



Addendum to GSI Landscape Design Guidebook

July 2024

This is an addendum to the GSI Landscape Design Guidebook version 4.0, published in April 2020. The addendum was created to rectify three (3) topics which have changed slightly over the past two years. These three topics are concentrated in Chapter 3 of the Guidebook and include:

Low Count Species – Designations of “Use Sparingly” were removed in favor of a new priority designation called “Low Count Species”. The Green Stormwater & Stream Design Unit (GSSD) is shifting the focus of tree species selection to encourage the use of species with low representation in the GSI Tree Inventory.

Species Name/Spelling Correction – Species names and spellings were revised to align with PWD database naming conventions, allowing for efficient transfer of information from finalized plans to internal data systems.

Align GSSD Street Tree Designations with PPR (Philadelphia Parks & Recreation) Designations – Tree species labeled “Landscape Only” in the GSI Landscape Design Guidebook are to only be used in off-street parcels. In this addendum, “Landscape Only” designations were removed for species which are present on the PPR Citywide Street Tree Designation list as on-street appropriate species.

The addendum can be found on the following pages.

Tree Selection Criteria

Tree selection criteria is primarily based on site conditions and issues most relevant to SMPs. A tree's maximum height and width should be used to determine its appropriateness in a given space.

To increase resiliency against tree pests and diseases, PWD strives to select a diversity of tree species within a project area. However, to achieve visual continuity, block-by-block the designer may plant in groups of 2-4 trees by species or alternate species of similar growth habits such as size, shape, and branching density. Cornell University has an online guide on how to group species for visual similarity.¹ Consideration of textures and colors of foliage and blooms by month may also improve aesthetics at a site.

Planting restrictions for specific species should be followed as described herein. When listed on a design plan, fall dig hazard trees must include substitutes should project planting occur in the fall. Landscape-only trees may be used for rain gardens and other off-street projects, but not in the right-of-way where sight lines must be preserved. *Acer* and *Prunus* trees should be planted sparingly, since they have historically been over planted both within PWD systems and throughout the City. Consideration should also be given to system type and where the tree is being planted within the system (e.g. within the entrance, lower, or upper zones or as a street tree in a tree trench).

Below is an annotated example of tree imagery that can be found on the following pages for each of PWD's recommended trees.

EXAMPLE OF TREE IMAGERY:

Genus species
'Cultivar'
Acer buergerianum
'Streetwise'
Trident Maple
Uniform shape
30/30'
U
Seasonal Interest

Planting Restrictions
Common Name
Cultivar Notes
Maximum Height/Width (feet)
Branching Density
Form
Hydrology

SELECTION CRITERIA

1	Classification	Uses
Canopy	Maximum Height > 30 Feet	Where Space Is Available For Growth, Landscapes
Understory	Maximum Height < 30 Feet	Where Growth Is Limited (E.g. Under Wires), Landscapes
2	Form	Uses
	Spreading: Width >= Height	Wider Sidewalks, Landscapes
	Upright: Width < Height	Narrow Sidewalks, Landscapes
	Columnar: Width Much < Height	Narrowest Spaces
3	Branching Density	Uses
	Dense: Greater Than 50% Opaque	Select Similar Density For Visual Similarity On Streets
	Open: Less Than 50% Opaque	
4	Size	Uses
N/N'	Maximum Height/Width (Feet)	Height/Width Selected Should Consider Topography In Order To Preserve Sight Lines
5	Hydrology	Uses
U	Upper	Tree Pits, Upper Slopes Of Rain Gardens
L	Lower	Bumpouts, Planters, Swales, Bottom Of Rain Gardens
6	Seasonal Interest	Uses
	See Seasonal Pictures.	Select Color/Textures Of Foliage And Blooms To Increase Interest


PLANTING RESTRICTIONS

1		
	Fall dig hazard	Requires a substitute if planted in fall
2		
	Landscape only	Do not use in the right-of-way
3		
	Low Count Tree Species	Utilize species when possible
4		
	Prefers partial shade	Avoid planting in direct sun
	Prefers full sun	Avoid planting in shade

