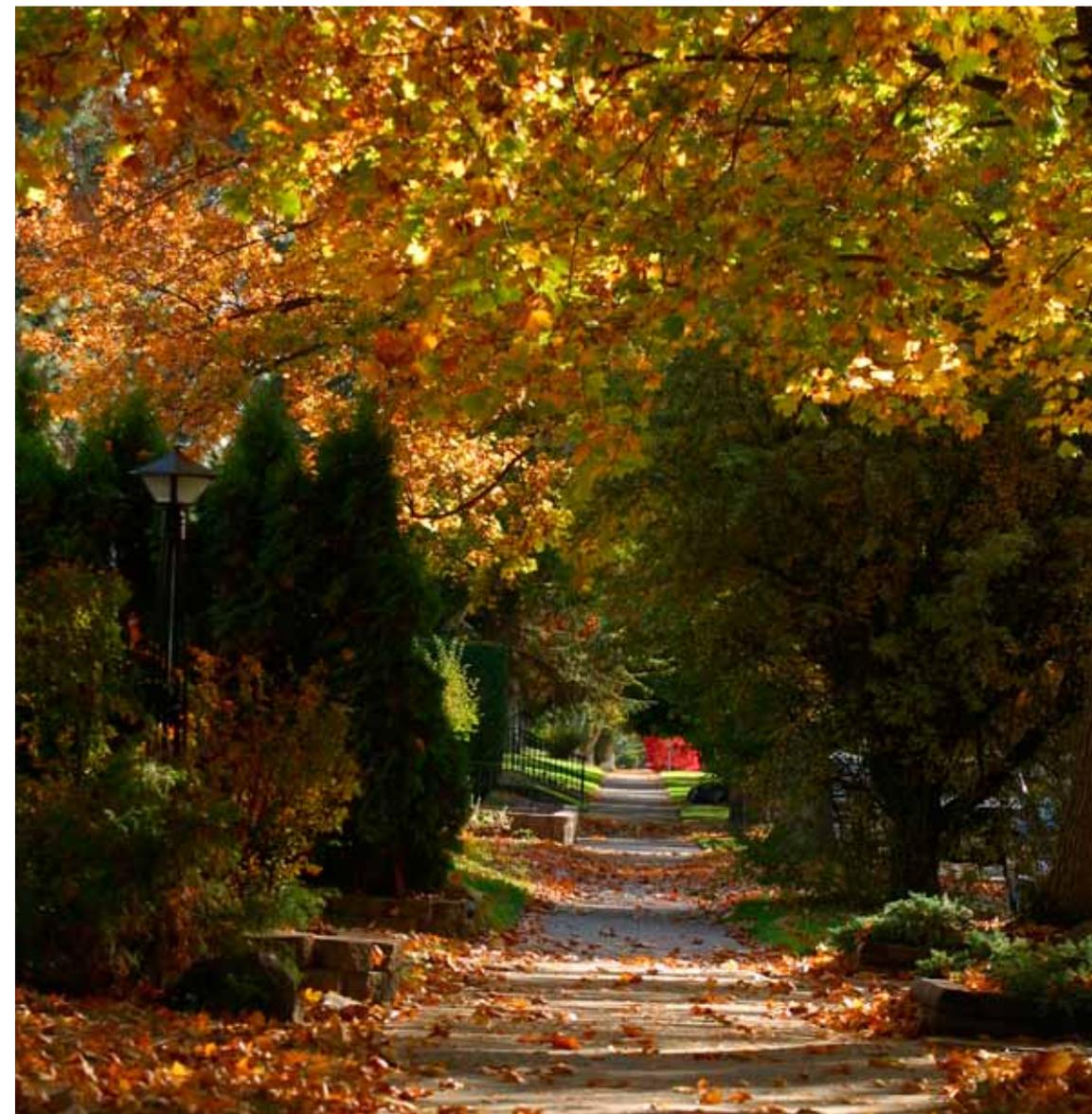




Guidelines for Infilling Street Trees

in Existing Narrow Planting Strips in Spokane's Residential Areas



October 2010

Overview

In the past, large street trees were often planted in areas that are smaller than what is now considered appropriate. Nevertheless, large street trees provide many important environmental benefits, they are critically important to the character of Spokane's established neighborhoods, and there is a desire by many in the community to be able to replace large trees when necessary.

