

McLean UDG Advisory Group Meeting #9

December 2022



PLANNING & DEVELOPMENT



A decorative graphic on the left side of the slide consists of two overlapping circles. The larger circle is a darker shade of green, and the smaller circle is a lighter shade of green. They overlap in the center, creating a darker green area.

Tree and Landscaping Guidelines (continued)

How does Neighborhood Village Concept Relate to Trees and Landscaping?

McLean has a **small town feel** with a **variety of human-scale gathering spaces** that foster social interaction and communal experiences. The diversity of local merchants meets many of the daily shopping and service needs of area residents. Dining options help define McLean as a destination for area residents. **Well-designed streetscapes and off-street pathways** offer comfortable connections to these destinations as well as from the surrounding neighborhoods into McLean. McLean showcases itself as a **sustainable** community with **shade trees, green areas, and innovative environmental features**. The history of McLean is embraced through the scale of blocks and the finer-grain texture of building fabric that contributes to the sense of community.

Landscape Design Principles and Strategies

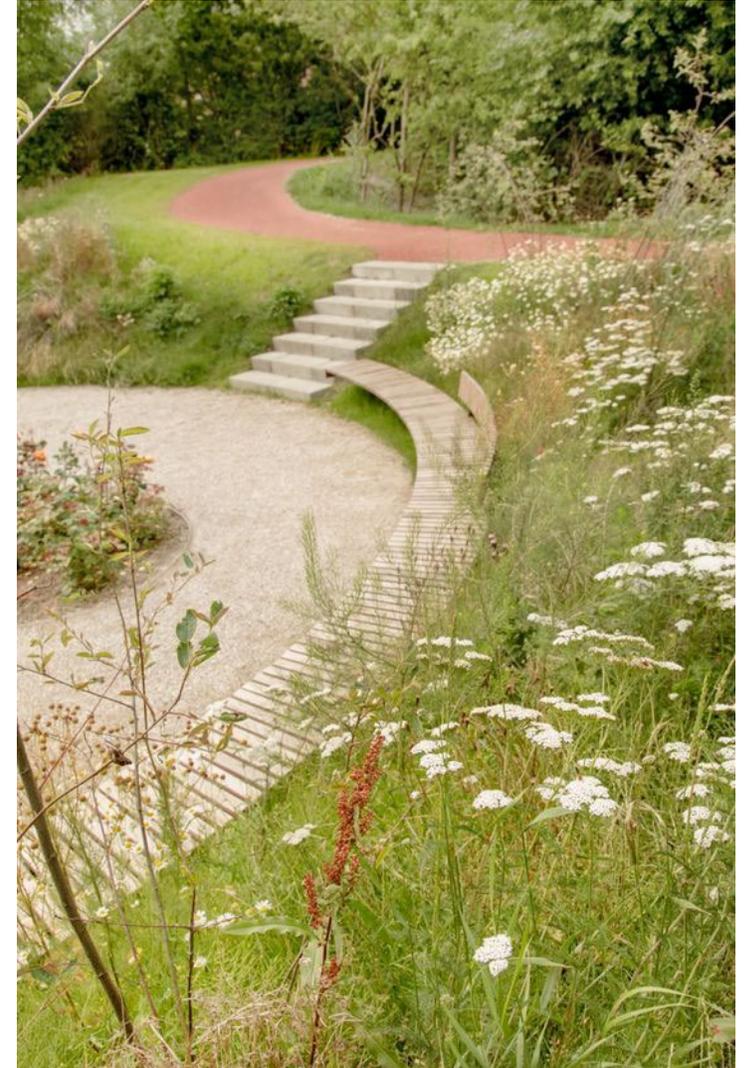
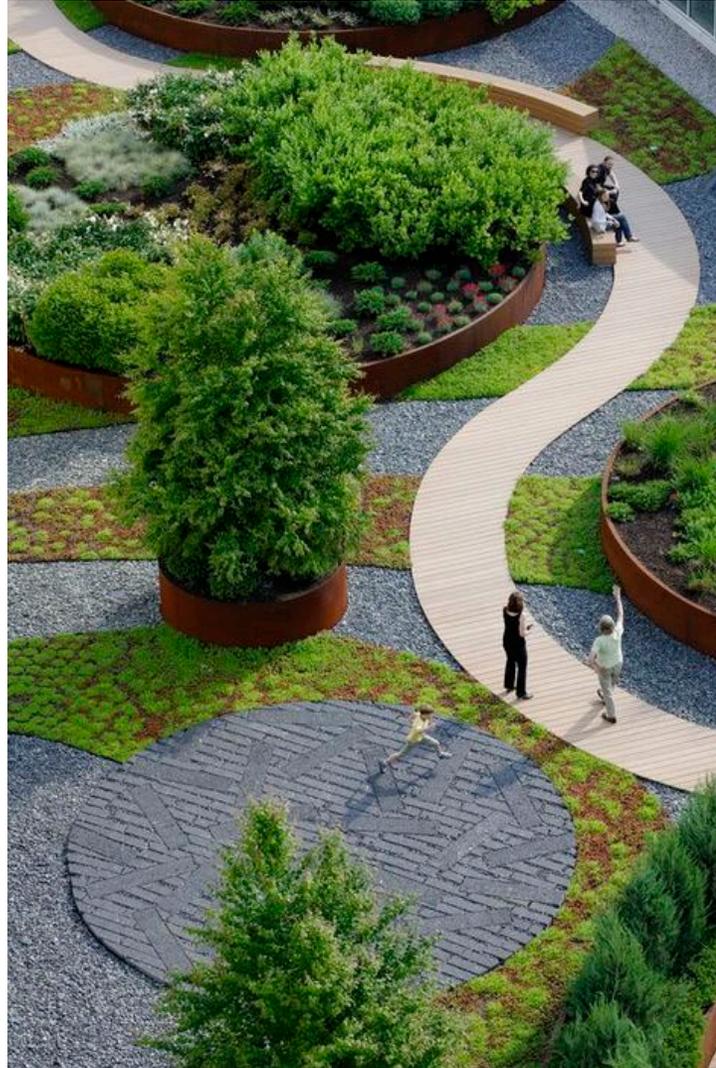
1. **Green Network:** Contribute to the planned network of open spaces and ecological corridors.
2. **Trees:** Maximize tree canopy coverage.
3. **Hardscape vs. Softscape:** Maximize softscape and minimize imperviousness.
4. **Multi-strata Landscapes:** Utilize a full spectrum of plant materials: ground cover, shrubs, under story trees, and large, shade trees to create multi-layered landscapes.
5. **Low-maintenance:** Encourage native, drought resistant, hardy and low maintenance species.
6. **Neighborhood Village Aesthetic:** Use informal planting design with flowering plants with bright colors (seasonal interest) to provide human scale, variety and interest to streetscapes as well as increase pollinator species. Plant specific tree species at certain locations or on certain streets.