¹ "Visual Similarity and Biological Diversity: Street Tree Selection and Design" by Nina Bassuk, Peter Trowbridge, and Carol Grohs. <http://www.hort.cornell.edu/uhi/outreach/pdfs/visually_compatible_trees.pdf>

Canopy Trees

CANOPY TREES



Acer rubrum
Red Maple

70/50' LU

J F M A M J J A S O N D



Acer rubrum
'Karpick'
Red Maple

Columnar, yellow-orange in fall

50/20' LU


J F M A M J J A S O N D



Acer saccharinum
Silver Maple

80/70' LU


J F M A M J J A S O N D



Acer saccharum
Sugar Maple

80/60' LU

J F M A M J J A S O N D




Acer saccharum
'Green Mountain'
Sugar Maple

More tolerant of heat, dry conditions, and high pH

60/45' LU

J F M A M J J A S O N D



Acer x freemanii
'Celebration'
Freeman Maple

Uniform habit, tolerant of urban conditions

50/35' LU

J F M A M J J A S O N D




Acer x freemanii
'Marmo'
Freeman Maple

Uniform habit with strong central leader, fruitless

70/40' LU

J F M A M J J A S O N D



Aesculus flava
Yellow Buckeye

70/50' L

J F M A M J J A S O N D



Aesculus hippocastanum
European Horse Chestnut

75/65' L

J F M A M J J A S O N D




Aesculus x carnea
'Briotii'
Red Horse Chestnut

Larger, dark red flowers

35/35' L

J F M A M J J A S O N D



Betula lenta
Sweet Birch

55/45' LU

J F M A M J J A S O N D



Betula nigra
River Birch

70/60' LU

J F M A M J J A S O N D



Betula nigra
'DuraHeat'
River Birch

Tolerant of urban pollution, heat and aphid resistant

40/35' LU

J F M A M J J A S O N D




Betula nigra
'Heritage'
River Birch

Heat tolerant, large glossy dark green leaves

70/60' LU

J F M A M J J A S O N D



Carpinus betulus
European Hornbeam

60/60' U

J F M A M J J A S O N D




Carpinus betulus
'Fastigata'
European Hornbeam

Narrow

40/30' U

J F M A M J J A S O N D



Carpinus betulus
'Frans Fontaine'
European Hornbeam

Narrow

40/20' U


J F M A M J J A S O N D



Carya glabra
Pignut Hickory

80/40' LU

J F M A M J J A S O N D



Carya ovata
Shagbark Hickory

90/70' LU

J F M A M J J A S O N D



Celtis laevigata
'All Seasons'
Sugarberry

Adaptable, uniform growth, minimal litter

60/55' U

J F M A M J J A S O N D

Canopy Trees




Celtis occidentalis
'Prairie Pride'
Common Hackberry △
Less fruit
55/50' U

J F M A M J J A S O N D



Cryptomeria japonica
'Yoshino'
Japanese Cedar △
Symmetrical, fast growth,
good winter color
40/30' U

J F M A M J J A S O N D




Gleditsia triacanthos var. inermis
'Shademaster'
Thornless Honeylocust
Fruitless, deeper shade
70/70' LU

J F M A M J J A S O N D



Juniperus virginiana
Eastern Red Cedar ⊙△
65/25' U

J F M A M J J A S O N D




Cercidiphyllum japonicum
Katsura △
60/50' LU

J F M A M J J A S O N D



Eucommia ulmoides
Hardy Rubber Tree
60/50' U

J F M A M J J A S O N D




Gleditsia triacanthos var. inermis
'Skyline'
Thornless Honeylocust
Fruitless, pyramidal, strong
central leader
45/35' LU

J F M A M J J A S O N D




Juniperus virginiana
'Princeton Sentry'
Eastern Red Cedar ⊙△
Narrow
30/10' U

J F M A M J J A S O N D



Chamaecyparis thyoides
Atlantic White Cedar ⊙△
50/40' LU

J F M A M J J A S O N D




Ginkgo biloba
'Autumn Gold'
Maidenhair Tree ⊙
Conical, good fall color
50/30' U

J F M A M J J A S O N D




Gymnocladus dioica
'Espresso'
Kentucky Coffeetree ⊙
Fruitless, vase-shaped
75/50' U

