕	.	✕	✕	.	.	.
<i>Tsuga heterophylla</i>	Western Hemlock	.	✕	.	✕	✕	.	.	.

Deciduous shrubs

<i>Amelanchier alnifolia</i>	Western Serviceberry	.	✕	✕	✕	✕	.	✕	.
<i>Callicarpa japonica</i>	Japanese Beautyberry	.	✕	.	.	.	.	.	.
<i>Cornus stolonifera</i>	Red-Osier Dogwood	.	✕	✕	✕	✕	.	✕	.
<i>Corylus cornuta californica</i>	Western Hazelnut	.	✕	✕	.	✕	✕	.	✕
<i>Enkianthus campanulatus</i>	Red-Veined Enkianthus	.	✕	.	.	.	.	.	.
<i>Elaeagnus species</i>	Elaeagnus variety	.	✕	.	.	.	✕	✕	.
<i>Euonymus alata 'Compacta'</i>	Winged Eonymus	.	✕	.	.	.	✕	✕	.
<i>Hamamelis mollis</i>	Chinese Witch Hazel	.	✕	.	.	.	.	.	.
<i>Holodiscus discolor</i>	Ocean Spray	.	.	✕	✕	✕	✕	✕	.
<i>Hydrangea lacecap varieties</i>	Lacecap Hydrangea	.	✕	.	.	.	.	.	.
<i>Potentilla fruticosa</i>	Potentilla	.	✕	.	.	.	✕	✕	.
<i>Physocarpus capitatus</i>	Pacific Ninebark	.	.	.	✕	✕	.	.	.
<i>Rhamnus purshiana</i>	Cascara Sagrada	.	.	✕	✕	✕	.	.	.
<i>Ribes sanguineum</i>	Red-Flowering Currant	.	✕	✕	✕	✕	.	.	.
<i>Rosa nutkana</i>	Nootka Rose	.	.	✕	✕	✕	.	✕	.
<i>Rosa rugosa</i>	Rugosa Rose	.	✕	.	.	.	✕	✕	.
<i>Rubus parviflorus</i>	Thimbleberry	.	✕	✕	✕	✕	.	.	.
<i>Rubus spectabilis</i>	Salmonberry	.	✕	✕	✕	✕	.	✕	.
<i>Salix species</i>	Willow variety	.	.	.	✕	✕	.	✕	.
<i>Sambucus racemosa</i>	Red Elderberry	.	.	✕	✕	✕	.	✕	.

		Parking lot trees	Landscape buffer areas	Critical areas – Uplands	Critical areas – Wetlands/streams	Native species	Drought resistant	Shoreline	Trees near util. lines
<i>Spiraea species</i>	Spiraea variety	.	✕	.	✕	✕	✕	✕	.
<i>Symphoricarpos albus</i>	Snowberry	.	✕	✕	.	✕	✕	.	.
<i>Syringa vulgaris cultivars</i>	Lilacs	.	✕	.	.	.	.	✕	.
<i>Vaccinium parvifolium</i>	Red Huckleberry	.	.	.	✕	✕	.	.	.
<i>Viburnum x burkwoodii</i>	Burkwood Viburnum	.	✕	.	.	.	.	✕	.

Evergreen shrubs

	
<i>Arbutus unedo</i>	Strawberry Tree	.	✕	.	.	.	✕	✕	✕
<i>Cotoneaster species</i>	Cotoneaster variety	.	✕	.	.	.	✕	✕	.
<i>Gaultheria shallon</i>	Salal	.	✕	✕	✕	✕	✕	✕	.
<i>Ilex crenata</i>	Japanese Holly	.	✕	.	.	.	.	.	.
<i>Kalmia latifolia</i>	Mountain Laurel	.	✕	.	.	.	.	.	.
<i>Ligustrum japonicum</i>	Japanese Privet	.	✕	.	.	.	.	.	.
<i>Myrica californica</i>	Pacific Wax Myrtle	.	✕	✕	✕	✕	✕	✕	.
<i>Umbellularia californica</i>	California Bay Laurel	✕	✕	.	.	.	✕	✕	✕
<i>Osmarea x burkwoodii</i>	Burkwood Osmarea	.	✕	.	.	.	✕	.	.
<i>Osmanthus delavayi</i>	Delavay Osmanthus	.	✕	.	.	.	✕	✕	.
<i>Photinia frazeri</i>	Japanese Photinia	.	✕	.	.	.	✕	✕	.
<i>Pieris floribunda</i>	Mountain Pieris	.	✕	.	.	.	.	✕	.
<i>Pieris japonica</i>	Japanese Pieris	.	✕	.	.	.	.	✕	.
<i>Prunus lusitanica</i>	Portuguese Laurel	.	✕	.	.	.	✕	.	.
<i>Pinus mugo</i>	Mugho Pine	.	✕	.	.	.	✕	✕	.
<i>Rhododendron spp./ hybrids</i>	Rhododendrons / Azaleas	.	✕	✕	.	✕	.	✕	.
<i>Vaccinium ovatum</i>	Evergreen Huckleberry	.	✕	✕	✕	✕	.	✕	.
<i>Viburnum sinus species</i>	Laurustinus variety	.	✕	.	.	.	✕	✕	.

