



100- and 200- Foot Tree & Landscape Buffer Standards and Guidelines

City Arborist Office, Engineering Division
Department of Community Development
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Section 1: General Guidelines

The purpose of this document is to provide technical standards for enhanced tree and landscape buffers associated with large-scale industrial developments. These are based on principles of urban forestry, landscape architecture, ecological design, tree preservation, and recognized practices for visual and noise mitigation.

This approach works to establish buffers that function as layered forest transition zones rather than conventional landscape strips. Effective buffers should combine preserved vegetation, evergreen screening, canopy trees, understory vegetation, shrubs, berms, and architectural screening elements (e.g. sound or masonry walls) where appropriate.

Continuous Planting Standard

Unless otherwise specified, all planting requirements shall be applied continuously along the entire length of the required buffer measured parallel to the property line. References to planting quantities “**per 100 linear feet**” establish the minimum quantity of required plant materials and shall not be interpreted to mean intermittent or isolated planting segments. Plant materials shall be arranged in staggered, naturalized groupings that provide continuous year-round visual screening from ground level through the mature tree canopy.

General Guidelines

1. Preserve and use existing vegetation where effective

Existing mature vegetation and natural topography should be preserved where they contribute to the intended function of the tree and landscape buffer.

Trees measuring 3 inches DBH (Diameter at Breast Height) and greater may count toward minimum tree density requirements. No specimen trees shall be removed except in accordance with UDC Article 12.1.3.B.1. Invasive vining vegetation should be removed from preserved trees to improve long-term forest health.

Existing vegetation should not automatically substitute for required landscape plantings unless it provides comparable performance with respect to:

- Year-round visual screening
- Vegetative density
- Ecological function

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- Noise attenuation

Where existing vegetation is sparse, discontinuous, dominated by invasive species, or lacks sufficient evergreen density, supplemental planting shall be required.

2. Design Buffers as Layered Wooded Forest Areas

The most effective buffers are composed of multiple vegetation layers:

- Groundcover
- Shrubs
- Understory trees
- Evergreen screening trees
- Canopy trees

A sufficient buffer should provide continuous vegetation from ground level through the mature canopy and avoid open sight corridors.

3. Prioritize Evergreen Screening

Evergreen trees should serve as the primary year-round visual screening component due to their ability to maintain density throughout all seasons.

Planting should utilize staggered rows rather than linear rows to maximize density, reduce sight lines, and create a more natural forest edge appearance.

Section 2: 100-Foot Buffer Standards

For every 100 linear feet of buffer, the intent is to provide enhanced visual screening and noise mitigation between large-scale facilities and adjacent properties. Avoid continuous rows that form a uniform "wall-like" barrier.

Zone 1: Natural Transition Zone (0–20 feet)

Standard guidelines

- Preserve healthy existing mature trees where feasible.
- Preserve existing topography
- Remove invasive vines from preserved trees.
- Supplement gaps with native vegetation

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Required Plant Material

Provide continuous plantings throughout the buffer consisting of:

Shrubs

- Spaced approximately 5 feet on center
- Minimum 36-inch height at installation
- Minimum 60% evergreen species

Understory Trees

- Spaced approximately 15–20 feet on center
- Minimum 2-inch caliper
- Minimum 8–10 feet in height
- Installed in irregular clusters

Existing healthy trees meeting minimum size requirements may count toward required planting quantities.

Standard Plantings

Provide four continuous staggered rows of evergreen trees extending the full length of the required buffer.

- Trees spaced approximately 10 feet on-center
- Adjacent rows offset approximately 5 feet
- Plantings arranged to eliminate direct sight corridors and maximize year-round screening

Required Plant Material

Evergreen Trees

- Minimum 10–12 feet in height at installation

Evergreen Shrubs

- Minimum 36 inches in height
- Installed between evergreen trees where necessary to reduce visual gaps
- Spaced approximately 5 feet on center

Recommended evergreen species include:

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- Eastern Red Cedar
- American Holly
- Southern Magnolia
- Green Giant Arborvitae (where appropriate)
- Pine (Loblolly, Virginia, Slash, Longleaf, Shortleaf; where appropriate)

Zone 3: Berm and Enhanced Screening Area (60–90 feet)

Standard Guidelines

Where feasible, construct a landscaped berm approximately 10–12 feet in height.

