

SAMMAMISH TOWN CENTER PLAN DEVELOPMENT CODE FIRST DRAFT CHAPTER 21B.35

February 5, 2009

Chapter 21B.35

DEVELOPMENT STANDARDS – LANDSCAPING AND IRRIGATION

NOTE – SINCE THERE ARE A LIMITED NUMBER OF CHANGES FROM THE CORRESPONDING 21A CHAPTER, WE'VE USED THE **TRACK CHANGES** FORMAT.

Sections:

- 21BA.35.010 Purpose.
- 21BA.35.020 Application.
- 21BA.35.030 Landscaping – Screen types and description.
- 21BA.35.040 Landscaping – Street frontages.
- 21BA.35.050 Landscaping – Interior lot lines.
- 21BA.35.055 Landscaping – Drainage facilities.
- 21BA.35.060 Landscaping – Surface parking areas.
- 21BA.35.070 Landscaping – General standards for all landscape areas.
- 21BA.35.080 Landscaping – Additional standards for required landscape areas.
- 21BA.35.090 Landscaping – Alternative options.
- 21BA.35.100 Landscaping – Plan design, design review, and installation.
- 21BA.35.110 Maintenance.
- 21BA.35.120 Financial guarantees.
- 21BA.35.130 Water use – Applicability of water budget for landscape areas.
- 21BA.35.140 Water use – Irrigation water budget calculated.
- 21BA.35.150 Water use – Estimated water use calculated.
- 21BA.35.160 Water use – Irrigation efficiency goals and system design standards.
- 21BA.35.170 Water use – Irrigation system design, design review and audit at installation.
- 21BA.35.180 Water use – Irrigation design plan contents.
- 21BA.35.190 Water use – Irrigation schedules.
- 21BA.35.200 Water use – Irrigation system maintenance.
- 21BA.35.210 Tree retention requirements.
- 21BA.35.220 Tree retention incentives.
- 21BA.35.230 Tree protection standards.
- 21BA.35.240 Tree replacement and enforcement.

21BA.35.010

Purpose.

The purpose of this chapter is to preserve the aesthetic character of ~~communities~~the town center planning area, to improve the aesthetic and functional quality of the built environment, to promote retention and protection of existing vegetation; to promote water efficiency, to promote native wildlife, to reduce the impacts of development on drainage systems and natural habitats, and to increase privacy for residential zones by:

- (1) Providing visual relief from large expanses of parking areas and reduction of perceived building scale;
- (2) Enhancing built structures and open spaces;
- (3) Adding visual interest and variety in the town center;
- (42) Providing physical separation between residential and nonresidential areas;
- (53) Providing visual screens and barriers as a transition between differing land uses where desired;
- (64) Retaining existing vegetation and significant trees by incorporating them into the site design;
- (75) Providing increased areas of permeable surfaces to allow for:
 - (a) Infiltration of surface water into groundwater resources;
 - (b) Reduction in the quantity of storm water discharge; and
 - (c) Improvement in the quality of storm water discharge;
- (86) Encouraging the use of native plant species by their retention or use in the landscape design;
- (97) Requiring water use efficiency through water budgeting and efficient irrigation design standards;
- (108) Encouraging the use of a diversity of plant species that promote native wildlife habitat.

21BA.35.020

Application.

Except for communication facilities regulated pursuant to Chapter 21B.55 SMC, all new development shall be subject to the landscaping provisions of this chapter; provided, that specific landscaping and tree retention provisions for uses established through a conditional use permit or a special use permit shall be determined during the applicable review process.

21BA.35.030

Landscaping – Screen types and description.

The three types of landscaping screens are described and applied as follows:

(1) Type I Landscaping Screen.

- (a) Type I landscaping shall function as a full screen and visual barrier. This landscaping is typically found between residential and nonresidential areas and to screen unwanted views;
- (b) Type I landscaping shall minimally consist of:
 - (i) A mix of primarily evergreen trees and shrubs generally interspersed throughout the landscape strip and spaced to form a continuous screen;
 - (ii) Between 70 and 90 percent evergreen trees;
 - (iii) Trees provided at the rate of one per 100 square feet or one per 10 linear feet, whichever is greater, of landscape strip ~~and spaced no more than 20 feet apart on center~~;
 - (iv) Evergreen shrubs provided at the rate of one per four linear 20 square feet of landscape strip ~~and spaced no more than eight feet apart on center~~; ~~and~~
 - (v) Groundcover pursuant to SMC 21BA.35.080; and
 - (vi) Applicants shall demonstrate to the Subject to director's satisfaction that the selected plant materials and configuration will be able to completely screen 80% of the unwanted views within three years of planting and fully screen the unwanted view within six years. This requirement will account for the size of materials planted and their typical growth rate ~~review for consistency with subsection (1)(a) of this section~~;