J F M A M J J A S O N D



Koelreuteria paniculata
Golden Rain Tree ⊙
40/40' LU

J F M A M J J A S O N D



Cladrastis kentukea
Yellowwood
50/55' U

J F M A M J J A S O N D




Ginkgo biloba
'Magyar'
Maidenhair Tree ⊙
Narrow, upright
60/30' U

J F M A M J J A S O N D




Halesia carolina
Carolina Silverbell △
40/35' U

J F M A M J J A S O N D



Liquidambar styraciflua
'Rotundiloba'
Sweetgum ⊙⊕
Seedless, pyramidal
70/30' LU

J F M A M J J A S O N D



Corylus colurna
Turkish Filbert △
80/50' U

J F M A M J J A S O N D



Ginkgo biloba
'Princeton Sentry'
Maidenhair Tree ⊙
Nearly columnar
50/30' U

J F M A M J J A S O N D



Juniperus chinensis
Chinese Juniper ⊙△
50/20' U

J F M A M J J A S O N D



Liriodendron tulipifera
Tulip Poplar ⊙⊕
90/50' U

J F M A M J J A S O N D

CANOPY TREES


Canopy Trees



Liriodendron tulipifera Ⓛⓕ☀️
'Fastigiatum'
Tulip Poplar
Columnar

50/20' U


J F M A M J J A S O N D



Parrotia persica △
Persian Parrotia

40/30' U


J F M A M J J A S O N D



Quercus bicolor ⓕ☀️
Swamp White Oak

60/60' LU


J F M A M J J A S O N D



Quercus phellos ⓕ☀️
Willow Oak

70/50' LU


J F M A M J J A S O N D



Metasequoia glyptostroboides Ⓛ☀️
Dawn Redwood

100/25' LU

J F M A M J J A S O N D



Platanus occidentalis Ⓛ
American Sycamore

100/100' LU


J F M A M J J A S O N D



Quercus imbricaria ⓕ☀️
Shingle Oak

60/60' U


J F M A M J J A S O N D



Quercus robur ⓕ☀️
English Oak

70/70' U


J F M A M J J A S O N D



Nyssa sylvatica ⓕ
Blackgum

50/30' LU

J F M A M J J A S O N D



Platanus x acerifolia ☀️
'Bloodgood'
London Plane
Some anthracnose resistance

85/70' LU

J F M A M J J A S O N D



Quercus lyrata ⓕ☀️
Overcup Oak

60/60' LU


J F M A M J J A S O N D



Quercus robur ⓕ☀️
'Fastigiata'
English Oak
Narrow

60/20' U

J F M A M J J A S O N D



Nyssa sylvatica ⓕ
'Tupelo Tower'
Blackgum
Narrow

40/15' LU


J F M A M J J A S O N D



Platanus x acerifolia ☀️
'Exclamation'
London Plane
Upright, anthracnose resistant