Maximize Tree Canopy

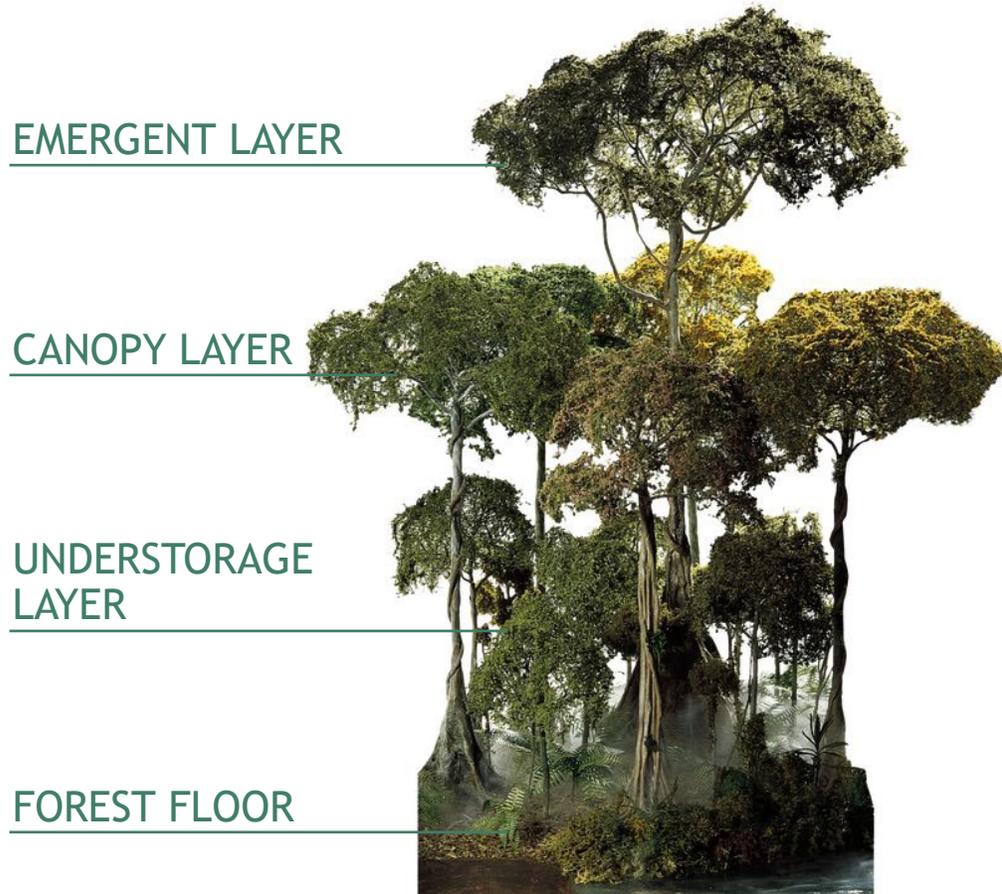


Plant trees in the building zone to create an Allee of trees

Maximize Softscape and Minimize Imperviousness

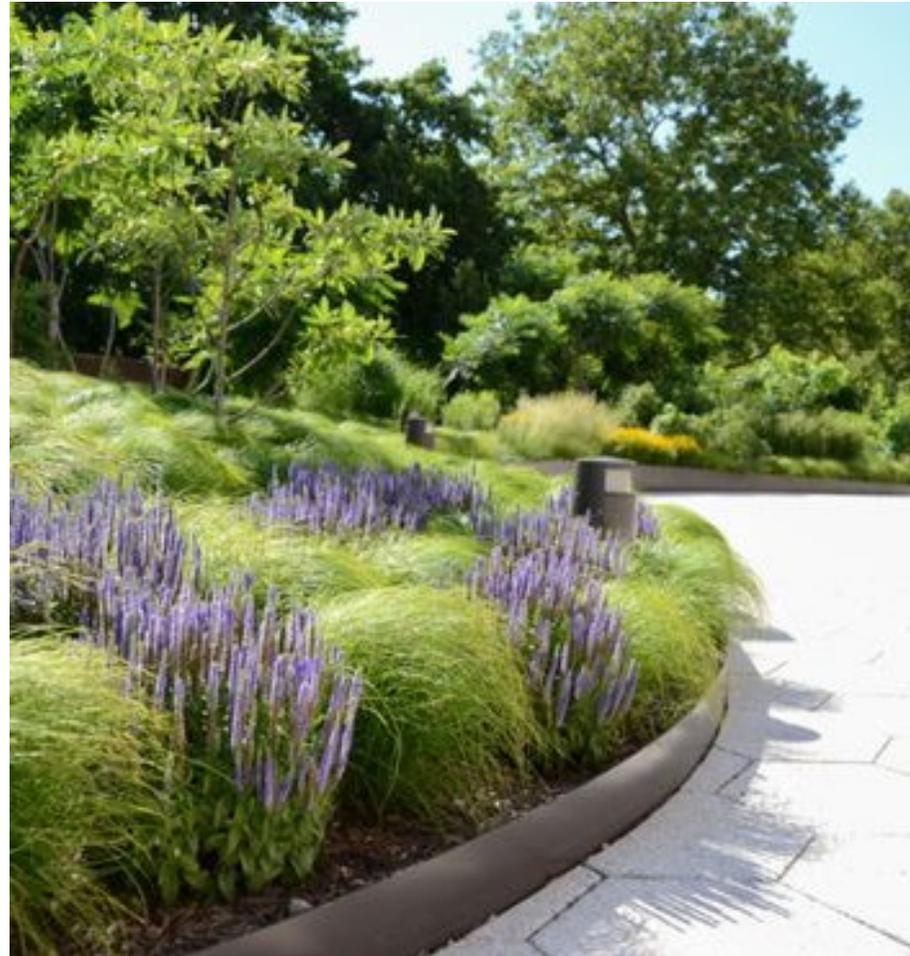


Utilize A Full Spectrum Of Plant Materials To Create Multi-strata Landscapes



Use Flowering Plants With Bright Colors

to provide human scale, variety and interest to streetscapes as well as increase pollinator species



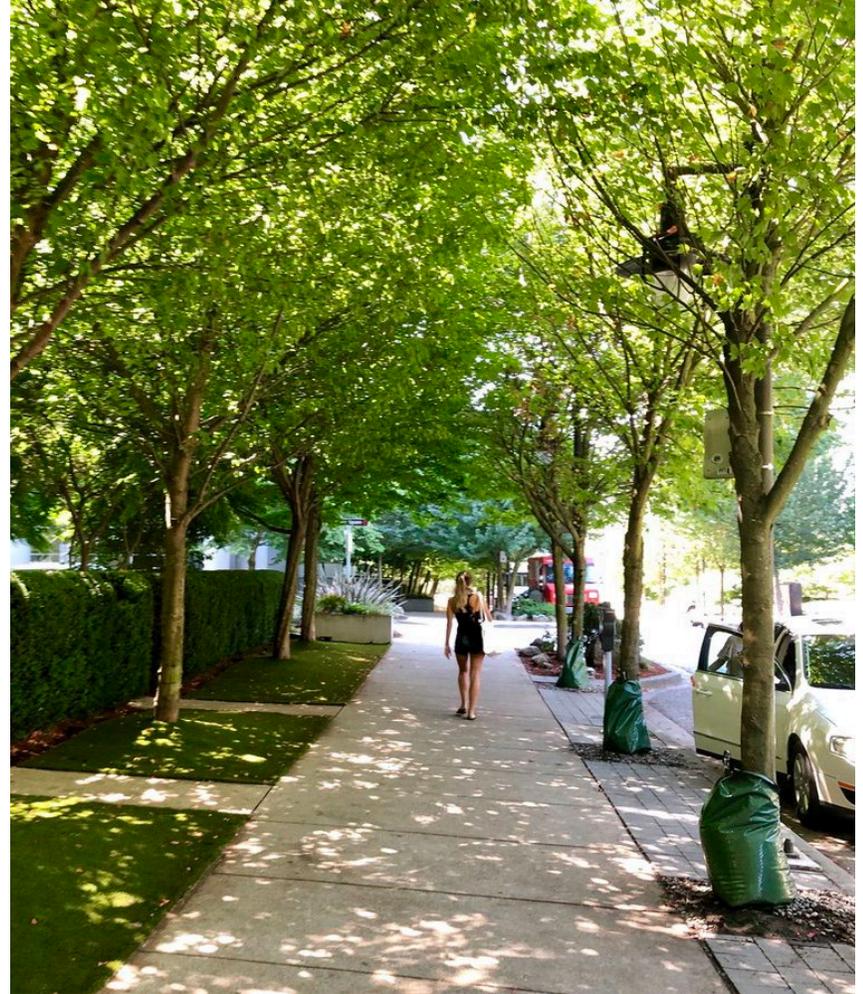
Landscape Guidelines Areas of Focus

- Avenues
- Local Streets
- Greenways
- Gateways
- Nodes



Avenues

- Continuous tree cover, create Allée effect by tree planting in the building zone
- Oriented both for pedestrians and vehicles