Berm design should consider drainage, maintenance access, erosion control, and long-term slope stability.

Required Plant Material

Provide two continuous staggered rows of evergreen trees extending the full length of the berm.

- Evergreen trees minimum 10 feet in height
- Approximately 10 feet on center
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Additional planting:

- Evergreen shrubs minimum 36 inches in height, spaced approximately 5 feet on center
- Native grasses minimum 24 inches in height, spaced approximately 5 feet on center or equivalent native groundcover

Zone 4: Facility Transition Area (90–100 feet)

Standard Guidelines

Provide:

- Native canopy trees
- Native understory vegetation
- Additional screening for mechanical equipment and utility infrastructure

Canopy Trees

- Minimum 3-inch caliper
- Spaced approximately 30–40 feet on center

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Architectural Screening

An optional 8–12 foot masonry or architectural sound wall may be appropriate where additional noise reduction is needed or where mechanical equipment is directly visible.

Section 3: 200-Foot Buffer Standards

For every 100 linear feet of buffer, the intent is to create a broader wooded transition zone that combines ecological benefits, visual screening, and noise mitigation. Avoid continuous rows that form a uniform “wall-like” barrier.

Zone 1: Natural Woodland Transition (0–50 feet)

Standard Guidelines

- Preserve mature vegetation and natural topography where feasible.
- Supplement gaps with native vegetation.

Required Plant Material

Provide continuous plantings consisting of:

Canopy Trees

- Minimum 3-inch caliper
- Approximately 30–40 feet on center

Understory Trees

- Minimum 2-inch caliper
- Approximately 15–20 feet on center

Shrubs

- Approximately 5 feet on center
- Minimum 36-inch height
- Minimum 60% evergreen species

Native Grasses

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- Approximately 5 feet on center
- Minimum 12-inch height

Zone 2: Evergreen Screening Zone (50–120 feet)

Provide five continuous staggered rows of evergreen trees extending the full length of the required buffer.

Required Plant Material

Evergreen Trees

- Minimum 10–12 feet in height
- Approximately 10 feet on center
- Adjacent rows offset approximately 5 feet

Evergreen Shrubs

- Minimum 36 inches in height
- Approximately 5 feet on center

Zone 3: Mixed Vegetation Zone (120–160 feet)

Required Plant Material

Provide continuous naturalized plantings consisting of:

Canopy Trees

- Minimum 3-inch caliper
- Approximately 30–40 feet on center

Understory Trees

- Minimum 2-inch caliper
- Approximately 15–20 feet on center
- Installed in irregular clusters

Native Shrubs

- Minimum 36-inch height
- Approximately 5 feet on center
- Minimum 60 percent evergreen

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Ground Layer

Native grasses and groundcover to provide continuous vegetative cover.

Zone 4: Berm Area (160–190 feet)

Standard Guidelines

Construct a landscaped berm approximately 10–12 feet in height where feasible.

Recommended side slopes should not exceed 3:1 and should never be steeper than 2:1.

Required Plant Material

Provide:

- Two continuous staggered rows of evergreen trees spaced approximately 10 feet on center
- Evergreen shrubs spaced approximately 5 feet on-center
- Native grasses or groundcover spaced approximately 5 feet on center to eliminate exposed soil

Zone 5: (190–200 feet)

Provide:

Canopy Trees

- Minimum 2.5-inch caliper
- Approximately 30–40 feet on center

Understory Trees

- Minimum 2-inch caliper
- Approximately 15–20 feet on center

Guidelines for Wall screening:

8–12 foot masonry or architectural sound walls may be incorporated for additional noise or screening mitigation closer to the source side and softened with plantings.

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