These guidelines were prepared in response to the Urban Forestry Citizen Advisory Committee's recommendation that the City adopt new policies that make it possible to utilize existing narrow planting strips for medium and large street trees.

The approved species list for infill that is in these guidelines was developed for existing narrow planting strips that do not include a physical constraint such as overhead power lines. In cases where there are overhead power lines only smaller species will be approved. In addition, wider planting areas suitable for larger species are encouraged wherever possible. For a full list of approved trees in the City of Spokane, please see the Urban Forestry Program's Approved Street Tree List.

These provisions apply only to tree permits or other projects not subject to full compliance with the Unified Development Code (UDC). The new sizing standards included in the UDC were developed to further protect tree health and infrastructure.

Departments and individuals who contributed to the development of these guidelines include:

Engineering Services Department

P. Mike Taylor, P.E., City Engineer, Deputy Division Director (acting)
Planning, Engineering, Building Services City of Spokane

Parks & Recreation Department

Leroy Eadie, Director
Angel Spell, Urban Forester

Planning Department

Jo Anne Wright, Director (acting)
Ken Pelton, Senior Planner
Julie Neff, Urban Designer

Street Department

Mark Serbousek, P.E., Director
Andy Schenk, P.E., Operations Engineer

Is your existing planting space 4 feet or wider as measured from the back of the curb to the sidewalk?

NO*

Preferred Options

Replace Sidewalk. Set back the new sidewalk at least 5 feet from the back of the curb and meet applicable code requirements for sidewalk width.

See *“Sidewalk Alternatives” Option A.*

- or -

Meander Sidewalk. Rebuild a portion of the sidewalk to meander around the tree giving the tree at least a 5 foot x 5 foot planting area as measured from the back of the curb. See *“Sidewalk Alternatives” Option B.*

If a preferred option is not possible then consider...

Flexible Paving Alternatives. Remove the sidewalk adjacent to the proposed tree and replace it with an alternative flexible/permeable paving option as approved by Engineering Services. See *“Sidewalk Alternatives” Option C* and *“Paving Alternatives” list.*

If paving alternatives are not possible then consider...

Sidewalk Cutout. The existing sidewalk may be “notched” immediately adjacent to the proposed tree while maintaining adequate width for universal accessibility. See *“Sidewalk Alternatives” Option D.*

If a sidewalk cutout is not possible then consider...

Placing a tree behind the sidewalk. This is the least preferred alternative in residential areas or business districts because many important street tree benefits are lost with this configuration.

***Please see *“Locating Infill Street Trees”* for important information about tree placement.**

YES*

Medium Species

In existing infill situations only, a 4 foot wide green space will generally allow for the planting of a medium tree species.

See *“Approved Medium Trees for Infill” list*

Large Species

In existing infill situations only, a 5 foot wide space will generally allow for the planting of a large tree species.

See the *“Approved Large Trees for Infill” list.*

If you would like a large tree and your space measures between 4 and 5 feet, you may consider rebuilding the sidewalk adjacent to the proposed tree with a sub-grade or paving alternative.

See *“Alternative Sub-grade and Paving Systems” list* and *“Sidewalk Alternatives” Option C*

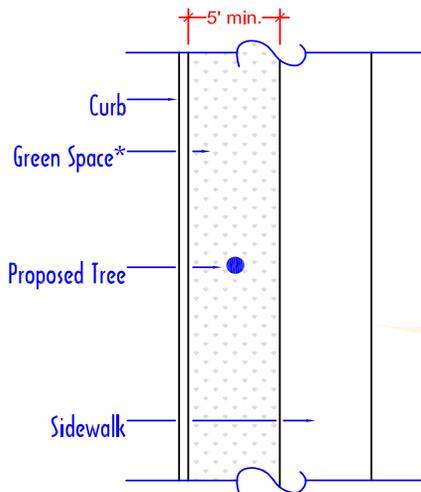
-or-

Enlarge the planting space to measure at least 5 feet x 5 feet.