Local Streets

- Coherent streetscape plantings, create pedestrian comfort, encourage inviting greenery within the building zone
- Mostly oriented towards pedestrians





AMERICAN
MAY

AMERICAN
MAY

E. Washington St



W. Washington St

NO
TURN
ON RED

S. Main St



SUSHI
MURASAKI







State
Summer
Games
June 9-11
2017

SPEED
LIMIT
20

WALK
ON THE SIDEWALK

RIDE
ON THE STREET





McLean CBC Tree Inventory Walk-through

- What we learned:
 - Many large oaks along Beverly and Elm (Pin, Red, Willow)
 - Some existing wonderful older trees located adjacent to the sidewalk
 - The Mars Headquarters has an incredible variety of unique tree species
 - Some of the oldest and newest developments along Elm Street have Elm Trees as part of their streetscape (Signet and the Goodyear).
 - The ideal location for the Signature Park (eastern corner of Beverly and Elm) has some of the best trees in the Center Zone of the CBC.
 - There are some, but not a lot of undesirable species (Bradford Pear)

McLean CBC Tree Inventory Walk-through

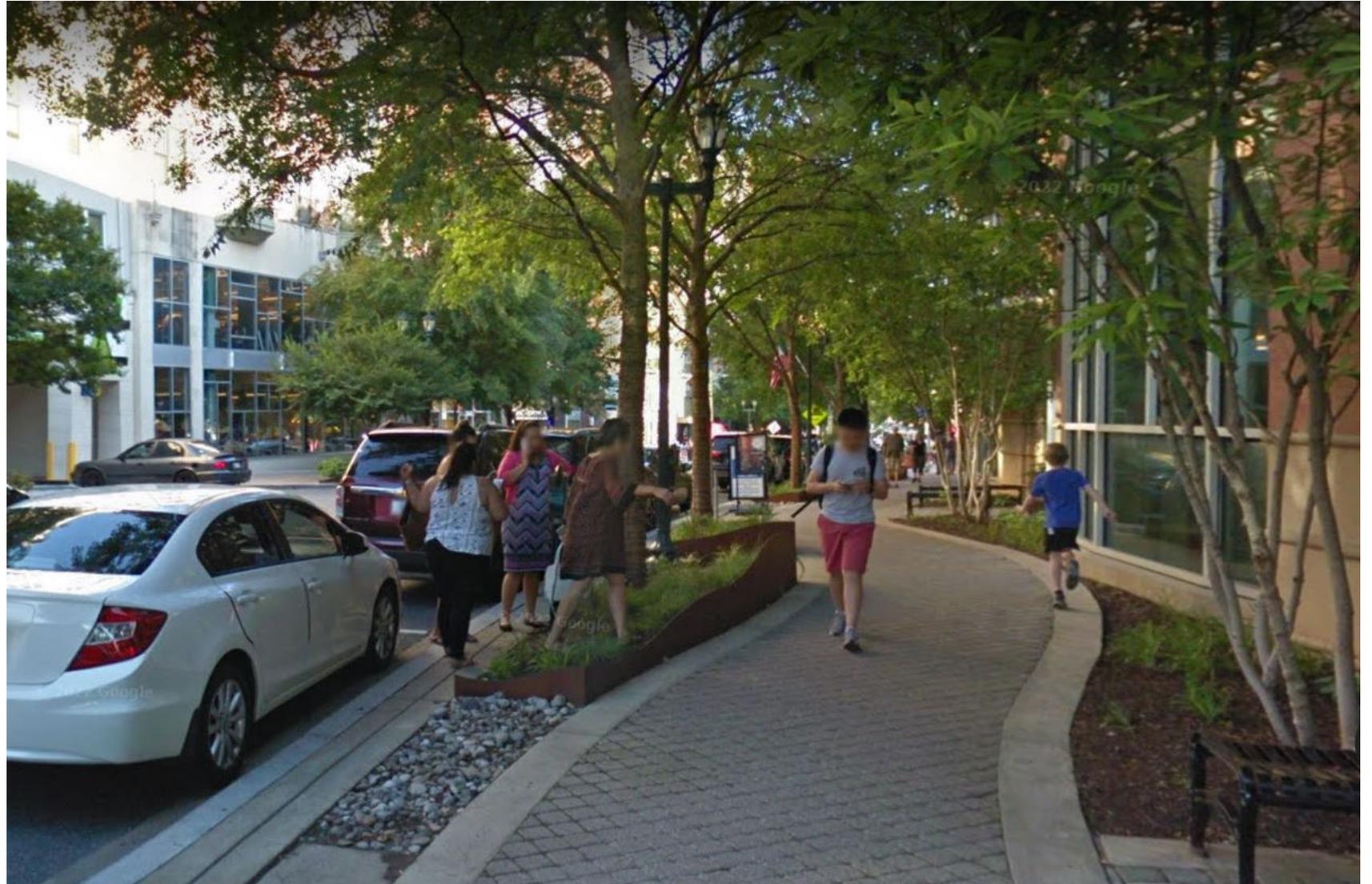
- Species Identified:

Pin Oak, Willow Oak, Red Oak, Red Maple, Norway Maple, Silver Maple, Sycamore, Linden, Zelkova, American Elm, Lace Bark Chinese Elm, Redbuds, Londonplane;

Crab Apple, Bradford Pear, Saucer Magnolia, Natchez Crape Myrtle, Kousa Dogwood, Dogwood, European Beech, River Birch, Black Gum, Cyprus Willow;