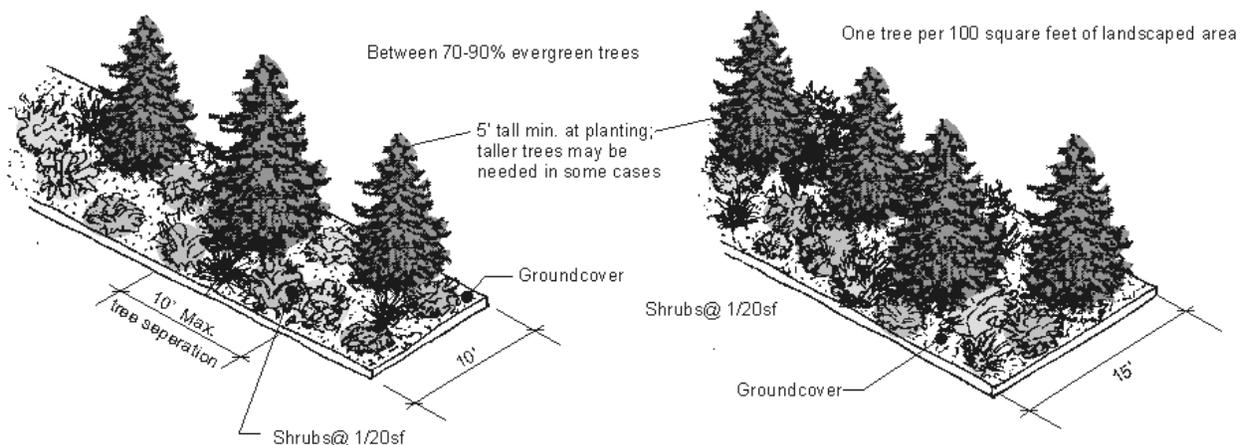


Figure Error! Reference source not found.a. Type I landscaping standards.

(2) **Type II Landscaping Screen.**

- (a) Type II landscaping is a “filtered screen” that functions as a visual separator. This landscaping is typically found between ~~commercial and industrial uses, between~~ differing types of residential development, and to screen unwanted views from the pedestrian environment~~industrial uses from the street;~~
- (b) Type II landscaping shall minimally consist of:
- (i) A mix of evergreen and deciduous trees and shrubs generally interspersed throughout the landscape strip spaced to create a filtered screen;
 - (ii) At least 50 percent deciduous trees and at least 30 percent evergreen trees;
 - (iii) Trees provided at the rate of one per 200 square feet or one per 20 linear feet, whichever is greater, of landscape strip ~~and spaced no more than 30 feet apart on center;~~
 - (iv) Shrubs provided at the rate of one per ~~four linear~~20 square feet of landscape strip and spaced no more than eight feet apart on center; ~~and~~
 - (v) Groundcover pursuant to SMC 21BA.35.080; ~~and~~
 - (vi) Applicants shall demonstrate to the director’s satisfaction that the selected plant materials and configuration will meet the intent of the standards within three years of planting. This requirement will account for the size of materials and the growth rate;

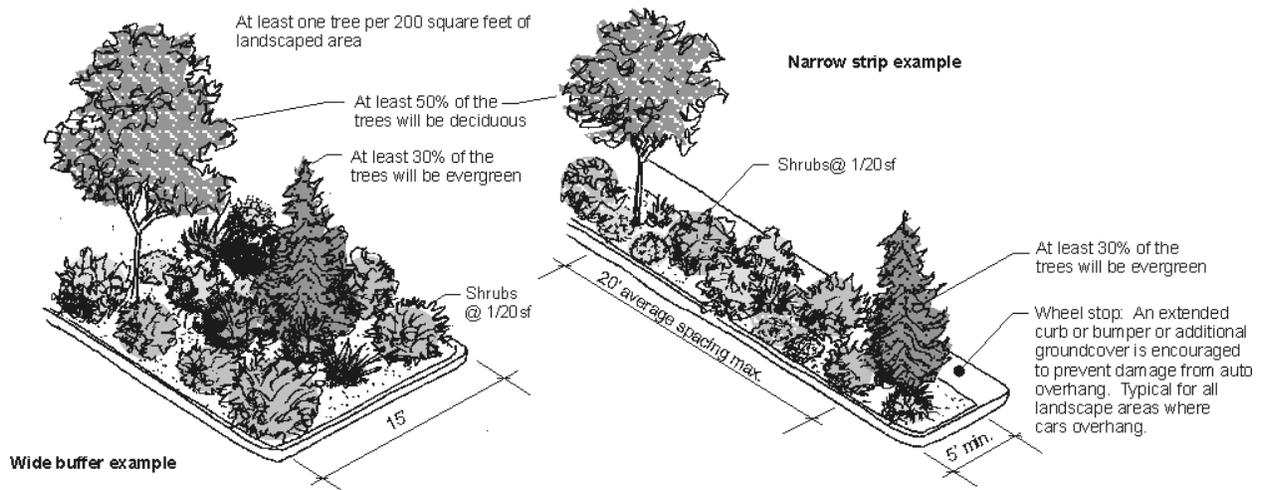


Figure Error! Reference source not found.b. Type II landscaping standards.

(3) Type III Landscaping Screen.

- (a) Type III landscaping is a “see-through screen” that functions as a partial visual separator to soften the appearance of parking areas and building elevations. This landscaping is typically found along street frontage or between ~~apartment-multifamily~~ developments;
- (b) Type III landscaping shall minimally consist of:
 - (i) A mix of deciduous and evergreen ~~and deciduous~~ trees generally interspersed throughout the landscape strip and spaced to create a continuous canopy;
 - (ii) At least 70 percent deciduous trees;
 - (iii) Trees provided at the rate of one per ~~linear~~ 250 square feet or one per 25 linear feet, whichever is greater, of landscape strip and spaced no more than 30 feet apart on center;
 - (iv) Shrubs provided at the rate of one per ~~four-20 square~~ linear feet of landscape strip and spaced no more than eight feet apart on center; ~~and~~
 - (v) Groundcover pursuant to SMC 21AB.35.080; ~~and-~~
 - (vi) Applicants shall demonstrate to the director’s satisfaction that the selected plant materials and configuration will meet the intent of the standards within three years of planting. This requirement will account for the size of materials and the growth rate;