Groundcovers

	
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	.	✕	✕	.	✕	✕	✕	.
<i>Berberis nervosa</i>	Cascade Mahonia	.	✕	✕	.	✕	✕	.	.
<i>Calluna vulgaris</i>	Scotch Heather	.	✕	.	.	.	.	✕	.
<i>Ceanothus gloriosus</i>	Point Reyes Ceanothus	.	✕	.	.	.	✕	✕	.
<i>Cotoneaster microphyllus 'Cochleatus'</i>	Rockspray Cotoneaster	.	✕	.	.	.	✕	✕	.
<i>Erica carnea</i>	Winter Heath	.	✕	.	.	.	.	✕	.

		Parking lot trees	Landscape buffer areas	Critical areas – Uplands	Critical areas – Wetlands/streams	Native species	Drought resistant	Shoreline	Trees near util. lines
<i>Erica x darleyensis</i>	Mediterranean Heather	.	✕	.	.	.	.	.	.
<i>Euonymus fortunei</i>	Winter Creeper Euonymus	.	✕	.	.	.	.	✕	.
<i>Hypericum calycinum</i>	St Johnswart	.	✕	.	.	.	.	✕	.
<i>Ilex crenata varieties & cultivars</i>	Japanese Holly	.	✕	.	.	.	.	.	.
<i>Mahonia species</i>	Mahonia variety	.	✕	.	.	.	.	✕	.
<i>Pachysandra terminalis</i>	Japanese Spurge	.	✕	.	.	.	✕	.	.
<i>Sarcococca hookerana</i>	Sarcococca	.	✕	.	.	.	.	.	.

Revised by CFC - 2010

Additional Natives for the Landscape Matrix Community Forest

Large deciduous trees

Cornus nutallii Pacific Dogwood buf, n
Quercus garryana Garry Oak buf, n, drt

Small deciduous trees

Prunus emerginata Bitter Cherry buf, n, drt, shr, utl

Deciduous shrubs

Menziesia ferrugina False azalea buf, w, n
Omeleria cerasiformis Indian Plum buf, w, n
Oplopanax horridum Devils Club buf, w, n
Sorbus sitchensis Sitka Mountain Ash buf, up, n, drt
Spiraea douglasii Hardhack Spiraea buf, w, n
Viburnum edule Highbush Cranberry buf, up, n, shr

Evergreen shrubs

Polystichum munitum Sword Fern buf, up, n, drt
Rhododendron macrophyllum Pacific Rhododendron buf, up, n, shr

Groundcover

Blechnum spicant Deer fern buf, w, n
Gaultheria ovatifolia Tea Berry buf, w, n, shr

buf-buffer, **up**-uplands, **w**-wetlands, **n**-native, **drt**-drought, **shr**-shoreline, **utl**-utility



CITY OF
BAINBRIDGE ISLAND

Planning Commission Special Meeting Agenda Bill

MEETING DATE: December 17, 2020

ESTIMATED TIME: 30 Minutes

AGENDA ITEM: (6:45 PM) - Joint Land Use Subcommittee, Miscellaneous Code Revisions, Phase 2 Changes to the Pre-application Process

AGENDA CATEGORY: Discussion

PROPOSED BY: Heather Wright

PREVIOUS PLANNING COMMISSION

REVIEW DATE(S): October 29, 2020
November 19, 2020

PREVIOUS COUCIL REVIEW DATE(S): October 13, 2020

RECOMMENDED MOTION:

Discussion.

SUMMARY:

The purpose of this item is to discuss the proposed changes to the pre-application process based on input and meetings with staff, the Design Review Board and the Planning Commission.

BACKGROUND: The Planning Commission first discussed the code changes that were approved by the City Council to be worked on by the Planning Commission on October 29, 2020. The first category of changes, identified as Triage or housekeeping changes, were unanimously recommended for approval by the PC at their December 10, 2020 meeting following a public hearing.