Dawn Redwood, Bald Cypress, Eastern Red Cedar

McLean CBC Tree Inventory Walk-through





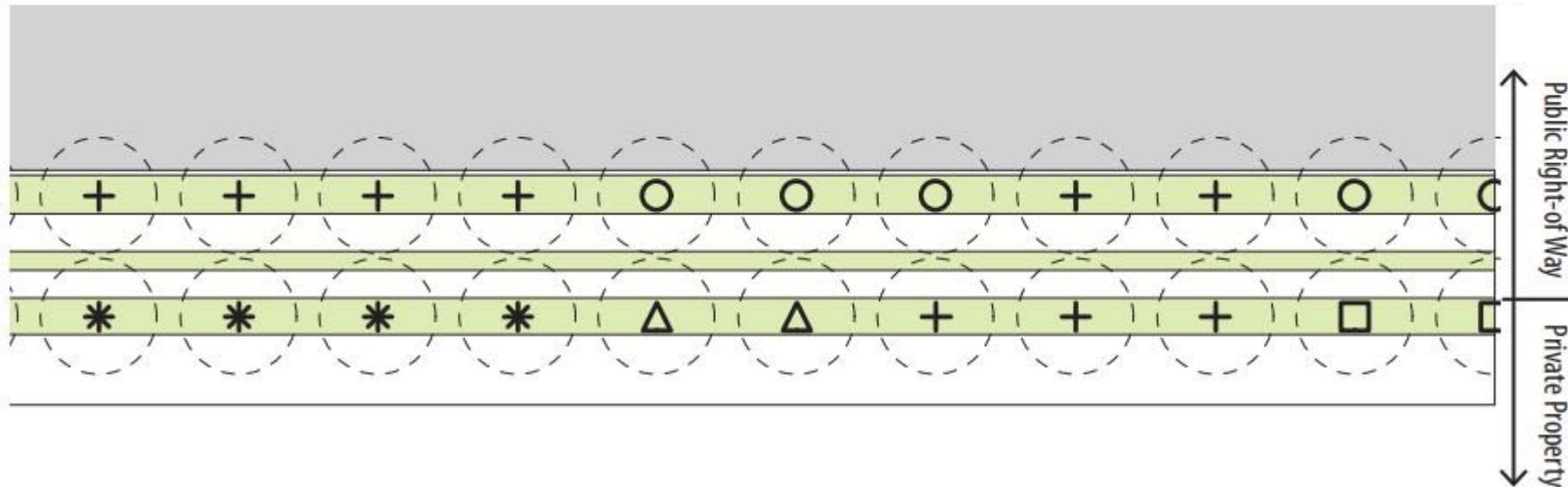
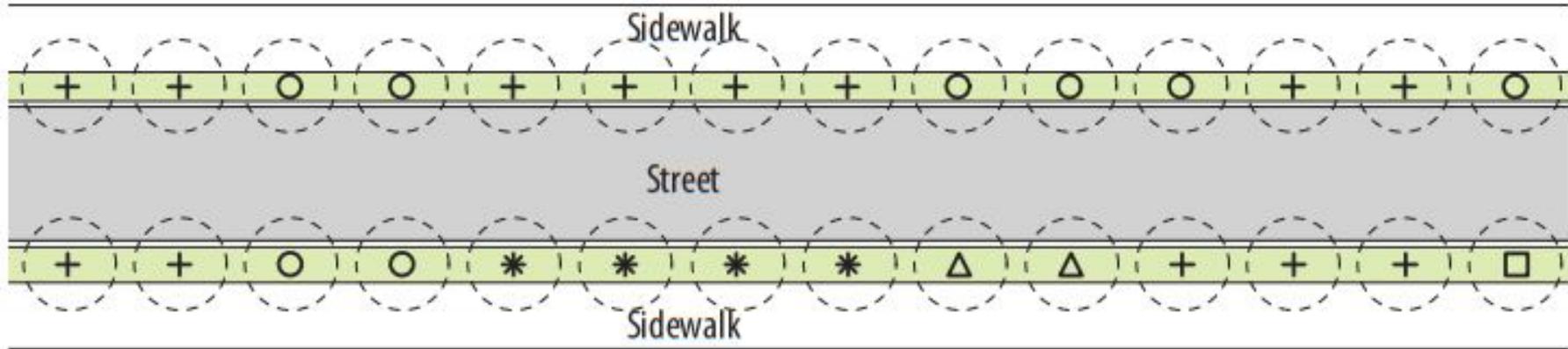


Tree Species Selection Considerations

- Hardiness, low maintenance, drought tolerance
- Color, texture, and form to create character for spaces
- Mixing species to provide a diverse and resilient landscape



Tree Species Pairing Strategies



KEY

O Tree Species 1

+ Tree Species 2

* Tree Species 3

Δ Tree Species 4

□ Tree Species 5

■ Planting Areas

Landscape Panel: Species 1 & 2

Planting Zone: All 5 Species

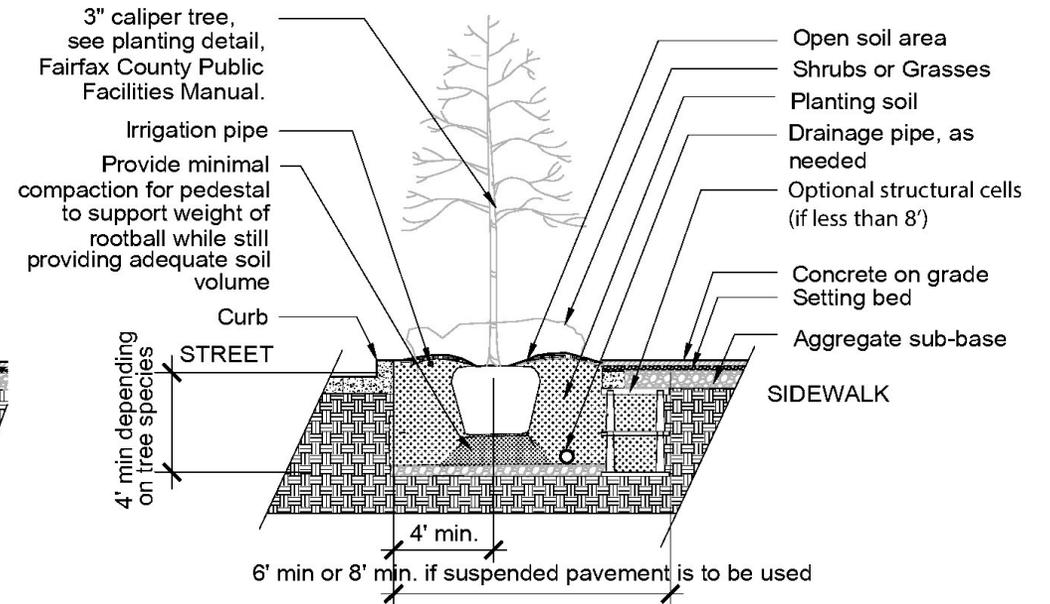
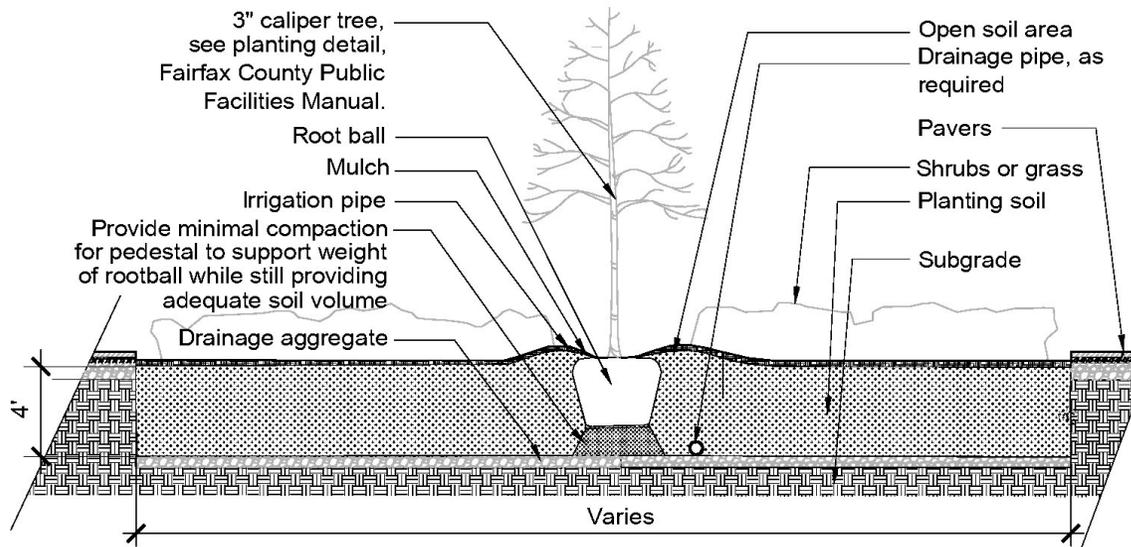
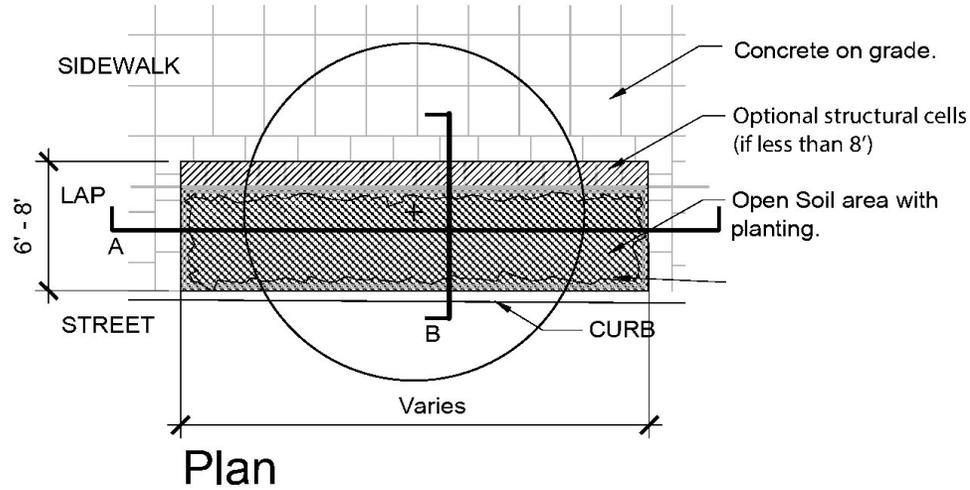
Question:

Should the street trees have consistent shape, color and size? Or
Should we have a more organic streetscape given the existing trees and different development timeframes.

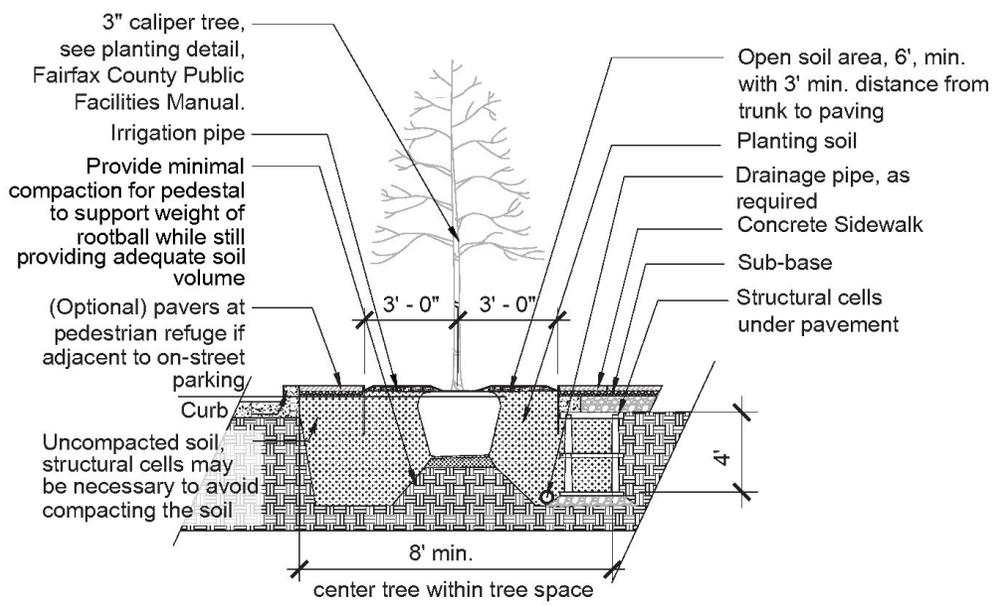
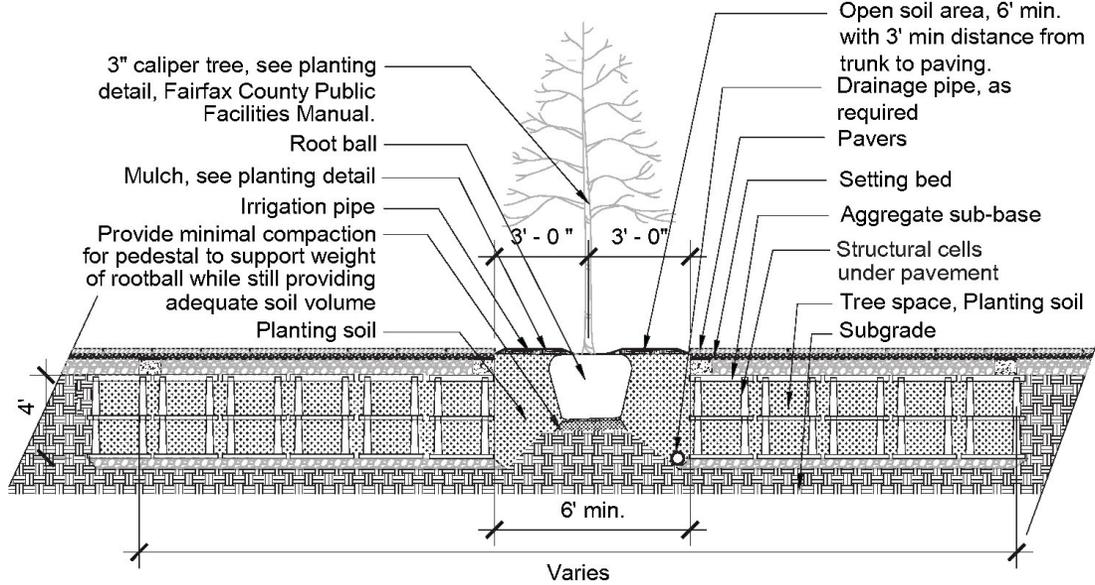
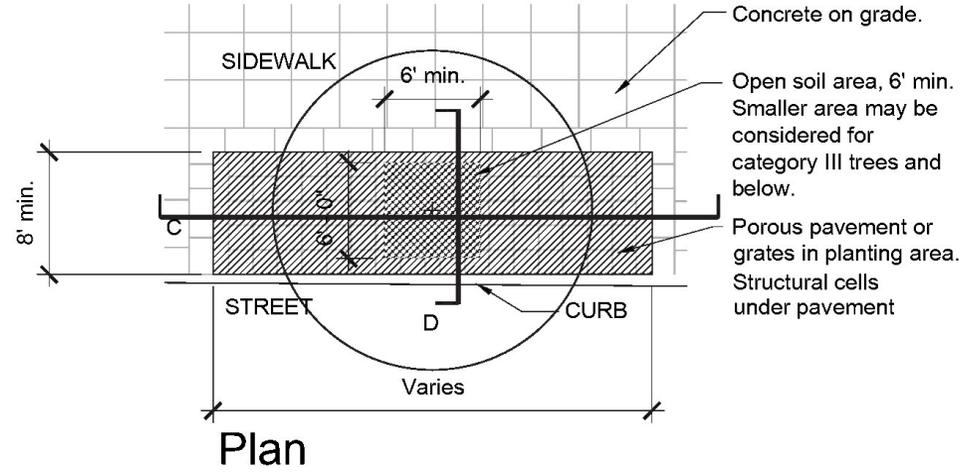
Tree Planting Details - UDG Vol 1