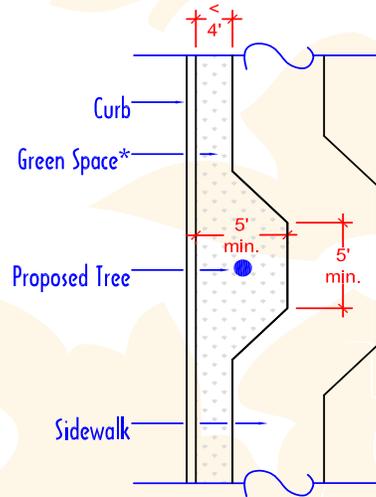
See *“Sidewalk Alternatives” Option A, B, or D*

Sidewalk Alternatives

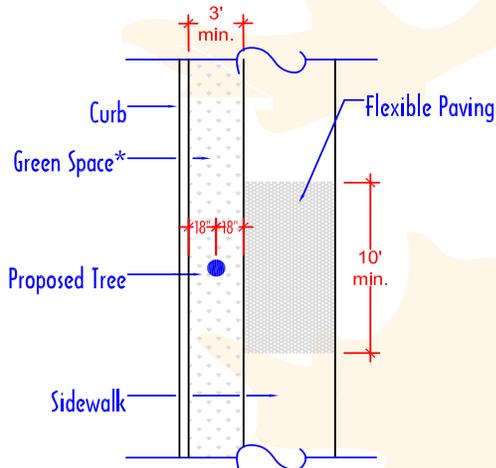
Options for retrofitting existing narrow planting strips (less than 4 feet wide). B-D may be possible if the existing sidewalk is in good condition. These provisions apply only to tree permits or other projects not subject to full compliance with the Unified Development Code.



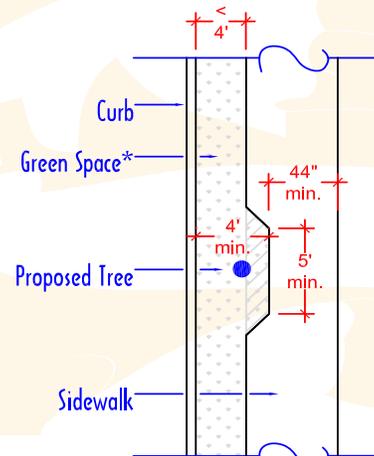
A) Replace Sidewalk
Set new sidewalk back to create a least 5 feet of green space.



B) Meander Sidewalk
Rebuild a portion of the sidewalk to provide an area at least 5 feet x 5 feet for tree planting.



C) Flexible Paving Alternatives
See "Paving Alternative List." Medium species may be possible in planting strips 3 to 4 feet wide adjacent to flexible paving. Large species may be possible in planting strips wider than 4 feet with flexible paving.

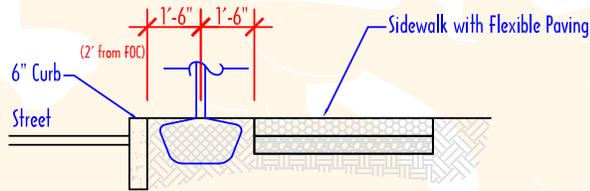


D) Sidewalk Cutout
Expand planting strip/green space to at least 4 feet x 5 feet to accommodate a medium species. Sidewalk should remain as wide as possible to ensure universal accessibility and in no case may less than 44 inches wide. Please contact Engineering Services for information on locating sidewalk cuts.

*"Green Space" is the area of uncompacted soils between the curb and sidewalk. It may include living ground cover or permeable paving materials as allowed by code.

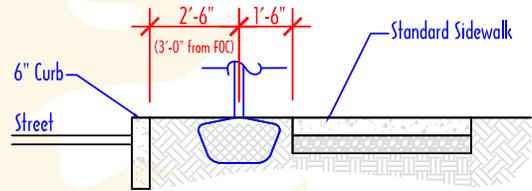


These provisions apply only to tree permits or other projects not subject to full compliance with the Unified Development Codes.



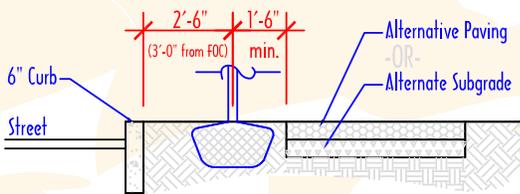
Existing 3' Planting Strip/Green Space with Flexible Paving

Medium species may be permitted.



4' Planting Strip/Green Space with Concrete Sidewalk

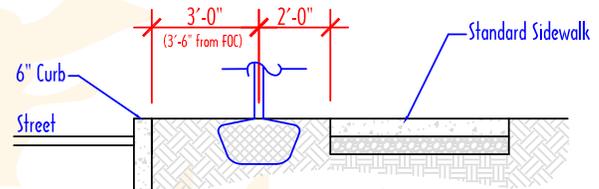
Medium species may be permitted.



