270 Planting Designs

270.1 General

This chapter provides the criteria and requirements for the development of planting designs.

Landscape projects serve ecological, restoration, and conservation functions. Planting designs can effectively:

- Change the characteristics of the roadway corridor to encourage lower vehicle operating speeds.
- Provide shade and comfort for pedestrians.
- Preserve infrastructure from erosion.
- Support economic development.
- Enhance the aesthetic value of transportation facilities.

For Selective Clearing and Grubbing plan content, refer to ***FDM 924***.

For Planting Plan content and Construction Cost Estimate, refer to ***FDM 944***.

270.1.1 Maintenance Agreements

A maintenance agreement is often obtained when a local agency or group requests landscape designs that require elevated levels of care beyond the establishment period. When requested, assist the Department Project Manager in the execution of an agreement.

270.2 Planting Design Requirements

Planting designs may include:

- Protection of existing plant material to remain
- Removal or relocated plant material
- New plant material

Plants need quality space above and below ground to thrive. To ensure that quality space is provided, coordinate the Landscape Plan with the other component plans.

Planting designs must comply with the following requirements:

(1) Target a combined value for large plants greater than 50% of the estimated value of all plants specified in the plans. Large plants are defined as:

  (a) Shrubs, trees, and cycads, 7 gallons or greater

  (b) Single-trunk palms

  (c) Clustering palms, 6-foot height or greater

(2) Meet clear zone and lateral offset requirements for mature plants with diameter > 4 inches as specified in ***FDM 215***.

(3) Meet Department setback requirements for the following:

  (a) Drainage Structures and Pipes

  (b) R/W Fence and Retaining Walls

  (c) Back of Guardrail or Ditch Pavement

  (d) Concrete Bridge Embankments

  (e) Light Poles

  (f) ITS Poles and Devices

  (g) Underground Utilities

  (h) Overhead Electrical Utilities

(4) Meet sight distance requirements specified in ***FDM 210***.

(5) Meet intersection sight distance requirements specified in ***FDM 212.*** Do not use plants that will require routine maintenance to preserve sight distance.

(6) Use plants that are resistant to destructive insects and diseases and do not rely on inoculation for survival.

(7) Preserve visibility of community aesthetic features, roadway signing and lighting, and permitted outdoor advertising signs.

(8) Be compatible with above and below ground utilities. Consider plant size at maturity when selecting trees and vegetation.

(9) Not inhibit the performance and function of stormwater systems.

(10) Accommodate maintaining agency's preferences, abilities, and resources using primarily native plants that are context appropriate and locally adapted.

(11) Include a diverse mix of plants when practical.

In addition, planting designs should avoid the following:

(1) The need to amend or replace existing soil.

(2) Potential damage to pavement from growing roots.

(3) Accumulation of falling debris (fruit, nuts, large leaves) on sidewalk.

270.2.1 Department-Maintained Landscapes

Coordinate the intended level of maintenance expected with the District Maintenance Office.

Landscape designs for highways that are viewed by high-speed motorists are often low maintenance. Plants selected for these areas typically do not rely on an irrigation system or fertilizer for survival. Avoid planting designs that require irrigation following the plant establishment period.

Landscape designs for rest areas, toll facilities, median treatments, or other areas which will be viewed by pedestrians or slow-moving motorists may require a higher standard of care and maintenance.

Arrange trees and palms to allow for efficient mowing paths of tractors and to maintain the design intent in the case of plant mortality. Rigid geometric designs focused on repetition should not be used.

270.2.2 Roundabout Central Island

Provide varying height trees and plants in the central island to enhance driver recognition of the roundabout upon approach. Select tree species 6-foot in height or taller when installed; palm trees 12-foot or taller. Select shrubs that will recover or regenerate naturally after mechanical damage. Select trees and plants with a variety of height, color, form, and texture.

Place trees and palms near the center of the central island and not less than 6 feet from the face of Type D curb. Place shrubs in a simple arrangement to help increase visual awareness of the roundabout.

The landscape design must be fully-integrated into the roundabout design to optimize the performance of the roundabout.

270.3 Soil Enhancements

Highly disturbed soils (i.e., soils located in medians, embankments, and roundabouts) are often densely compacted, rocky, unsuitable pH levels, and infertile. These soil conditions may negatively impact plant establishment by inhibiting root growth, reducing water infiltration, and inhibiting nutrient uptake.

When possible, select plant species that can thrive in the existing or disturbed soil conditions. Soil enhancements become necessary for soil conditions that inhibit plant establishment and growth. Soil enhancements are typically limited to:

- Planting beds
- Tree or palm planting pits (typically 2-times the size of the root ball)

Excavation for amendments or replacement soil cannot occur within two feet from the back of any curb or from any structure.

270.3.1 Soil Analysis

Conduct a preliminary analysis of the existing soil conditions during the analysis phase or early in the design process to determine what plants will thrive. The preliminary analysis should include pH, soil fertility, and percolation tests. The Department may require an advanced soil analysis when preliminary analysis indicates the existing soils are not suitable for plant establishment and growth.

Provide documentation to the District Landscape Architect justifying the need for soil enhancements.

270.3.2 Soil Enhancement Selection

Select the appropriate soil enhancements based on the results of the soil analysis. There are three types of soil enhancements:

(1) Soil scarification (a.k.a., soil structural improvement) includes mechanically loosening the existing soils.

(2) Soil amendment includes mixing organic soils, inorganic soils, or minerals with the existing soils.

(3) Soil replacement with Landscape Soil. Landscape Soil material requirements are included in ***Standard Specifications*, *Section 987***. Soil replacement is used only when either of the following conditions exist:

   (a) Other soil enhancement types will not improve the quality of the existing soil to support establishment and vigorous growth of new or relocated plants.

   (b) The District Design Engineer approves the use of Landscape Soil on a design project that has raised curbed medians, bulb-outs, sidewalk tree pits, and roundabout central islands to accommodate a subsequent landscape project.