This agenda item is for Phase 2 of the triage changes that relate to the nature and order of the pre-application process. (i.e. conceptual meeting, design guidance, preapplication conference). The Code changes will focus on how and when the Design Review Board and Planning Commission are involved in these early meetings.

A draft proposal was first discussed with the Planning Commission on November 19, 2020 (See Major Site Plan land Use Review Process 11.12.2020 document attached) where it was decided that the next step would be for staff to provide input. Staff input was provided (See REVISED Major Site Plan Land Use Review Process Staff Comments document attached) and a subsequent meeting was held with staff, members of the Planning Commission and the Design Review Board on December 9, 2020, with a subsequent meeting scheduled for December 16, 2020.

ATTACHMENTS:

DRAFT MAJOR SITE PLAN LAND USE REVIEW PROCESS		11.12.2020					
REQUESTS:	6-Nov-20 Chester, Quitslund, Russell, Clayton mtg,						
GOALS:	Staff to add all relevant codes and corrections to Applicant Responsibilities, Materials Required, COBI Responsibilities and Meeting Outcome columns.						
	Clarify COBI, PC and DRB roles						
	Streamline flow of steps in process						
	Provide earlier professional interface with COBI planning staff						
	Provide earlier touch by PC						
	Provide applicant needed information early and prior to completing large amount of design work with accompanying costs						
STEP	REQUIRED ACTIONS	MEETING PURPOSE	ATTENDEES	APPLICANT RESPONSIBILITIES	MATERIALS REQUIRED	COBI RESPONSIBILITIES	MEETING OUTCOME
1	Pre-Application Consultation Meeting (30-60 minutes)	Representatives from relevant departments (planning, building, fire, engineering, etc.) will review project with applicant and identify significant land use permit requirements before applicant has spent significant time and money on the project design.	Applicant, Assigned Planner, relevant COBI staff	Develop meeting agenda, explain project and help identify all requirements/hurdles Applicant thinks need to be overcome. Pay fee in the amount of \$????	Minimum amount of materials to explain project. Submit to assigned planner ??? days in advance of appointment to allow time for staff review and also calendar coordination of needed attendees.	Review submitted materials and create a written memo that lists applicable codes, provide a Zoning Letter, Comprehensive Plan goals & policies and any other relevant items. Facilitate review of this memo at this consultation to achieve project clarity.	Applicant will prepare meeting minutes and ask assigned planner to identify any misunderstandings. Minutes and COBI memo will be made available to PC and DRB, including in the Project Permit.
2	DRB Conceptual Proposal Review Meeting (30-60 minutes dependent on size of project)	Gives DRB first look at project concept before applicant is committed to a final design. Gives applicant more understanding of DforB Standards and Guidelines, and how project meets Comprehensive Plan goals and policies.	Applicant, assigned planner, DRB and up to 3 PC members dependent upon complexity of project.	Provide and clearly narrate, project context, site analysis, statement of project intent, and an initial rendering of building siting, building exterior, and landscaping. Fill-in partial DforB-2019 Checklist responses - find under Forms, Documents, & Applications.	Clear context analysis, site analysis, statement of intent, preliminary concept, site and building perspective, partially filled-in DforB Checklist/Worksheet.	Staff to introduce proposed project, and outline possible departures, exceptions, variances, or other important project highlights or prior development history.	An informal and open dialog is expected, in order for all to think "outside the box," and to create the best project for Bainbridge Island. This includes how the project will fit-in with DforB Standards and Guidelines. PC to review project's compliance to relevant Comprehensive Plan Goals & Policies, and to ensure the applicant clearly understands.