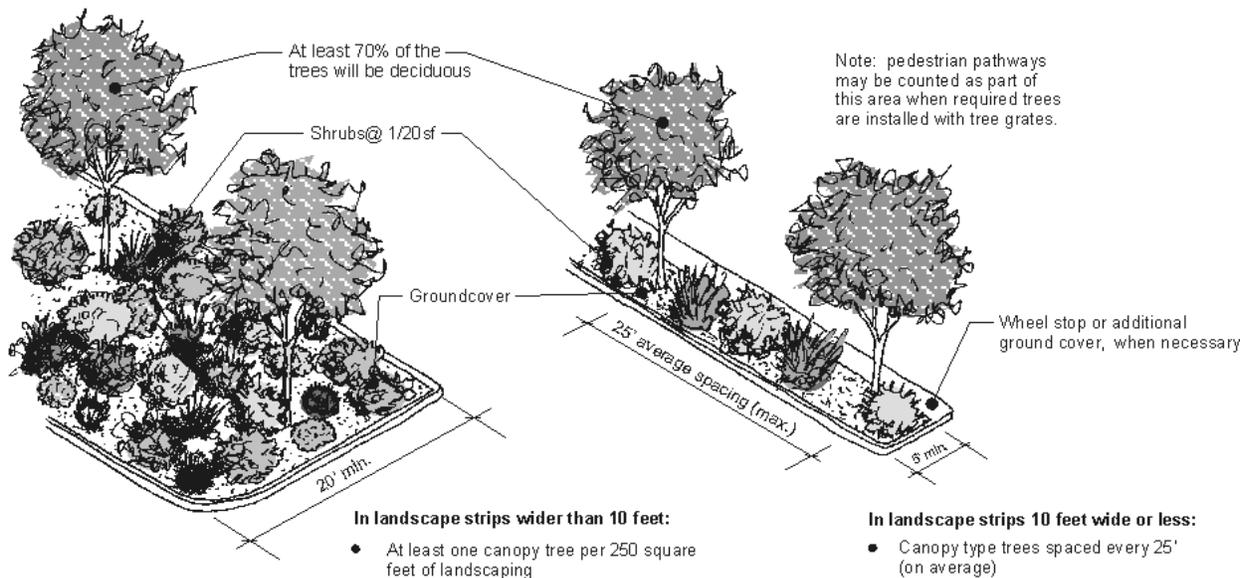


Figure Error! Reference source not found.c. Type III landscaping standards.

(4) Type IV Landscaping.

- (a) Type IV landscaping refers to enhanced woodland that functions as a buffer between different intensities of uses. These areas feature existing trees and vegetation, but often need supplemental planting to effectively function as an attractive buffer.
- (b) Type IV landscaping shall minimally consist of:

 - (i) Trees, shrubs, and ground covers that are native to the Puget Sound and are appropriate to the conditions of the site.
 - (ii) Arrangement of plants shall be asymmetrical and plant material shall be sufficient in quantity to cover the soil in one growing season;
 - (iii) Minimum 20 feet in width if used as a screen; and
 - (vi) Applicants shall demonstrate to the director's satisfaction that the selected plant materials and configuration will meet the intent of the standards within three years of planting. This requirement will account for the size of materials and the growth rate;

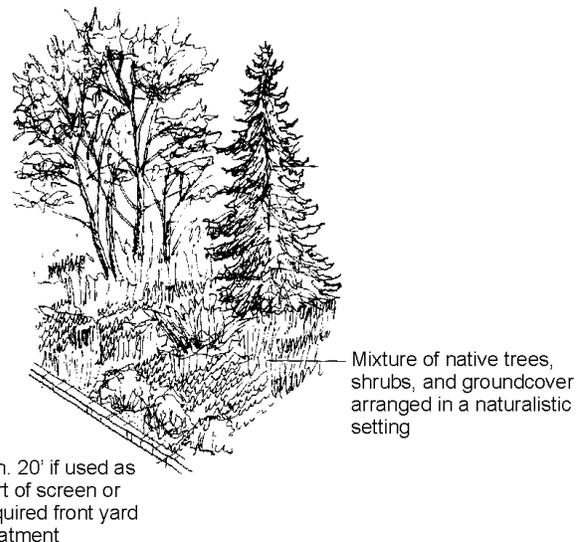


Figure Error! Reference source not found.d. Type IV landscaping standards.

(5) Type V Landscaping.

- (a) Type V landscaping refers to all other landscaped areas that do not qualify as Type I-IV landscaping. While native and low maintenance trees and shrubs are encouraged in these areas, lawn areas may be used for recreational or design purposes. These areas also could include flower beds or vegetable gardens; and
- (b) Type V landscaping may include any combination of plant materials provided the area complies with SMC 21B.35.070 and 21B.35.080.

21A.35.040

Landscaping—Street frontages.