GRAPHIC 18: OPEN SOIL TREE WELL PLANTING DETAIL

A1.1 TREE PLANTING DETAILS



GRAPHIC 19: COVERED TREE WELL PLANTING DETAIL



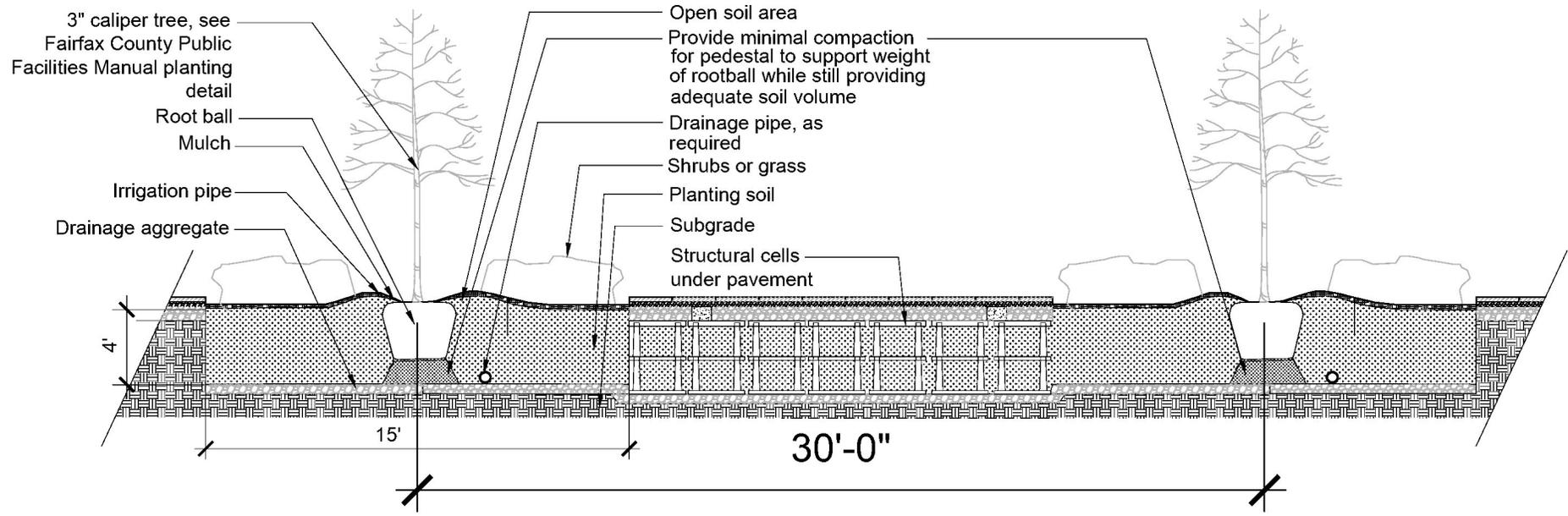
3" caliper tree, see planting detail, Fairfax County Public Facilities Manual.
 Root ball
 Mulch, see planting detail
 Irrigation pipe
 Provide minimal compaction for pedestal to support weight of rootball while still providing adequate soil volume
 Planting soil

Open soil area, 6' min. with 3' min distance from trunk to paving.
 Drainage pipe, as required
 Pavers
 Setting bed
 Aggregate sub-base
 Structural cells under pavement
 Tree space, Planting soil
 Subgrade

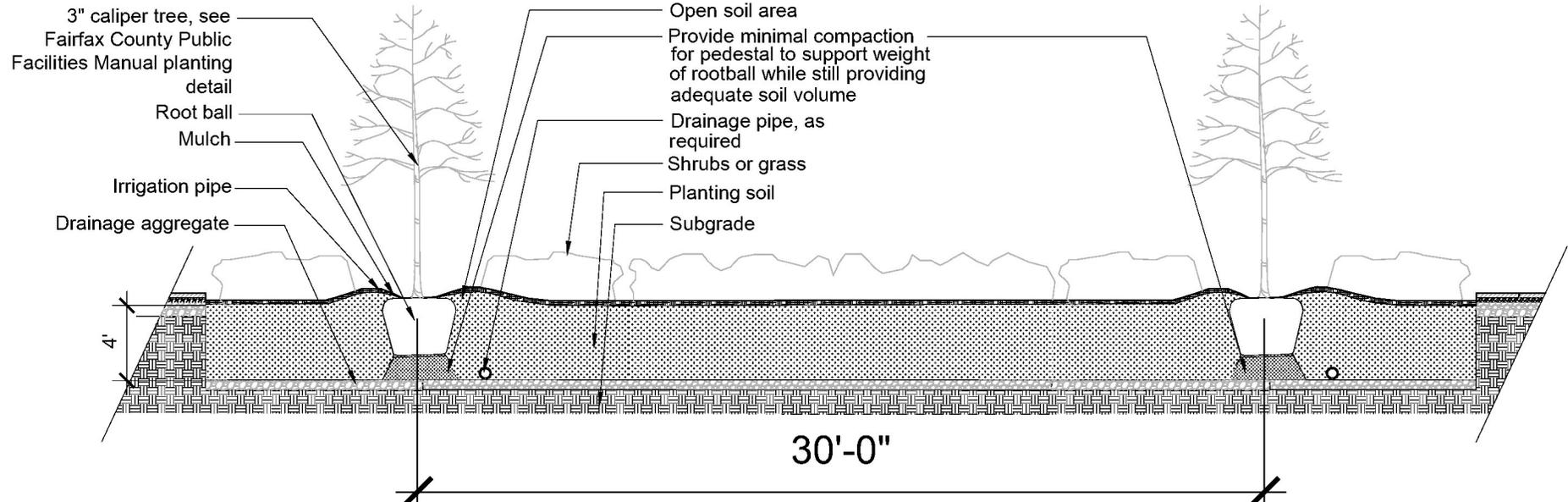
3" caliper tree, see planting detail, Fairfax County Public Facilities Manual.
 Irrigation pipe
 Provide minimal compaction for pedestal to support weight of rootball while still providing adequate soil volume
 (Optional) pavers at pedestrian refuge if adjacent to on-street parking
 Curb
 Uncompacted soil, structural cells may be necessary to avoid compacting the soil

Open soil area, 6' min. with 3' min. distance from trunk to paving
 Planting soil
 Drainage pipe, as required
 Concrete Sidewalk
 Sub-base
 Structural cells under pavement