4' to 5' Planting Strip/Green Space with Paving or Sub-grade Alternative

Large species may be permitted.

See "Sub-grade and Paving Alternatives" list.



5' Planting Strip/Green Space with Concrete Sidewalk

Large species may be permitted.

Notes:

1. When there is a physical constraint such as overhead power lines, only small species as identified in the "Approved Street Tree List" may be permitted.
2. Trees may not be planted where they will conflict with critical street signage. The required distance from these signs will vary depending on factors including speed limit, slope and width of roadway. Please consult with the Urban Forester to determine whether your site is suitable for tree planting.
3. Trees may not be planted in any area that measures less than 4' from back of curb to sidewalk. The exception is an existing 3 to 4 foot wide planting area adjacent to a sidewalk that has been retrofitted with an approved flexible paving material.
4. The center of the tree may not be planted closer than 2' from the face of the curb (or 18" from the back of the curb).

Alternative Sub-Grade and Paving Systems

If you would like to propose a sub-grade or paving alternative, please request a DESIGN STANDARDS VARIANCE REQUEST FORM from the Engineering Services Department. The options listed below may be possibilities depending on your individual site conditions. This list is informational and does not represent an endorsement of any product or manufacturer. Sidewalks must be installed by a licensed and bonded contractor and it is the adjoining property owner's responsibility to maintain the sidewalk in a smooth, level condition. Adjacent property owners are responsible for all costs associated with constructing sidewalk improvements.

Sub-Grade Alternatives

These alternatives expand tree root zones underneath the sidewalk and/or provide a root path to uncompacted soils on the other side of the sidewalk. Un-compacted soils are important because tree health and size corresponds directly to the availability of oxygen, water, and nutrients. These basic requirements tend to be readily available in un-compacted soils but not in the highly compacted and usually impenetrable soils and gravels underneath a typical sidewalk. Without sufficient access to un-compacted soils, it's likely that a tree may either be stunted, or become unhealthy and a potential hazard, or it may damage infrastructure while seeking air and water.



A. Silva Cells TM or other bridging system.

A custom bridging system was designed by Bernardo Wills Architects for the street trees fronting their new office at 153 S. Jefferson.



Silva Cells TM were installed under the sidewalk in front of the new Apple Store on West Main; for more information go to www.deepproot.com.



B. CU Structural Soils TM or similar approved soil mix at 36" depth (or 24" min. on approval).

For more information about structural soils go to www.custructuralsoil.com. Or consult the Urban Forestry Program for information on potential local sources. This type of soil mix was used under sidewalks along West Broadway between Ash and Oak.



1. Rubber Sidewalks - Units

For more information about rubber sidewalks go to www.rubbersidewalks.com (*Rubbersidewalks*). An example of this type of paving may be viewed on the east side of 17th and Grand Boulevard.



2. Rubber Sidewalks - Poured in Place

More information about this material may be found at www.kbius.com (*Flexi-Pave*) or www.rubberway.com (*RubberWay*)



3. Sand Set Unit Pavers - Traditional or Permeable

More information about these materials may be found at www.icpi.org (*Interlocking Concrete Pavement Institute*).



4. Asphalt or Porous Asphalt

Information about this material may be found at www.hotmix.org (*National Asphalt Pavement Association*). Porous asphalt is located under the pull-down menu for Environment Health and Safety.

5. Pervious Concrete

Information may be found at www.perviouspavement.org (*National Ready Mixed Concrete Association*). An example of this type of paving may be viewed on West Broadway between Oak and Elm.

Because this material is not flexible, it is not recommended for planting strips less than 4 feet wide. But, for wider strips it is worth considering for its potential to improve conditions for trees and may allow for the planting of a larger species.



Approved Large Trees For Infill

This list is subject to change. Other trees may be proposed for consideration by the Urban Forester.

Hardy Rubber Tree

Eucommia ulmoides

Height: 45'

Spread: 45'

Hardiness: -20° F

Tree with a rounded outline and ascending branches. Foliage is spectacular, glossy dark green and pest free. The bark of mature specimens adds to the trees interest. Fall color is minimal. Tolerates a variety of soil conditions. Unique tree species for cold climates.

Maidenhair Tree

Ginkgo Biloba

Height: 40 - 55'

Spread: 15 - 35'

Hardiness: -25° F

Young trees are irregularly shaped, but finish broadly symmetrical. Usually all marketed trees are male due to the offensive smell of the female trees in fruit. The leaves are uniquely lobed and bright green on both sides, changing to bright to golden yellow in fall. Having outlived most of its enemies Ginkgo is a fine specimen for urban planting. (Female trees produce fragrant fruit that some find offensive.)