NOTE – STREET FRONTAGE LANDSCAPING IS NOW COVERED UNDER 21B.30.100

The required width of perimeter landscaping along street frontages shall be provided as follows:

~~(1) Twenty feet of Type II landscaping shall be provided for an institutional use, excluding playgrounds and playfields;~~

~~(2) Ten feet of Type II landscaping shall be provided for an industrial development;~~

~~(3) Ten feet of Type II landscaping shall be provided for an above-ground utility facility development, excluding distribution and transmission corridors, located outside a public right-of-way;~~

~~(4) Ten feet of Type III landscaping shall be provided for a commercial or attached/group residence development; and~~

~~(5) For single-family subdivisions: NOTE – PROVISIONS HERE ARE COVERED BY THE STREETScape DESIGN STANDARDS – 21B.30.230~~

~~(a) Trees shall be planted at the rate of one tree for every 40 feet of frontage along a neighborhood collector street or arterial street;~~

~~(b) The trees shall be:~~

~~(i) Located within the street right-of-way if permitted by the custodial state or local agency;~~

~~(ii) No more than 20 feet from the street right-of-way line when located within a lot;~~

~~(iii) Maintained by the adjacent landowner unless part of a City maintenance program; and~~

~~(iv) A species approved by the City if located within the street right-of-way and compatible with overhead utility lines;~~

~~(c) The trees may be spaced at irregular intervals in order to accommodate sight distance requirements for driveways and intersections.~~

21A.35.050

Landscaping—Interior lot lines.

NOTE – STREET FRONTAGE LANDSCAPING IS NOW COVERED UNDER 21B.30.150

The required width of perimeter landscaping along interior lot lines shall be provided as follows:

~~(1) Twenty feet of Type I landscaping shall be included in a commercial or industrial development along any portion adjacent to a residential development;~~

~~(2) Five feet of Type II landscaping shall be included in an attached/group residence development, except that along portions of the development adjacent to property developed with single detached residences or vacant property that is zoned R(1-8), the requirement shall be 10 feet of Type II landscaping;~~

~~(3) Ten feet of Type II landscaping shall be included in an industrial development along any portion adjacent to a commercial or institutional development; and~~

~~(4) Ten feet of Type II landscaping shall be included in an institutional use, excluding playgrounds and playfields, or an above-ground utility facility development, excluding distribution or transmission corridors, when located outside a public right-of-way.~~

21BA.35.055

Landscaping – Drainage facilities.

The optional landscaping requirements established for detention facilities in the King County Surface Water Design Manual, Section 5.3.1, are hereby adopted by reference and shall be mandatory for all drainage facilities not located entirely underground. The department shall review and approve proposed landscaping plans subject to the following:

- (1) Revisions to plans or additional landscaping requirements may be required to ensure that the proposed landscaping provides an effective screen and an enhancement to the overall appearance of the facility.
- (2) Trails or walkways may be incorporated into the landscaping plan.
- (3) Ten feet of Type I landscaping consisting of 100 percent evergreen trees and shrubs shall be required for that portion of the perimeter of detention facilities where detention facilities directly abut public right-of-way, public access or can be seen from a public or private street or does not abut designated open space or environmentally sensitive areas.

NOTE: This will need to be coordinated with stormwater/LID provisions

21BA.35.060

Landscaping – Surface parking areas.

Parking area landscaping shall be provided within surface parking areas with 10 or more parking stalls for the purpose of providing shade and diminishing the visual impacts of large paved areas as follows:

- (1) Residential developments with common parking areas shall provide planting areas at the rate of 20 square feet per parking stall;
- (2) Commercial, industrial, or institutional developments shall provide landscaping at a rate of:
 - (a) Twenty square feet per parking stall when 10 to 30 parking stalls are provided; and
 - (b) Twenty-five square feet per parking stall when 31 or more parking stalls are provided;
- (3) Trees shall be provided and distributed throughout the parking area at a rate of:
 - (a) One tree for every five parking stalls for a commercial or industrial development; and
 - (b) One tree for every 10 parking stalls for residential or institutional development;

- (4) The maximum distance between any parking stall and landscaping shall be no more than 100 feet;
- (5) Permanent curbs or structural barriers shall be provided to protect the plantings from vehicle overhang; and
- (6) Parking area landscaping shall consist of:
 - (a) Canopy-type deciduous trees, evergreen trees, evergreen shrubs and groundcovers planted in islands or strips;
 - (b) Shrubs planted at a rate of one per 20 square feet of landscaped area and that do not exceed a maintained at a height of no more than 42 inches;
 - (c) Plantings contained in planting islands or strips having an area of at least 100 square feet and with a narrow dimension of no less than five feet;
 - (d) Groundcover pursuant to SMC 21BA.35.080; and
 - (e) At least 70 percent of trees are deciduous.

21BA.35.070

Landscaping – General standards for all landscape areas.

All new landscape areas proposed for a development shall be subject to the following provisions:

- (1) Berms shall not exceed a slope of two horizontal feet to one vertical foot (2:1).
- (2) All new turf areas, except all-weather, sand-based athletic fields shall:
 - (a) Be augmented with a two-inch layer of stabilized compost material or a four-inch layer of organic material with a minimum of eight percent organic material cultivated a minimum of six inches deep; or
 - (b) Have an existing organic content of eight percent or more to a depth of six inches as shown in a soil sample analysis. The soil analysis shall include:
 - (i) Determination of soil texture, indicating percentage of organic matter;
 - (ii) An approximated soil infiltration rate (either measured or derived from soil/texture/infiltration rate tables). A range of infiltration rates shall be noted where appropriate; and
 - (iii) Measure pH value.
- (3) Landscape areas, except turf or areas of established groundcover, shall be covered with at least two inches of stabilized compost to minimize evaporation.
- (4) Plants having similar water use characteristics shall be grouped together in distinct hydrozones.
- (5) Plant selection shall consider adaptability to climatic, geologic, and topographical conditions of the site. Preservation of existing vegetation is encouraged.