GRAPHIC 20: CONNECTED TREE WELL PLANTING DETAIL WITH AN AMENITY ZONE

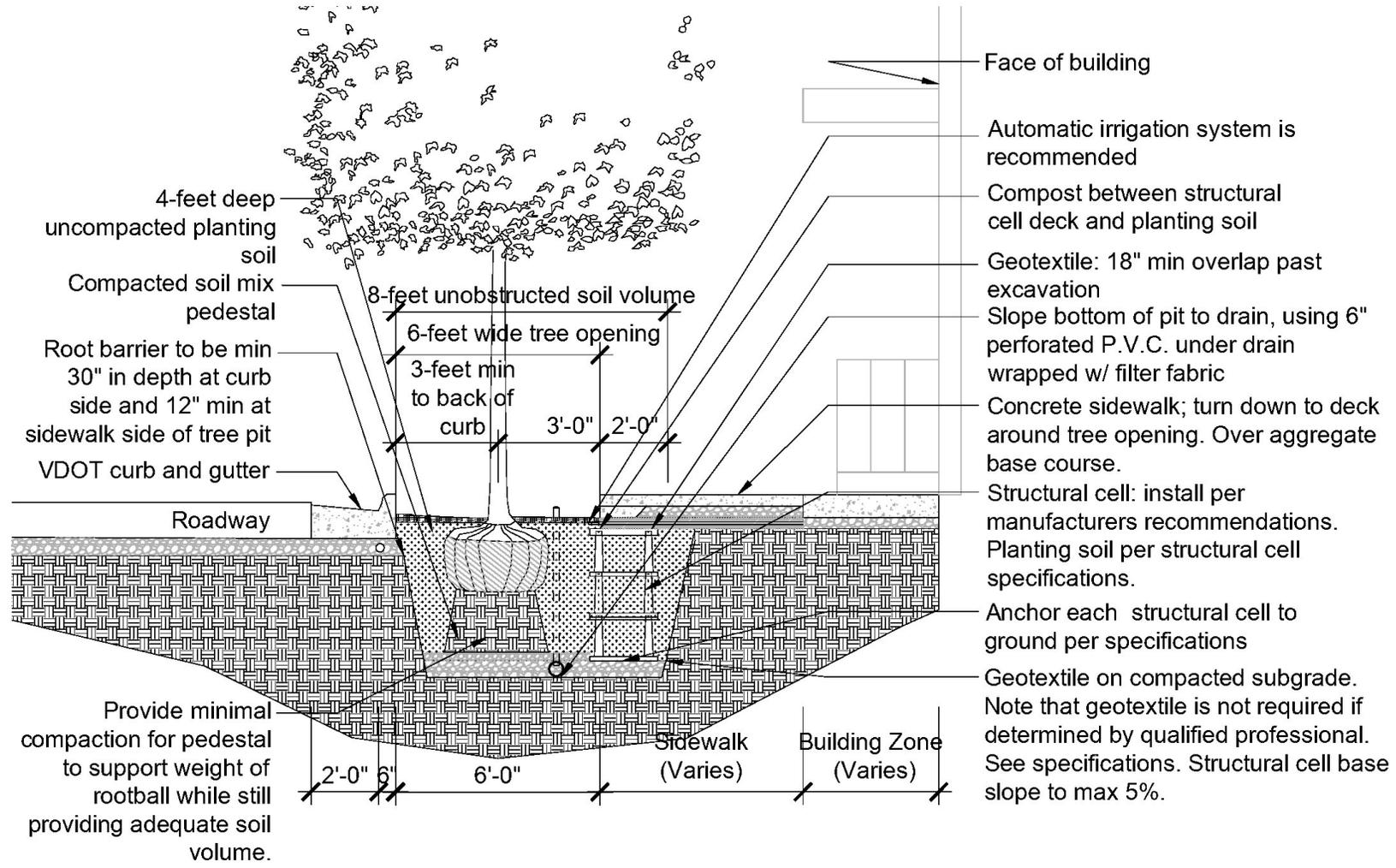


GRAPHIC 21: CONNECTED TREE WELL PLANTING DETAIL WITHOUT AN AMENITY ZONE

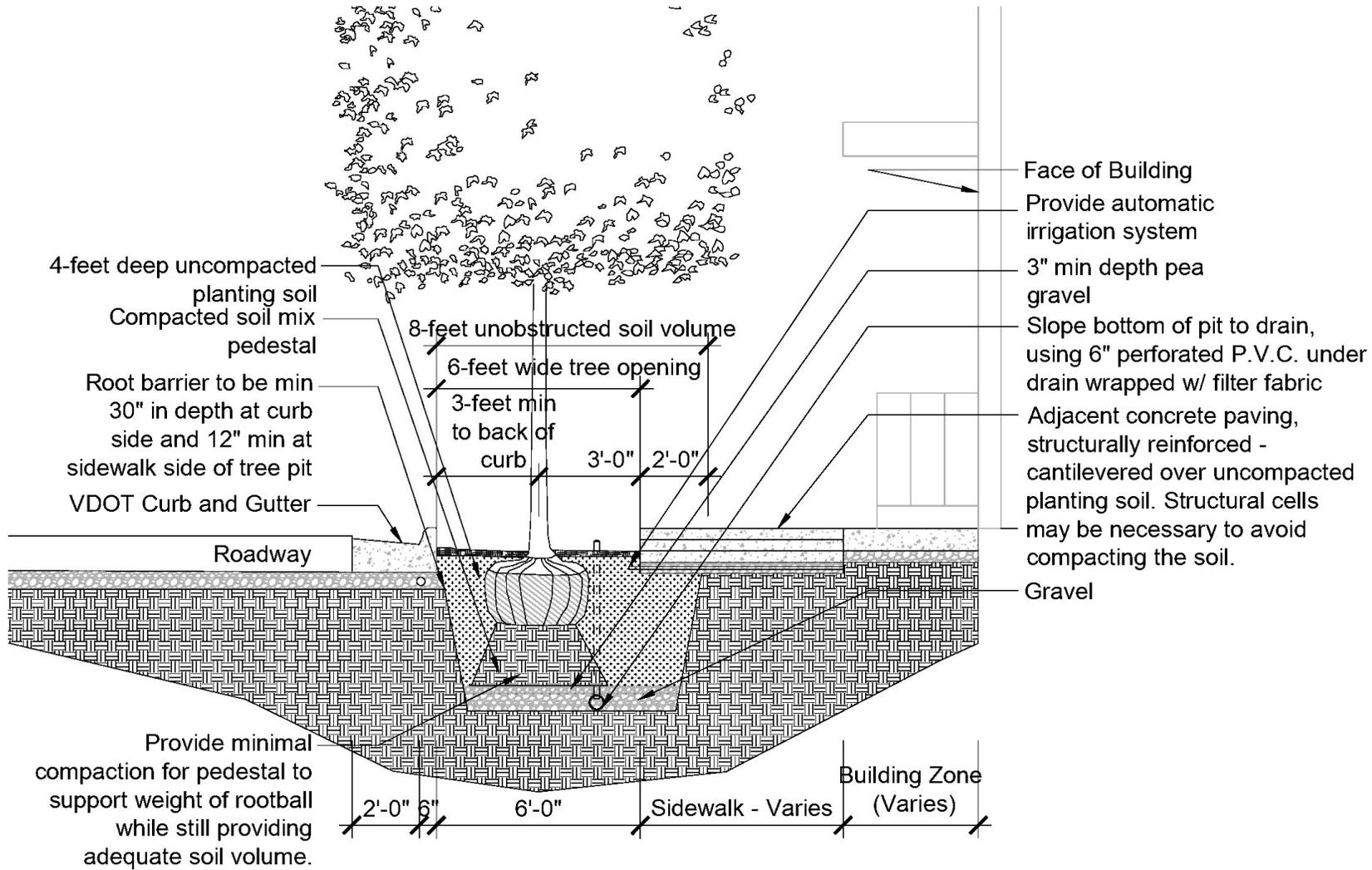


A1.3 ALTERNATIVE TREE PLANTING DETAILS

GRAPHIC 22: ALTERNATIVE DESIGN STRATEGY 2: STRUCTURAL CELL SUPPORTING SIDEWALK



GRAPHIC 23: ALTERNATIVE DESIGN STRATEGY 3: CANTILEVERED SIDEWALK



SWM Planter with Tree

Source: NACTO

- Make sure there is adequate root space
- Pick tree species that withstand stormwater
- Add filter mechanism to remove pollutants before drain into planter
- Use proper soil material that drains well and retains nutrients