G. 'Autumn Gold'

Very uniform and balanced pyramidal tree.

Spreading at maturity.

G. 'Magyar'

Narrow pyramidal form with a strong central leader. Well spaced branches.

G. 'Princeton Sentry'

Narrow tapering growth almost columnar. Tallest of the three.

Kentucky Coffeetree

Gymnocladus dioicus

Height: 50 - 65'

Spread: 40 - 50'

Hardiness: -30° F

Sharply ascending branches, rising to form a narrow oval crown. The bark is unique, developing on young stems. Spring leaves are late to emerge, their pinks and purples are a nice contrast to greening trees. Seldom bothered by pests or disease, pollution tolerant and strong, upright growth make this an excellent street tree.

Japanese Pagoda Tree

Sophora japonica

Height: 40 - 60'

Spread: 40 - 60'

Hardiness: -20° F

Broad crown. Creamy-white to yellowish-green large inflorescences blanket the tree anytime from early August to early September, with about a three week bloom period. Thick green pods mature to yellow-green fruits, with the large beans appearing as knobs within the otherwise thin pods. Very urban tolerant (especially to heat, drought, pollution, compacted soils, and poor soils)

Japanese Zelkova

Zelkova serrata

Height: 40 - 60'

Spread: 30 - 50'

Hardiness: -20° F

Vase habit rounding with maturity. Leaves toothed like elm (same family), usually dark green with a choice of fall color, depending on the cultivar. Bark color and texture is of interest from youth to maturity. All cultivars are resistant to Dutch Elm Disease. Beetle damage also appears to be less problematic. Handsome trees, excellent for urban landscapes and streets.

Z. 'Green Vase'

Fast growing, graceful vase form, dapple shade tree. Orange in fall.

Z. 'Halka'

Widening vase, with large feathery branches. Yellow in fall.

Z. 'Village Green'

Broad vase to rounded form, very vigorous. Rust red in fall.

Pioneer Elm

Ulmus x 'Pioneer'

Height: 50'

Spread: 50'

A Dutch Elm resistant cultivar that vigorously forms a rounded, spreading crown. The dark green foliage turns to yellow in autumn.

Approved Medium Trees For Infill

This list is subject to change. Other trees may be proposed for consideration by the Urban Forester.

Katsuratree

Cercidiphyllum japonicum

Height: 40 - 50'

Spread: 40

Hardiness: -20° F

In youth pyramidal and maturing to a variety of pyramidal rounding forms. Leaves are heart shaped and emerge red-purple and change gradually to bluish green with great fall colors, yellow to apricot and sometimes crimson. Performs better if shaded from afternoon sun.

American Yellowwood

Cladrastis lutea

Height: 30 - 50'

Spread: 40 - 55'

Hardiness: -20° F

Round tree, often wider than tall. Leaves are bright green, resembling those of English Walnut and turn brilliant to golden yellow in Fall. The bark is smooth and gray much like a Beech. The name derived from the color of the heartwood. Terrific displays of white flowers with a sweet fragrance in May and June.

Turkish Filbert or Hazel

Corylus colurna

Height: 50'

Spread: 30'

Hardiness: -20° F

Broadly pyramidal, somewhat compact. Dark green foliage with exfoliating bark when mature. Fall color of little significance. Tolerates environmental extremes and conditions exhibiting stress in other trees. No serious pest or disease problems. Stately and formal character, excellent for urban plantings.

Tupelo

Nyssa sylvatica

Height: 30 - 40'

Spread: 20 - 35'

Hardiness: -20° F

Also known as Black Gum, Sour Gum and Pepperidge. In youth the tree is pyramidal, but becomes rounded or oval as it ages. Leaves are glossy green and fall color is excellent, turning bright yellow, orange coppery red, or purple. Tolerates poor drainage and some drought. Makes a great park or street tree for residential areas.

American Hophornbeam

Ostrya virginiana

Height: 30 - 45'

Spread: 25'

Hardiness: -30° F

Rounded oval shape made up of slender branches, sometimes arching up or down. Leaves are bright green turning yellow to brown in fall often persisting adding winter interest along with the hop like fruits. Tolerates dry conditions and free of major disease and insect problems.