21BA.35.080

Landscaping – Additional standards for required landscape areas.

In addition to the general standards of SMC 21A.35.070, landscape areas required pursuant to SMC 21A.35.040 through 21A.35.060 shall conform to the following standards:

- (1) All plants shall conform to American Association of Nurserymen (AAN) grades and standards as published in the “American Standard for Nursery Stock” manual; provided, that existing healthy vegetation used to augment new plantings shall not be required to meet the standards of this manual.
- (2) Single-stemmed trees required pursuant to this chapter shall at the time of planting conform to the following standards:
 - (a) In parking area landscaping and in street rights-of-way:
 - (i) Deciduous trees shall have a minimum caliper of 1.75 inches and a height of 10 feet; and
 - (ii) Coniferous and broadleaf evergreens shall be at least five feet in height;
 - (b) In all other required landscape areas:
 - (i) Deciduous trees shall have a minimum caliper of 1.5 inches and a height of 10 feet; and
 - (ii) Coniferous and broadleaf evergreen trees shall be at least five feet in height or taller if used as a screen (see SMC 21B.35.030(1) and (2)).
- (3) Multiple-stemmed trees shall be permitted as an option to single-stemmed trees; provided, that such multiple-stemmed trees are:
 - (a) At least six feet in height; and
 - (b) Not allowed within street rights-of-way.
- (4) When the width of any landscape strip is 20 feet or greater, the required trees shall be staggered in two or more rows.
- (5) Shrubs shall be:
 - (a) At least an AAN container Class No. 2 size at time of planting in Type II, III and parking area landscaping;
 - (b) At least 24 inches in height at the time of planting for Type I landscaping; and
 - (c) Maintained at a height not exceeding 42 inches when located in Type III or parking area landscaping.

- (6) Groundcovers shall be planted and spaced to result in total coverage of the majority of the required landscape area within three years.
- (7) All fences shall be placed on the inward side of any required perimeter landscaping along the street frontage.
- (8) Required street landscaping may be placed within City of Sammamish street rights-of-way subject to the City of Sammamish public works standards, provided adequate space is maintained along the street line to replant the required landscaping should subsequent street improvements require the removal of landscaping within the rights-of-way.
- (9) Required street landscaping may be placed within Washington State rights-of-way subject to permission of the Washington State Department of Transportation.
- (10) New landscape material provided within areas of undisturbed vegetation or within the protected area of significant trees shall give preference to utilizing indigenous plant species.

21BA.35.090

Landscaping – ~~Alternative options~~ Advisory Tree List.

~~The following alternative landscape options may be allowed, subject to City approval, only if they accomplish equal or better levels of screening, or when existing conditions on or adjacent to the site, such as significant topographic differences, vegetation, structures, or utilities, would render application of this chapter ineffective or result in scenic view obstruction:~~

~~(1) The amount of required landscape area may be reduced to ensure that the total area for required landscaping, and/or the area remaining undisturbed for the purpose of wildlife habitat or corridors does not exceed 15 percent of the net developable area of the site. For the purpose of this subsection, the net developable area of the site shall not include areas deemed unbuildable due to their location within sensitive areas and any associated buffers;~~

~~(2) The average width of the perimeter landscape strip may be reduced up to 25 percent along any portion where:~~

~~(a) Berms at least three feet in height or architectural barriers at least six feet in height are incorporated into the landscape design; or~~

~~(b) The landscape materials are incorporated elsewhere on site;~~

~~(3) In pedestrian district overlays, street perimeter landscaping may be waived provided a site plan, consistent with the applicable adopted area zoning document, is approved that provides street trees and other pedestrian related amenities;~~

~~(4) Landscaping standards for uses located in a rural town or rural business centers designated by the comprehensive plan may be waived or modified by the director if deemed necessary to maintain the historic character of the area. Where a local or subarea plan with design guidelines has been adopted, the director shall base the landscaping modifications on the policies and guidelines of such plan;~~

~~(5) When an existing structure precludes installation of the total amount of required site perimeter landscaping, such landscaping material shall be incorporated on another portion of the site;~~

~~(6) Single stemmed deciduous tree species that cannot generally be planted and established in larger sizes may have a caliper of less than one and one half inches;~~

~~(7) The number of trees and shrubs to be provided in required perimeter and parking area landscaping may be reduced up to 25 percent, subject to approval by the director, when a development retains existing significant trees within required landscaping areas consistent with the provisions of SMC 21A.35.210, Tree retention requirements;~~

~~(8) The number of trees and shrubs to be provided in required perimeter and parking area landscaping may be reduced up to 25 percent when a development uses landscaping materials consisting of species typically associated with the Puget Sound basin in the following proportions:~~

~~(a) Seventy five percent of groundcover and shrubs; and~~

~~(b) Fifty percent of trees; and~~

(9) The department shall, pursuant to Chapter 2.55 SMC, develop and maintain an advisory listing of trees recommended for new plantings. Such list shall describe their general characteristics and suitability, and provide guidelines for their inclusion within required landscape areas.

21BA.35.100

Landscaping – Plan design, design review, and installation.