60/30' LU


J F M A M J J A S O N D



Quercus macrocarpa ☀️ⓕ
Bur Oak

80/80' U


J F M A M J J A S O N D



Quercus robur x alba ⓕ☀️
'Crimschmidt'
Hybrid Oak
Narrow

40/20' U

J F M A M J J A S O N D



Ostrya virginiana ⓕ
American Hop-Hornbeam

40/30' U

J F M A M J J A S O N D



Quercus alba ⓕ☀️
White Oak

80/80' U


J F M A M J J A S O N D



Quercus muehlenbergii ⓕ☀️
Chickapin Oak

60/70' U

J F M A M J J A S O N D




Quercus robur ⓕ☀️
'Attention'
English Oak
Narrow

60/15' U



J F M A M J J A S O N D

Canopy Trees



Quercus rubra
Northern Red Oak

☉ ☀

  75/75' U

J F M A M J J A S O N D




Tilia americana
'Redmond'
American Linden

△

Pyramidal, dense

  70/50' LU



J F M A M J J A S O N D



Ulmus americana
'Jefferson'
American Elm

△

Smaller, narrower

  50/50' LU

J F M A M J J A S O N D




Zelkova serrata
'Halka'
Japanese Zelkova

Looser habit



  50/30' U

J F M A M J J A S O N D



Quercus shumardii
Shumard Oak

☉ ☀

  60/40' LU

J F M A M J J A S O N D



Tilia cordata
Littleleaf Linden

  70/50' U

J F M A M J J A S O N D



Ulmus americana
'New Harmony'
American Elm

△

Vase-shaped, resistant to Dutch Elm disease

  70/65' LU

J F M A M J J A S O N D



Zelkova serrata
'Mushashino'
Japanese Zelkova

Narrow

  45/20' U

J F M A M J J A S O N D



Quercus x warei
'Long Regal Prince'
Ware's Oak

☉ ☀

Vigorous, resistant to powdery mildew, narrow

  60/25' U


J F M A M J J A S O N D



Tilia tomentosa
Silver Linden

  70/50' U



J F M A M J J A S O N D




Ulmus americana
'Valley Forge'
American Elm

△

Broad, dense



  70/60' LU

J F M A M J J A S O N D



Zelkova serrata
'Village Green'
Japanese Zelkova

Fast growing, upright, vigorous

  60/50' U

J F M A M J J A S O N D




Sorbus aucuparia
'Fastigata'
Mountain Ash

☉ ☀



  60/25' U

J F M A M J J A S O N D




Tilia tomentosa
'Green Mountain'
Silver Linden



Faster growth, heat/drought tolerant

  70/50' U

J F M A M J J A S O N D



Ulmus parvifolia
Chinese Elm


  50/40' U

J F M A M J J A S O N D




Zelkova serrata
'Green Vase'
Japanese Zelkova

Upright



  70/40' U

J F M A M J J A S O N D




Taxodium distichum
Bald Cypress

△



  70/45' LU

J F M A M J J A S O N D



Tilia tomentosa
'Sterling'
Silver Linden

Heat/drought tolerant; resists Japanese beetle

  50/35' U

J F M A M J J A S O N D



Zelkova serrata
'Green Vase'
Japanese Zelkova

Upright

  70/40' U

J F M A M J J A S O N D

Understory Trees




Acer buergerianum
'Streetwise'
Trident Maple

Uniform shape



  30/30' U

J F M A M J J A S O N D



Acer truncatum x platanoides
'Keithsform'
Hybrid Maple

Heat tolerant

  35/20' LU

J F M A M J J A S O N D



Amelanchier laevis
'Cumulus'
Allegheny Serviceberry


Upright, yellow-orange in fall

  30/20' LU


J F M A M J J A S O N D





Carpinus caroliniana
American Hornbeam

  35/35' LU


J F M A M J J A S O N D



Acer campestre
Hedge Maple



  35/35' U

J F M A M J J A S O N D



Acer truncatum x platanoides
'Warrenred'
Hybrid Maple

Heat tolerant, fast growing

  30/25' LU

J F M A M J J A S O N D



Amelanchier lamarkii
Juneberry

  25/25' LU