STEP	REQUIRED ACTIONS	MEETING PURPOSE	ATTENDEES	APPLICANT RESPONSIBILITIES	MATERIALS REQUIRED	COBI RESPONSIBILITIES	MEETING OUTCOME
3	DRB Design Guidance Meeting (60 minutes)	DRB to provide input and guidance to applicant on consistency with DforB standards and guidelines and recommendations how the project might be revised to achieve greater consistency.	Applicant, assigned planner, DRB	Provide a more settled massing, site, and building design elements including proposed elevations, colors, floor plans (including alternatives), and additional landscaping.	A more settled site, building and landscape design, Alternatives, Massing and Siting options. COBI source materials??	Staff to present status of recommendations related to possible departures/variances etc., and any further land use permit requirements etc.	Determination of project consistency with DforB guidelines and standards, exterior colors/textures, and Comp Plan goals & policies. Recommendations on any departures/variances reviewed.
4	Public Participation Meeting (60 minutes)	Gives applicant (with assigned Planner support) the opportunity to present the project to the community→ Provides a first, full PC review of project	Planning Commission scheduled public meeting, applicant, assigned planner and DRB liaison	Present most current design, alternatives, elevations, colors/textures, massing and siting for public review.	All materials that applicant anticipates presenting at the Application Intake Appt. meeting, Step 5.	Applicant (with Planner support) to present project and how it does or does not meet Comprehensive Plan Goals as well as explain requests for pending departures, exceomptions, and variances, etc.	Planning Commission and the public, at early stage of development, weigh in on how project can be improved to meet Comp Plan "guiding principles." DRB representative(s) must attend to hear the public testimony.
5	Application Intake Appointment (60 minutes)		Applicant, permit specialist, assigned planner.	Submit Master Land Use Application, Pay relevent Fees	Applicant shall provide all required submittal materials outlined in the Admin. Manual Pg. 13-14 (depends on type of LU Permit, also long subdivision etc...)	City staff to review all required submittal materials and come prepared to review the project with the applicant.	Conditions are applied at this appt. via code. COBI to provide written followup memo to applicant, PC and DRB.

STEP	REQUIRED ACTIONS	MEETING PURPOSE	ATTENDEES	APPLICANT RESPONSIBILITIES	MATERIALS REQUIRED	COBI RESPONSIBILITIES	MEETING OUTCOME
6	DRB final review/ recommendation (60 minutes)	Project is presented to the DRB after incorporating the recommendations from the COBI staff project review and PC. DRB makes final decision on proposed project for compliance with applicable design guidelines and ensures it reflects any revisions from the Design Guidance meeting including any departures from the guidelines and standards.	Applicant, assigned planner, DRB			The DRB will consider any departures from the design guidelines, forward written findings, their determination of the project's consistency with the design guidelines, the design guideline checklist, and their recommendation, including any conditions, to the staff planner. Any condition attached to a recommendation must be intended to achieve consistency with one or more specific guidelines.	The DRB's written findings will be included in the staff report transmitted to the Director and the PC.
7	Planning Commission Review and Recommendation (60 minutes)	PC reviews the proposed project for consistency with applicable design guidelines, the BIMC provisions and the Comprehensive Plan.	Planning Commission, applicant, assigned planner	Presentation by applicant optional, but recommended.		Director to provide a statement of facts upon which the recommendation is based and the conclusions derived from those facts. PC will take into consideration the recommendation from the DRB, any public comment received and the City staff recommendation.	
8	Decision	The Director gives consideration to public comment, decision criteria and substantial weight to the PC and DRB recommendations.	Director			Staff will prepare a report from the planner to the Director.	Decision to be distributed to applicant, PC, DRB and commenters.

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8	Decision	The Director gives consideration to public comment, decision criteria and substantial weight to the PC and DRB recommendations.	Director			Staff will prepare a report from the planner to the Director.	Decision to be distributed to applicant, PC, DRB and commenters.

Staff comments	Staff Comment	Staff Comment	Staff Coment	Change	Change	Change
Not necessary, instead have a pre-application meeting earlier in the process.	Applicant should be required to submit materials identified in the Admin Manual for a pre-ap conference rather than at the applicant's discretion	Staff evaluates comp plan goals and policies - should this be a submittal requirement? High level comp plan discussion or a deep dive?	having appicant prepare meeting notes would add process and concern that this isn't beneficial	While identified as a new step, this is very similar to our pre-application meeting which is the 4th step in the pre-application phase. This would become the first step.	Applicant prepares the minutes, currently staff prepares a pre-application letter.	Minutes and meme routed to the DRB & PC, currently only the application is routed to the DRB.
Comment	Change	Change	Change			

detail needed to know if a departure is necessary may not occur until DG and recommended it continues to exist there	PC included as part of the conceptual meeting.	Departures discussed	Additional submittal requirements			
Comment	Change					
Unless comp plan consistency concern voiced from the community, this discussion shouldn't happen at the PPM.	the focus is less on the public comments/ concens and more on the process and compliance with comp plan.					