- (1) The landscape plan submitted to the department shall be drawn on the same base map as the development plans and shall identify the following:
 - (a) Total landscape area and separate hydro-zones;
 - (b) Landscape materials botanical/common name and applicable size;
 - (c) Property lines;
 - (d) Impervious surfaces;
 - (e) Natural or manmade water features or bodies;
 - (f) Existing or proposed structures, fences, and retaining walls;
 - (g) Natural features or vegetation left in natural state; and
 - (h) Designated recreational open space areas.

- (2) The proposed landscape plan shall be certified by a Washington State registered landscape architect, Washington State certified nurseryman, or Washington State certified landscaper.
- (3) An affidavit signed by an individual specified in subsection (2) of this section, certifying that the landscaping has been installed consistent with the approved landscaping plan, shall be submitted to the department within 30 days of installation completion, unless the installed landscaping has been inspected and accepted by the department.
- (4) The required landscaping shall be installed no later than three months after issuance of a certificate of occupancy for the project or project phase. However, the time limit for compliance may be extended to allow installation of such required landscaping during the next appropriate planting season. A financial guarantee shall be required prior to issuance of the certificate of occupancy, if landscaping is not installed and inspected prior to occupancy.
- (5) A tree retention plan shall be prepared and submitted separately from the proposed landscape plan; provided, that retained trees counted towards site landscaping may be identified on the landscape plan. The tree retention plan shall:
 - (a) Be reviewed by a certified professional to ensure selection of healthy trees pursuant to SMC 21BA.35.210(5), Tree retention requirements; and
 - (b) Identify trees scheduled for future removal and/or removed within the past year, to the maximum extent feasible.

21BA.35.110

Maintenance.

- (1) All landscaping shall be maintained for the life of the project, including water conservation practices for turf grass such as annual aeration and dethatching, top dressing and overseeding;
- (2) All landscape materials shall be pruned and trimmed as necessary to maintain a healthy growing condition or to prevent primary limb failure;
- (3) With the exception of dead, diseased or damaged trees specifically retained to provide wildlife habitat, other dead, diseased, damaged or stolen plantings shall be replaced within three months or during the next planting season if the loss does not occur in a planting season; and
- (4) Landscape areas shall be kept free of trash.

21BA.35.120

Financial guarantees.

Financial guarantees shall be required consistent with the provisions of SMC Title 27A. This time period may be extended to one year by the director, if necessary to cover a planting and growing season.

21BA.35.130

Water use – Applicability of water budget for landscape areas.

Irrigation systems of any type are optional components of a landscape area. However, a water budget for irrigation purposes shall be established for all new development, except for:

- (1) Individually platted single dwelling (attached or detached) residential lots; provided, that developer-installed landscaping in common areas of residential projects is not exempt; and
- (2) Any project with a total landscaped area less than 500 square feet.

21A.35.140

Water use – Irrigation water budget calculated.

- (1) The water budget (WB) allocation shall be calculated using the following formula:

$$WB = (ET_o) \times (AF) \times (LA) \times (CF)$$

ET_o: Referenced evapotranspiration rate (net seasonal irrigation requirement in inches; see table below)

AF: Adjustment factor value of 0.8 (i.e., 0.5 x (ET_o)/0.625 irrigation efficiency coefficient)

LA: Landscape area (square feet)

CF: Conversion factor value of 0.62 (ET_o inches to gallons per square foot)

REFERENCE ETO TABLE – HISTORICAL DATA*

	Monthly Net Irrigation Requirement (inches)
January	.00
February	.00
March	.00
April	.00
May	1.59
June	3.13
July	4.46
August	3.51
September	1.77
October	.03
November	.00
December	.00
Season Total	14.49

*These figures are based on a 30-year average of National Weather Service Data and represent the amount of additional irrigation required for turf grass. The figures are adjusted for turf typically used in commercial landscaping.

- (2) The City shall periodically undertake an evaluation of the WB calculation formula outlined in subsection (1) of this section. The evaluation shall include a recommendation to retain or modify the adjustment factor or components thereof, and shall be made in consultation with groups including landscape professionals and water purveyors.
- (3) The water budget will be calculated upon the total area of the site in landscape areas and in landscape water features (such as decorative ponds, pools or fountains) that are fed by irrigation water. For the purpose of calculating the water budget, “landscape area” shall mean the entire parcel, less:
 - (a) Sensitive areas and their buffers;
 - (b) The building footprint;
 - (c) Driveways;
 - (d) Paved portions of parking lots; and
 - (e) Hardscapes (e.g., decks, patios, sidewalks, and other nonporous areas).
- (4) Areas such as playgrounds, sport fields, golf courses, school yards, or other recreational spaces where the turf provides a playing surface or serves other recreational purposes may be allowed additional water beyond the calculated water budget. In order to receive additional water for such turf areas, the applicant shall submit a statement designating such turf areas for recreational purposes and specifying additional water needs above the water budget. This additional water need will be based upon the Eto information for the turfgrass species or species mix used in such turf areas.
- (5) Landscape water features shall not use potable water unless the water feature recirculates water used in its operation.
- (6) The irrigation water use may be monitored by the water purveyor after the date of release of the performance bond.
- (7) Alternative water sources such as recycled wastewater or rainwater are encouraged. Such water sources shall not be subject to the limits of the water budget.

21BA.35.150

Water use – Estimated water use calculated.

The estimated water use shall be calculated using the following provisions.