J F M A M J J A S O N D



Cercis canadensis
Eastern Redbud

  30/35' U

J F M A M J J A S O N D




Acer tataricum
Tatarian Maple

  20/20' U


J F M A M J J A S O N D



Amelanchier arborea
Downy Serviceberry



  25/25' LU

J F M A M J J A S O N D




Amelanchier x grandiflora
'Autumn Brilliance'
Apple Serviceberry

Red in fall



  25/25' LU

J F M A M J J A S O N D




Cercis canadensis
'Appalachian Red'
Eastern Redbud



Tiny fuchsia-pink to red flowers

  25/25' U


J F M A M J J A S O N D





Acer tataricum subsp.
ginnala
Amur Maple

  20/20' LU


J F M A M J J A S O N D



Amelanchier canadensis
Shadblow Serviceberry



  30/20' LU

J F M A M J J A S O N D




Amelanchier x grandiflora
'Princess Diana'
Apple Serviceberry

Wide-spreading branches, red in fall



  25/20' LU

J F M A M J J A S O N D



Cercis canadensis
'Merlot'
Eastern Redbud

Purple foliage, drought & heat resistant

  15/15' U

J F M A M J J A S O N D



Acer truncatum
Shantung Maple

  25/20' U


J F M A M J J A S O N D



Amelanchier laevis
Allegheny Serviceberry



  15/35' LU

J F M A M J J A S O N D



Amelanchier x grandiflora
'Robin Hill'
Apple Serviceberry

Upright, red-yellow in fall

  25/15' LU

J F M A M J J A S O N D



Cercis canadensis f. alba
'Royal White'
Eastern Redbud

Larger white flowers, early blooming

  25/25' U

J F M A M J J A S O N D

UNDERSTORY TREES

Understory Trees




Chionanthus retusus
Chinese Fringtree

☉ △

☀️ * 20/20' LU

J F M A M J J A S O N D




Cornus florida
'Cherokee Chief' ☉

Flowering Dogwood

Red-pink, new foliage tinged with red

☀️ * 25/25' U

J F M A M J J A S O N D




Cornus officinalis ☉Ⓛ

Japanese Cornel Dogwood

☀️ △

☀️ * 25/25' LU

J F M A M J J A S O N D




Crataegus laevigata
'Superba' ☉

English Hawthorn

Disease resistant

☀️ * 20/20' U

J F M A M J J A S O N D




Chionanthus virginicus
Fringtree

☉ △

☀️ * 20/20' LU

J F M A M J J A S O N D




Cornus florida
'Cherokee Princess' ☉

Flowering Dogwood

Large, reliable blooms

☀️ * 30/30' U

J F M A M J J A S O N D



Cornus x rutaersensis
'Aurora' ☉

Hybrid Flowering Dogwood

☀️ △

☀️ * 18/24' U

J F M A M J J A S O N D




Crataegus x lavalleei ☉

Lavalle Hawthorn

☀️ △

☀️ * 25/18' U

J F M A M J J A S O N D




Cornus florida ☉

Flowering Dogwood

☀️ * 30/30' U

J F M A M J J A S O N D




Cornus florida var. rubra ☉

Flowering Dogwood

Red-pink

☀️ * 30/30' U

J F M A M J J A S O N D



Cotinus obovatus
American Smoke Tree

☀️ △

☀️ * 30/30' U

J F M A M J J A S O N D




Crataegus phaenopyrum ☉

Washington Hawthorn

☀️ △

☀️ * 30/30' U

J F M A M J J A S O N D



Cornus florida
'Appalachian Snow' ☉

Flowering Dogwood

Vigorous, white flower

☀️ * 20/20' U

J F M A M J J A S O N D




Cornus kousa ☉Ⓛ

Kousa Dogwood

☀️ △

☀️ * 30/30' U

J F M A M J J A S O N D




Crataegus crus-galli var. inermis ☉

Thornless Cockspur Hawthorn

☀️ △

☀️ * 30/30' U

J F M A M J J A S O N D



Crataegus punctata
'Ohio Pioneer' ☉


Dotted Hawthorn

Essentially spineless

☀️ △

☀️ * 30/30' U

J F M A M J J A S O N D



Cornus florida
'Cherokee Brave' ☉

Flowering Dogwood