Comment	Comment					
is not an ideal use of planner time. This is a required step with the permit specialist	review occurs after the proejct has been submitted and is in the review					
Comment						

Consistent with current process.						
Consistent with current process.						
Change distributed to PC & DRB new, currently goes to						



CITY OF
BAINBRIDGE ISLAND

Planning Commission Special Meeting Agenda Bill

MEETING DATE: December 17, 2020

ESTIMATED TIME: 20 Minutes

AGENDA ITEM: (7:15 PM) - Process for Adopting a Multifamily Property Tax Exemption

AGENDA CATEGORY: Discussion

PROPOSED BY: Jennifer Sutton

**PREVIOUS PLANNING COMMISSION
REVIEW DATE(S):**

PREVIOUS COUCIL REVIEW DATE(S): October 13, 2020
December 15, 2020

RECOMMENDED MOTION:
Discussion only.

SUMMARY:

Washington State provides for a MFTE program in RCW 84.14. In order to adopt a MFTE, there are policy questions that need to be answered, and some specific steps that are required by RCW 84.14, in addition to the standard ordinance process.

Policy questions to answer include, but may not be limited to:

1. Staff recommendation to City Council and/or Planning Commission re: MFTE designated areas: Consider all zones where multifamily housing is a permitted use- MUTC (all zones), High School Road 1 & 2, R-8, R-14 and Lynwood Center NC area (as only NC area currently served by sewer). Potential MFTE designated areas would then be put forward as for a public hearing on the designated area(s).
2. Confirm joint land use committee recommendation that we should pursue adopting solely the 12 year MFTE program, and not also the 8 year MFTE program.
3. Project threshold: Under state law (RCW 84.14.030), a project must be creating at least 4 multifamily units in order to qualify for applying for the MFTE program. Other jurisdictions have raised this threshold in their local regulations, for instance, Bremerton's threshold is 10 units.

NOTE: Questions 1, 2 and 3 could be discussed concurrently.

4. Geographic area Public Hearing (RCW 84.14.040). Pick public hearing date (CC or PC) at least 5-6 weeks out in order to meets specific noticing requirements in state law, and substantial public outreach planned.
5. Policy questions and MFTE designation area(s) into draft ordinance to add a chapter to Title 3.

6. Council Review of Ordinance to add new MFTE chapter to Title 3. As part of Council review of the ordinance, the Council could consider whether or not to adopt a MFTE application review fee.

7. Administration Requirements (Concurrent with Council Review of Ordinance) : Staff creates MFTE application forms and annual compliance forms. Confirm staff assigned for annual reporting requirements to the State

Additional information on the Washington MFTE program is provided for background.

BACKGROUND: The Joint City Council/Planning Commission land use subcommittee presented a list of recommended priority code changes to the Council on October 13, 2020. The Council approved the list and recommended it be forwarded to the Commission for immediate legislative work. The subcommittee requested, with Council's approval, that the Planning Commission complete its piece of the required legislative work as follows:

1. Miscellaneous code revisions December 31, 2020
2. Major projects decision criteria January 31, 2021
3. Multifamily Property Tax Exemption (MFTE) program December 31, 2020

NOTE: #1 work is underway with work on Ordinance 2020-40 (Planning Commission recommended approval of ordinance on December 10) and ongoing Planning Commission/Design Review Board collaboration on modifications to the early phases of the land use permit process, to be integrated into a future ordinance.

The Planning Commission's Affordable Housing Subcommittee (Commissioner's Quitslund, Blossom and Paar) has been meeting and discussing how the City could adopt a MFTE program. See attached memo from Commissioner Quitslund.

ATTACHMENTS:

MEMORANDUM

Date: December 8, 2020

To: Planning Commission
Planning & Community Development Director Heather Wright
Senior Planner Jennifer Sutton

From: Planning Commissioner Jon Quitslund

Subject: DRAFT Proposed Multifamily Tax Exemption Program Code

This memo will introduce the proposed DRAFT of a Municipal Code chapter that would authorize a Multifamily Tax Exemption (MFTE) Program. The creation of such a program was recommended by the Affordable Housing Task Force, and it has had a prominent place on the City Council's work plan. Some time ago, it was suggested that the Planning Commission's Affordable Housing subcommittee (myself, Sarah Blossom, and Joe Paar) could initiate work on this project. We discussed the project on October 28, and on October 30, I sent "Elements of an MFTE Program" to the Planning Commission, summarizing my first steps in studying the RCW and programs on the books in other jurisdictions (the cities of Bremerton, Bellingham, Shoreline, and Lacey).