SWM Planter with Tree

Source: NACTO

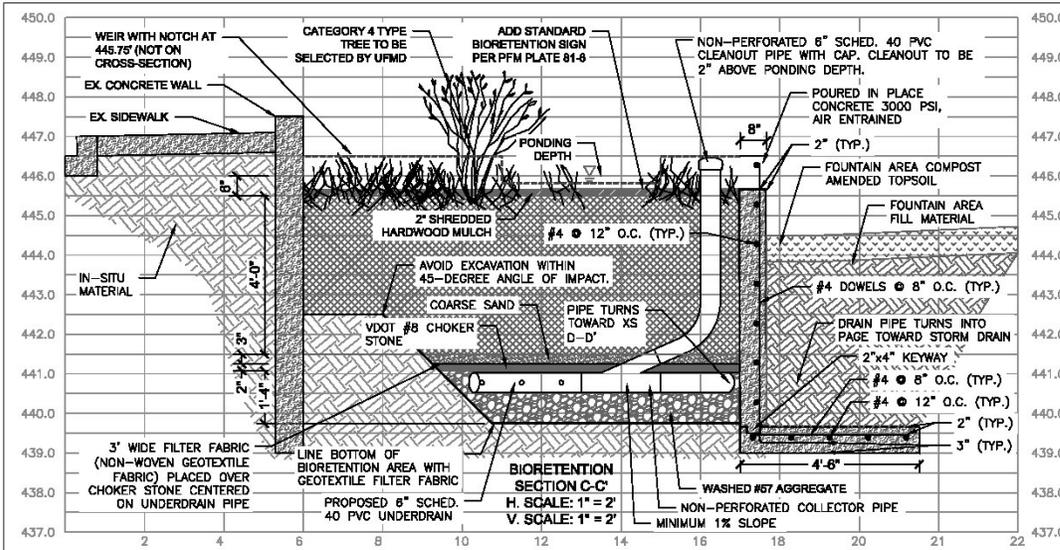
- Planting street trees inside walled planters requires adequate cell width for a medium or large tree species to grow to maturity.
- Note: County PFM min. soil volume 700 cu. ft



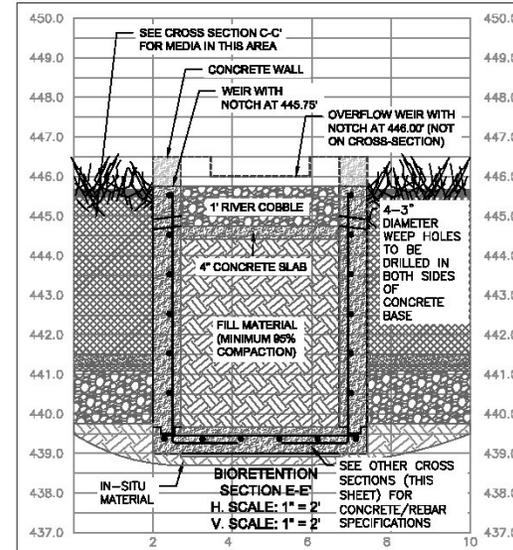
Larger trees require greater volumes of uncompacted soil space for roots to grow; though requirements vary by species, a tree with a canopy 30 feet wide needs roughly 1,000 cubic feet of root space to thrive.

SWM Planter with Tree - Detail

Cross Section C-C' - Bioretention Typical Cross Section showing Underdrain



Cross Section E-E' - Bioretention and Pre-treatment Typical Cross Section



Bioretention Design Criteria (I)

Contributing Drainage Area
Total Impervious Area
Total Managed Turf

I. Bioretention Sizing

A. Treatment Volume (V_t)

where,
Runoff Volume Coefficient
 $R_v = R_{v_{\text{storm}}} + R_{v_{\text{turf}}} \cdot \%T_o$

$$R_v = [0.0\% + 0.25$$

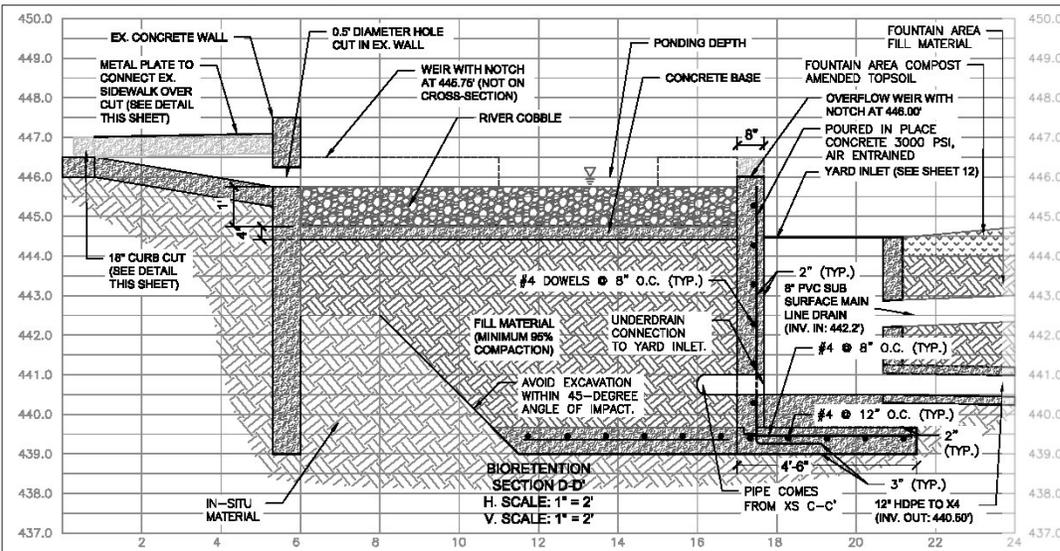
$$T_{\text{turf}} = 1.25 \cdot 0.775 \cdot$$

where,
Storage Depth = $\Sigma(I)$
Storage Depth = $\Sigma(I)$

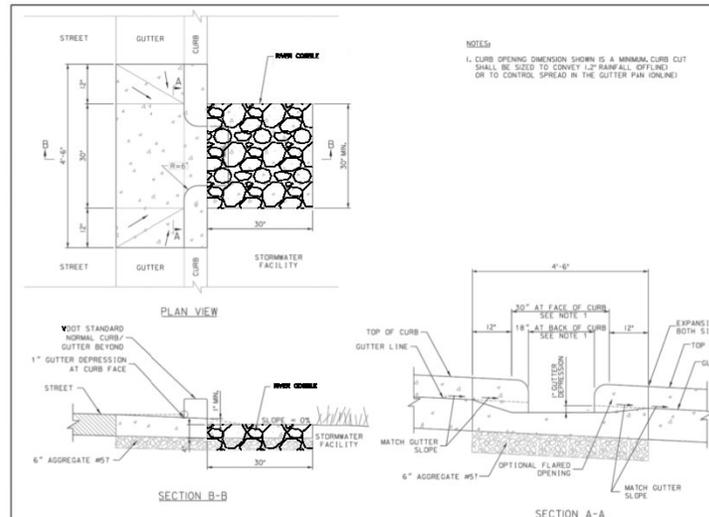
$$A_{\text{turf}} = 359 \text{ cf} / 1.1$$

$$A_{\text{turf}} = 359 \text{ sf}$$

Cross Section D-D' - Pre-treatment Typical Cross Section



CARE SHOULD BE TAKEN WHEN REMOVING POND BOTTOM AROUND WALL WITHIN BIORETENTION AREA. CONTRACTOR TO AVOID EXCAVATION WITHIN 45-DEGREE ANGLE OF IMPACT. GEOTECH TO BE ON SITE WHILE EXCAVATING NEAR WALL TO ENSURE STRUCTURAL STABILITY.



CURB CUT WITH SPLASH PAD - 2



Questions & Comments?