Vigorous, red flower

☀️ * 25/25' U

J F M A M J J A S O N D



Cornus mas ☉

Cornelian Cherry Dogwood

☀️ △

☀️ * 25/20' U

J F M A M J J A S O N D



Crataegus flava ☉

Yellowleaf Hawthorn

☀️ △

☀️ * 30/30' U

J F M A M J J A S O N D



Crataegus viridis
'Winter King' ☉

Green Hawthorn


Profuse bloom

☀️ * 35/35' U

J F M A M J J A S O N D

UNDERSTORY TREES

Understory Trees



Maackia amurensis
Amur Maackia

☀️

30/30' U

J F M A M J J A S O N D




Malus 'Golden Raindrops'
Crabapple

☀️

Yellow fruit, fine-textured

20/15' U

J F M A M J J A S O N D



Malus 'Snowdrift'
Crabapple

☀️

White flowers, resistant to fireblight and scab

20/20' U

J F M A M J J A S O N D



Prunus serrulata 'Kwanzan'
Japanese Flowering Cherry

☀️

Double pink flowers

30/30' U

J F M A M J J A S O N D



Magnolia grandiflora 'Bracken's Brown Beauty'
Southern Magnolia

🕒

Hardy

30/25' LU

J F M A M J J A S O N D



Malus 'Harvest Gold'
Crabapple

☀️

Yellow fruit, fine-textured

25/15' U

J F M A M J J A S O N D




Malus 'Spring Snow'
Crabapple

☀️

White flowers, upright, dense, fruitless

25/20' U

J F M A M J J A S O N D



Prunus subhirtella 'Autumnalis'
Higan Cherry

☀️

Blooms again in fall

35/30' U

J F M A M J J A S O N D

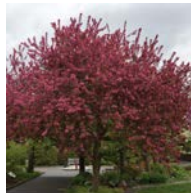


Magnolia virginiana
Sweetbay Magnolia

🕒

35/35' LU

J F M A M J J A S O N D




Malus 'Prairie Fire'
Crabapple

☀️

Pink flowers, dense, round, disease resistant

20/20' U

J F M A M J J A S O N D




Malus 'Sugartyme'
Crabapple

☀️

White flowers, red fruits

18/15' U

J F M A M J J A S O N D




Prunus x hillieri 'Spire'
Flowering Cherry

☀️

Narrow

30/20' U

J F M A M J J A S O N D



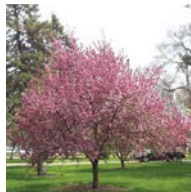
Magnolia virginiana 'Green Mile'
Sweetbay Magnolia

🕒

Narrow, reliably evergreen

25/20' LU

J F M A M J J A S O N D




Malus 'Robinson'
Crabapple

☀️

Pink flowers, wide

25/25' U

J F M A M J J A S O N D

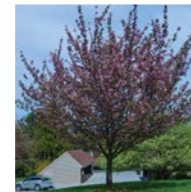


Prunus maackii
Amur Chokecherry

⚠️

30/25' U

J F M A M J J A S O N D



Prunus x incam 'Okame'
Okame Cherry

☀️

Upright, early bloom

25/20' U

J F M A M J J A S O N D




Magnolia virginiana 'Moonglow'
Sweetbay Magnolia

🕒

Upright, reliably evergreen, slightly larger flowers

35/20' LU

J F M A M J J A S O N D



Malus 'Royal Raindrops'
Crabapple

☀️

Purple foliage

20/16' U

J F M A M J J A S O N D



Prunus sargentii 'Columnaris'
Sargent Cherry

☀️

Narrow, vase-shaped

30/20' U

J F M A M J J A S O N D



Prunus x yedoensis
Yoshino Cherry

☀️

40/40' U

J F M A M J J A S O N D

UNDERSTORY TREES

Understory Trees



Prunus virginiana
'Canada Red'
Chokecherry

Green leaves turning to purple foliage

  25/20' **U**





Syringa reticulata
'Regent'
Japanese Tree Lilac

Narrow

  30/20' **U**




Stewartia koreana
Korean Stewartia 

  25/15' **U**




Syringa reticulata
'Summer Snow'
Japanese Tree Lilac

Compact

  30/25' **U**





Stewartia monadelphica
Tall Stewartia

  25/25' **U**





Styrax japonicas
Japanese Snowbell 

  30/30' **U**

Syringa reticulata
'Ivory Silk'
Japanese Tree Lilac

Upright, compact

  25/20' **U**