Initially, I was thinking in terms of roughing out some policies, discussing them in the subcommittee, and sending recommendations to the Joint Council/PC subcommittee. When I described my intentions to Christy Carr, however, she said that I should work within the Planning Commission. That motivated me to complete a DRAFT of a Municipal Code chapter. The A H subcommittee met to discuss my draft on November 18, and that led to some revisions. I sent the revised text to Heather Wright, because I had learned that she and others in Planning had begun discussing MFTE policies. Subsequently, I met on November 23 to discuss the draft with Phedra Elliott and Anthony Oddo at the Housing Resources Board; at Phedra's suggestion, Charlie Wenzlau was also involved in that meeting. On December 3, I discussed the draft with Heather Wright and Jennifer Sutton.

As drafted and discussed with the A H subcommittee, the proposed MFTE Program document leaves a number of policy matters to be determined, as you will see. The discussions mentioned above raised several questions, and I expect that Planning Commissioners will have questions and ideas of their own. In what follows, my comments will address questions that have been raised and choices that need to be made at the Planning Commission level in preparation for a DRAFT Ordinance and a Public Hearing.

3.36.020.A. At this point and elsewhere, "Affordable housing" is defined with reference to housing for both rental and owner occupancy. It has been suggested that our MFTE program should be limited to rental projects. In other jurisdictions, as in the RCW, both possibilities are provided for. We might consider only supporting owner occupancy with a tax exemption when the project will involve Community Land Trust properties administered by HRB.

3.36.020.D & E. In RCW 84.14.010, "low-income household" and "moderate-income household" are defined somewhat differently from the categories referenced in BIMC 18.21.020, where "low income" means between 51 and 80% of AMI and "moderate income" means between 81 and 95% of AMI. The RCW also says that in a "high cost area," "low income" is at

or below 100% of AMI and “moderate income” is between 100 and 150% of AMI. (If Bainbridge Island were a part of King County rather than Kitsap, we could qualify as a high cost area.)

3.36.020.F. In RCW 84.14, the terms “multiple-unit” and “multifamily” are used interchangeably. In BIMC 18.36.030, “multifamily development” is defined differently, to include as few as two units on a single parcel.

3.36.020.J and **3.36.030.** It has been pointed out that pursuant to RCW 84.14, the public hearing on designation of target areas will require extensive noticing to a variety of interested parties. It seems appropriate, if not necessary, to decide first the minimum size of a project: i. e., as few as four units? at least ten? Some discussion of administrative costs would be relevant to this discussion. This might call for discussion and a decision by the City Council prior to completion of the Planning Commission’s work on a Code chapter, since the Council decides what area(s) shall be designated. See also **3.36.050.B.**

3.36.040. It should be noted that the duration of the tax exemption is addressed in this section, and not the duration of affordability. In the absence of inclusionary housing provisions elsewhere in the Code, there is no guarantee that the units provided for income-qualified residents will remain affordable beyond twelve years.

3.36.040.A. In accordance with RCW 84.14, at least 20% of the housing units in a multifamily project are to be rented or sold to income-qualified households. This sets a standard that is more ambitious (and arguably more appropriate) than the 10% requirement that is sometimes taken to be the norm for inclusionary housing policies. Since the other 80% of units enjoy the same tax exemption, the whole project becomes more affordable for at least twelve years.

3.36.050. Performance standards in this section must be consistent with provisions elsewhere in the Code (e. g., in BIMC 18.12 & 21) that apply to affordable housing.

3.36.050.H. Some jurisdictions call for approval of the contract by the city council, and others by the city manager.

3.36.090. The city might contract with HRB for some administrative and reporting responsibilities, and if so, language in this section could indicate the fact.

While an MFTE Program cannot be fully functional without the completion of inclusionary housing policies in BIMC 18.12 and 18.21, adoption of BIMC 3.36 can be seen as an appropriate next objective. It may serve to speed up completion of our long-delayed work on housing policies.

cc: Council Member Kirsten Hytopoulos



Multifamily Tax Exemption

Under state law, cities may exempt multifamily housing from property taxes in urban centers with insufficient residential opportunities. The city defines a residential target area or areas within an urban center; approved project sites are exempt from *ad valorem* property taxation on the residential improvement value for a period of eight or 12 years.

The 12-year exemption requires a minimum level of affordable housing to be included in the development (at least 20% of the units or 100% if the building is solely owner-occupied). The eight-year exemption leaves the public benefit requirement—in both type and size—to the jurisdiction’s discretion. The eight-year exemption carries no affordable housing requirement. Cities must pass an enabling ordinance to enact the MFTE and to allow applications for the exemption.

WHAT ISSUES DOES A MULTIFAMILY TAX EXEMPTION (MFTE) ADDRESS?