- (1) Estimated water use (EWU) shall be calculated for each hydrozone by using the following formula:

$$EWU = \underline{(Eto) \times (PF) \times (HA) \times (CF)}$$

IE

Eto: Referenced evapotranspiration rate (net seasonal irrigation requirement in inches. See table in SMC 21A.35.140)

PF: Plant factor value (see subsection (2) of this section)

HA: Hydrozone area (square feet)

CF: Conversion factor value of 0.62 (Eto inches to gallons per square foot)

IE: Irrigation efficiency value

(2) Plant factor values shall be as follows, but may be adjusted pursuant to subsection (3) of this section:

0 to 0.3 for low water use plants

0.4 to 0.6 for average water use plants

0.7 to 1.0 for high water use plants

(3) For each hydrozone, plant factor values may be determined and adjusted by the designer (based on professional judgment and applicable reference materials) considering the relevant factors such as:

(a) Water requirements of the various plant species proposed;

(b) Density of the plantings;

(c) Microclimate of the site; and

(d) Soil conditions

21BA.35.160

Water use – Irrigation efficiency goals and system design standards.

For purposes of this section, irrigation shall include any means of applying water to landscaped areas. All irrigation is at the applicant's option. Manually applied irrigation methods shall comply with subsections (1) and (2) of this section. Irrigation applied through installed irrigation systems shall comply with subsections (1) through (3) of this section:

(1) 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:

(a) Considering soil type and infiltration rates;

(b) Using proper irrigation equipment and schedules, including features such as repeat cycles, to closely match application rates with infiltration rates; and

(c) Considering special problems posed by irrigation on slopes and in median strips.

- (2) All irrigation water outlets, except those using alternative water sources, shall be downstream of the meter used to measure irrigation water use.
- (3) Irrigation systems shall be subject to the following additional provisions:
 - (a) Systems shall not be located on any:
 - (i) Turfgrass slopes exceeding a slope of three horizontal feet to one vertical foot (3:1); and
 - (ii) Turfgrass portions of median strips less than eight feet width.
 - (b) 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 or microspray systems.\
 - (c) Systems shall be designed to be consistent with the requirements of the hydrozone in which they are located.
 - (d) Systems shall be designed with the minimum average irrigation efficiency of 0.625 for spray type and 0.925 for low volume, low pressure emitter type systems.
 - (e) The use of automatic shutoff or override capabilities using rain shutoffs or moisture sensors is encouraged.
 - (f) Systems shall utilize a master control valve connected to an automatic controller.
 - (g) Systems shall make provisions for winterization either by providing:
 - (i) Manual drains (automatic drain valves are not permitted at all low points); or
 - (ii) Means to blow out lines with pressurized air.
 - (h) Separate valves shall be used to irrigate plants with differing water needs.
 - (i) Sprinkler heads with consistent application rates shall be selected for proper area coverage, operating pressure, and adjustment capability.

21BA.35.170

Water use – Irrigation system design, design review and audit at installation.

- (1) Irrigation plan design shall be certified by an Irrigation Association (IA) certified designer or a registered landscape architect or professional engineer with irrigation design experience.
- (2) The irrigation system must be audited and accepted at installation by an IA-certified irrigation auditor.

21BA.35.180

Water use – Irrigation design plan contents.

Proposed irrigation system design plans shall be drawn on the same base project map as the landscape plan and shall identify:

- (1) Location and size of any proposed separate water meters for the landscape serving commercial, multifamily, school, church, or recreation land uses only;
- (2) Location, type, and size of all components of the irrigation system;
- (3) Static water pressure at the point of connection to the water supply;
- (4) Flow rate (gallons per minute), application rates (inches per hour), and design operating pressure (PSI) for each station; and
- (5) Cross connection prevention and/or back-flow prevention device in accordance with state standards.

21BA.35.190

Water use – Irrigation schedules.

Irrigation schedules consistent with the following shall be submitted:

- (1) A recommended irrigation program with monthly irrigation schedules based, at a minimum on average monthly Eto, shall be required for before and after establishment.
- (2) The irrigation schedule shall:
 - (a) Include for each station the run time (in minutes per cycle) and cycles per week;
 - (b) Indicate the amount of applied water (in the applicable billing unit used by a purveyor);
 - (c) Incorporate use of evapotranspiration data reflecting local microclimates;
 - (d) Be adjusted for additional water need in recreational areas;
 - (e) Incorporate additional operating criteria such as avoiding irrigation at times of high temperatures or winds.

21BA.35.200

Water use – Irrigation system maintenance.

Irrigation systems shall be maintained and inspected periodically to assure proper functioning and in compliance with the calculated water budget for the system. Replacement of components shall be of originally specified parts or materials, or their equivalents.

21BA.35.210

Tree retention requirements.

The following tree retention requirements shall be applied in addition to the applicable requirements of Chapters 16.15 and 21BA.50 SMC:

- (1) Emergency tree removal to prevent imminent danger or hazard to persons or property shall not be limited by this section or SMC 21BA.35.230, Tree protection standards.
- (2) All new subdivisions and short plats development in the TC-B, TC-C, TC-D, and TC-E zones shall retain significant trees subject to the following standards:
 - (a) Within areas unconstrained by environmentally sensitive areas and associated buffers, a minimum of 25 percent of significant trees shall be retained.
 - (b) Within environmentally sensitive areas and associated buffers, significant trees and other vegetation shall be retained subject to the requirements of Chapter 21BA.50 SMC; provided, that trees retained within environmentally sensitive areas and associated buffers may be counted for up to 50 percent of the tree retention requirement in subsection (2)(a) of this section.
- (3) Within environmentally sensitive areas and associated buffers in TC-A zones, significant trees and other vegetation shall be retained subject to the requirements of Chapter 21B.50 SMC. All new commercial and institutional developments shall retain significant trees subject to the following standards:
 - (a) Within areas unconstrained by environmentally sensitive areas and associated buffers, a minimum of 30 percent of significant trees shall be retained.
 - (b) Within environmentally sensitive areas and associated buffers, significant trees and other vegetation shall be retained subject to the requirements of Chapter 21A.50 SMC; provided, that trees retained within environmentally sensitive areas and associated buffers may be counted for up to 50 percent of the tree retention requirement in subsection (3)(a) of this section.
- (4) All clearing and grading of existing undeveloped properties shall retain significant trees subject to the requirements for tree retention of commercial developments in the adopted master plan or CSDP.
- (5) Trees identified for retention shall be selected, to the extent feasible, subject to the following criteria:
 - (a) Trees located within healthy, vegetated groups and stands rather than as isolated trees scattered throughout the site;

- (b) Trees that have a reasonable chance of survival once the site is developed;
 - (c) Trees that will not pose a threat to persons or property;
 - (d) Trees that can be incorporated into required landscaping or can be used to screen the site from adjacent properties;
 - (e) Trees adjacent to open space, sensitive area buffers or sensitive area tracts;
 - (f) Trees having a significant land stability function; or
 - (g) Trees that meet the definition of heritage tree.
- (6) Subject to review and approval by the director, up to 50 percent of trees identified for retention may be removed, provided replacement trees shall be required pursuant to SMC 21BA.35.240, Tree replacement and enforcement.
- (7) Exceptions to the tree retention standards may be requested and approved by the City subject to the satisfying all of the following criteria:
- (a) Strict compliance with the provisions of this code would prevent reasonable use of the property;
 - (b) Proposed tree removal and proposed replacement is consistent with this section and SMC 21BA.35.230, Tree protection standards, Chapters 21BA.50 and 16.15 SMC; and
 - (c) Proposed tree replacement is consistent with the requirements of SMC 21BA.35.240, Tree replacement and enforcement.

21BA.35.22

Tree retention incentives.

Projects that retain more trees than required pursuant to SMC 21BA.35.210 may be granted the following incentives, subject to City review and approval:

- (1) New subdivisions and short plats which retain a total of 30 percent or more of significant trees (outside of environmentally sensitive areas and associated buffers) on the subject site may reduce required on-site recreation space by up to 10 percent; and **REVIEW BY CITY/PARKS.**

~~(2) New subdivisions and short plats which retain a total of 35 percent or more of significant trees (outside of environmentally sensitive areas and associated buffers) on the subject site may modify the net density calculation pursuant to SMC 21A.25.080 to include up to 10 percent of the area within environmentally sensitive areas towards site density calculations.~~

21BA.35.230

Tree protection standards.

The following tree protection standards shall apply to trees retained pursuant to SMC 21BA.35.210, Tree retention requirements:

- (1) All trees identified for retention shall be identified on project site plans, and shall include a summary of the project specific tree protection measures.
- (2) Trees identified for retention shall be identified on the project site by use of one or more of the following methods:
 - (a) Tree protection barriers shall be installed along the outer edge and completely encompass the dripline of trees identified for retention. Protection barriers shall consist of fencing at least four feet high, constructed of chain link or polyethylene laminar safety fencing or similar material; or
 - (b) Tree protection flagging shall be installed along the outer edge and completely encompass the dripline of trees identified for retention. Flagging should include signs reading “Tree Save Area.”
- (3) All construction activities shall be located outside of the dripline of trees identified for retention.
- (4) Site plans shall be designed to provide long-term protection of trees identified for retention. Site design shall incorporate one of the following to provide protection of retained trees:
 - (a) Curbing or other physical barrier in areas used by vehicular traffic;
 - (b) Fencing around areas adjacent to areas not used by vehicular traffic; or
 - (c) Other protection means subject to approval by the director.
- (5) All trees identified for retention may be pruned and otherwise maintained at the property owner’s discretion; provided, that topping of retained trees and removal of more than 25 percent of existing limbs shall only be permitted under the direction of a certified arborist.

21BA.35.240

Tree replacement and enforcement.

This section shall apply in addition to the provisions of SMC Title 23, Code enforcement.

- (1) Any tree removed in violation of SMC 21A.35.210, Tree retention requirement, or any tree removed pursuant to the exception process of SMC 21A.35.210(6), Tree retention requirement, shall be subject to the following replacement requirements:
 - (a) Coniferous trees shall be replaced by coniferous trees native to Washington and deciduous trees shall be replaced by deciduous trees native to Washington;
 - (b) Replacement coniferous trees shall be at least eight (8) feet in height. Replacement deciduous trees shall be at least one and one-half (1.5) inches in diameter (DBH); and
 - (c) Trees shall be replaced subject to the following replacement ratios:
 - (i) Removed trees with a DBH greater than nine (9) inches up to twelve (12) inches shall be replaced by four (4) trees;

- (ii) Removed trees with a DBH greater than twelve (12) inches up to sixteen (16) inches shall be replaced by six (6) trees; and
 - (iii) Removed trees with a DBH of sixteen (16) inches or more shall be replaced by eight (8) trees.
- (2) Financial guarantees for replacement trees may be required consistent with the provisions of SMC Title 27A.
- (3) At the discretion of the director, each tree removed in violation of this chapter may be considered a separate code enforcement case for the purposes of SMC Title 23, Code Enforcement.