This tool encourages multifamily development and redevelopment in compact mixed-use districts (urban centers) where housing and affordable housing options are in short supply. Through the multifamily tax exemption, a jurisdiction can incentivize dense and diverse housing options in urban centers lacking in housing choices or affordable units. MFTE can also apply to rehabilitating existing properties and redeveloping vacant or underused properties.

TOOL PROFILE

Objectives

[Housing in Centers and Near Transit](#)

[Housing Options in Expensive Markets](#)

[Mitigate Residential Displacement](#)

Type of Tool

Incentives

Project Type

Multifamily

Rental

Affordability Level

Market-rate incentives and tools

Most effective for units <80% AMI

WHERE IS THE MULTIFAMILY TAX EXEMPTION MOST APPLICABLE?

Cities planning under the Growth Management Act ([RCW 36.70a](#)) that have designated urban centers with a deficiency of housing opportunities are eligible to implement this tool. In King, Pierce, Snohomish and Kitsap counties, cities must have at least 5,000 in population. Cities must designate eligible areas that contain urban centers.

Urban centers—in the context of the MFTE-enabling legislation—have a specific meaning:

“ ...a compact identifiable district where urban residents may obtain a variety of products and services. An urban center must contain:

- a) Several existing or previous, or both, business establishments that may include but are not limited to shops, offices, banks, restaurants, governmental agencies;
- b) Adequate public facilities including streets, sidewalks, lighting, transit, domestic water, and sanitary sewer systems; and
- c) A mixture of uses and activities that may include housing, recreation, and cultural activities in association with either commercial or office, or both, use.” (RCW 84.14.010)

Based on the state law, designated districts are commercial or business districts with some mix of uses. Such areas may exist in downtowns, commercial corridors, or other intensively developed neighborhoods. Examples of designated districts throughout the central Puget Sound region are listed in the model policies, regulations, and other information section.

MFTEs have been effective in producing multifamily units in the region’s larger cities. Since its inception, the MFTE law has been expanded to include smaller cities. PSRC’s [2019 Housing Incentives Survey](#) found that MFTE produced the greatest number of new units of the tools surveyed. [State legislative review](#) similarly found that the tool was widely used in the central Puget Sound region, but that some changes may be needed to ensure effectiveness of the program. The success of this tool in larger jurisdictions could make it an attractive tool for smaller and moderate-sized cities that meet the population threshold.

Multifamily tax exemptions can encourage relatively dense attached flats or townhomes in mixed-use projects or residential complexes, which makes this tool particularly useful in urban centers and transit-oriented developments. Dense development is also economically efficient in expensive housing markets and can reduce housing costs.

WHAT DO I NEED TO KNOW ABOUT USING OR DEVELOPING A MULTIFAMILY TAX EXEMPTION?

The MFTE implementation process is guided by state law in [RCW 84.14](#). In general, the process includes preparing a resolution of intent to adopt a designated area, holding a public hearing, and adopting and implementing standards and guidelines to be utilized in considering applications for the MFTE. Among other criteria, the designated area must lack “sufficient available, desirable, and convenient residential housing, including affordable housing, to meet the needs of the public who would be likely to live in the urban center, if the affordable, desirable, attractive, and livable places to live were available” (RCW 84.14.040).



A property owner applying for an MFTE must meet the criteria (per RCW 84.14.030) summarized here:

- The new or rehabilitated multiple-unit housing must be located in city-designated residential target areas within the urban center.
- The project must meet local government requirements for height, density, public benefit features, number and size of proposed development, parking, income limits for occupancy, limits on rents or sale prices, and other adopted requirements.
- At least 50% of the space in the new, converted, or rehabilitated multiple-unit housing must be for permanent residential occupancy. Existing occupied multifamily developments must also provide a minimum of four additional multifamily units.
- New construction of multifamily housing and rehabilitation improvements must be completed within three years from approval.
- The applicant must enter into a contract with the city containing terms and conditions satisfactory to the local government.

The exemption is recorded with the County Assessor. Developments that violate the terms of the exemption are required to pay back the exempted tax amounts, plus interest, and a penalty fee.

Cities considering the program need to weigh the temporary (8-12 years) loss of tax revenue against the potential attraction of new investment to targeted areas. MFTE projects could be catalysts for other private investment if they help prove an area is desirable.

Pairing the MFTE with other tools that affect density and cost reductions may help the city achieve higher density and affordable housing in designated mixed-use and commercial areas. These tools include [density bonuses](#), [TOD overlays](#), [parking reductions](#), [mixed-use development](#), and a [planned action EIS](#).

CREATING A MULTIFAMILY TAX EXEMPTION PROGRAM

A typical planning process (gathering information, conducting public outreach, and considering ordinances), together with the specific requirements of state law, will guide the development of an MFTE program:

Determine Residential Target Areas

Cities will need to consider the state law's "urban center" definition which addresses existing commercial businesses, mixed uses, and infrastructure.

Analysis

To support the urban center and residential target area designations, a jurisdiction should map or collect data on current uses, services, and capital facilities. The data and analysis should demonstrate that the area lacks sufficient residential housing, including affordable housing.

Estimating the tax revenue and other cost-benefit implications of the MFTE program can help to determine whether the program would help achieve housing goals. In terms of other cost-benefits, jurisdictions can calculate the short-term construction and sales tax revenues and employment gains that stem from the development.



Conduct Public Outreach

The MFTE statute suggests that a jurisdiction considering an MFTE program issue a resolution of intention to designate an urban center and residential target area(s). The resolution should also identify the time and place of a hearing. Cities must hold a public hearing on the proposed MFTE ordinance and follow notification schedules listed in the statute. While crafting the ordinance, cities will also want to involve stakeholders, including developers of multifamily and condominium housing, affordable housing developers and advocacy groups, and major landowners and businesses in the residential target areas. See [Build Community Support](#) for strategies to involve the public and stakeholders.

Determine Standards

The state affords jurisdictions wide latitude to design their MFTE laws to meet local planning goals. Proposals must meet local zoning and development standards and any affordability and occupancy criteria the jurisdiction sets. Based on the intent of the MFTE, key decisions to shape the ordinance include:

- **Encouraging more versus less participation from developers**

The threshold number of units to qualify for the exemption and public benefit requirements could influence the level of participation by developers. A low threshold and limited public benefit requirements, for example, might make the program more accessible to developers, but yield a smaller return in public benefit for foregone revenue. A high threshold and demanding public benefit requirement, however, might make the program unattractive to developers. Striking a balance between requirements, goals and attractiveness is essential to a successful MFTE program.

- **Encouraging affordable housing versus market-rate housing**

RCW 84.14 allows cities to provide a bonus for affordable housing provision by allowing 12 years of tax exemption, versus the eight years offered for market-rate developments. Cities could further encourage developers to opt for the 12-year exemption by setting a threshold number of units or public benefit to attract development. Offering other incentives, such as [density bonuses](#) and [flexible development regulations](#), along with the MFTE can strengthen interest in affordable development in the city.

- **Ensuring that affordability endures**

Affordable units are at risk of losing their affordable status both at the end of the MFTE time period and during its existence if a developer decides to opt out of the program. Requiring [affordability covenants](#) for these units is one method for preserving affordability.

Implementation

State law requires an application process and procedures. Cities will need to allocate staff and resources to reviewing applications. A fee may be charged for the request. The agency has 90 days to approve or deny the application.



Monitoring

The law requires regular reporting by applicants and by cities. Upon construction and annually thereafter, the property owner must file reports containing information such as occupancy, vacancy, and other items required by the city.

Cities will also want to make sure that these requirements are not too onerous. In some cases, partnerships between non-profits and for-profits to ensure secure income certifications and monitoring may be helpful.

Cities must annually report to the Washington State Department of Commerce the number of certificates granted, unit types, monthly rent and sales costs, and other information. Cities can use these regular reports to monitor the success of the program and build supporting data for future program goals. Some cities adopt a sunset clause by which time the city may re-adopt or let expire the tax exemption program.

MODEL POLICIES, MODEL REGULATIONS, OTHER INFORMATION

State of Washington: [RCW 84.14](#)

See adopted ordinances of the following cities at: <http://www.mrsc.org/codes.aspx>

- Bremerton: Downtown Core and Multiple Residential Zones
- Burien: Downtown Commercial Zone
- Everett: Downtown and vicinity
- Kirkland: Central Kirkland/Houghton; Totem Lake and North Rose Hill; Juanita; and NE 85th Street
- Lynwood: City Center
- Puyallup: central business district (CBD) and certain areas south of the CBD
- SeaTac: 154th Street and SeaTac/Airport Station Areas
- Seattle: 39 neighborhoods or districts
- Shoreline: Ridgecrest District
- Tacoma: 17 mixed-use centers designated on the Generalized Land Use Plan and in the Comprehensive Plan

