

## 228 Landscape Design

### 228.1 General

“Landscape” or “Landscaping” refers to any vegetation, mulches, irrigation systems, and hardscape. Hardscape may include street furniture, specialty paving, tree grates, walls, planters, fountains, fences, and lighting. Landscape may be constructed as a stand-alone project or as a component of a roadway project.

Plants included in a landscape project are expected to grow in value for many years after final acceptance. Trees have proven to be the plants most resilient and most likely to grow in value. Landscapes composed of vast areas and quantities of ornamental shrubs and other plants have proven to be the most difficult to care for and least likely to grow in value.

Plants need adequate amounts of quality space above and below ground to grow in value. To assure that quality space is provided, coordinate the Landscape Plan with other component plans.

Modification for Non-Conventional Projects:

Replace the above paragraph with the following:

Plants need adequate amounts of quality space above and below ground to grow in value. To assure that quality space is provided, coordinate the Landscape Plan with other component plans and the Landscape Opportunity Plan.

For Landscape Plan content refer to **FDM 329**.

### 228.2 Landscape Design Requirements

Develop landscape designs that are consistent with the following documents:

- [Subsection 334.044\(26\), Florida Statutes \(F.S.\)](#) – Department powers and duties
- [Section 335.167, F.S.](#) – State highway construction and maintenance; Florida-Friendly landscaping
- [Section 373.185, F.S.](#) – Local Florida-friendly landscaping ordinances

- [Florida-Friendly Best Management Practices for Protection of Water Resources](#)
- [Highway Beautification Policy](#), *Topic Number 000-650-011*
- Florida's Highway Beautification Programs, [www.MyFloridaBeautiful.com](http://www.MyFloridaBeautiful.com)

Landscape designs are to comply with the following requirements:

- (1) Landscape design is to include large plants with combined value of 50% or more of the estimated value of all plants specified in the plans. Large plants are defined as:
  - Shrubs, trees and cycads 7 gallons or greater
  - All palms single trunk
  - Palms clustering type 6-foot height or greater
  - All sabal palms (e.g., sabal palmetto, cabbage palm, state tree)
- (2) Landscape design is to include plants that:
  - (a) Enhance air and water quality.
  - (b) Prevent roadside erosion.
  - (c) Conserve and enhance urban forests.
  - (d) Benefit pollinators.
  - (e) Preserve visibility of community aesthetic features and highway signing.
  - (f) Preserve the view of permitted outdoor advertising signs. See **FDM 228.5** for view zone requirements.
  - (g) Complement the performance, function, and aesthetic quality of stormwater systems.
  - (h) Minimize or eliminate the need for irrigation, especially with potable water, following plant establishment.
  - (i) Minimize or eliminate the need to amend or remove and replace existing soil.
  - (j) Resist destructive insects and diseases; and minimize or eliminate the need for routine treatment.
  - (k) Are compatible with existing and proposed ITS devices, above and below ground utilities.

- (l) Are compatible with a maintaining agency's preferences, abilities, and resources.
- (3) Irrigation system design requirements include:
  - (a) A reliable water source and means of delivery.
  - (b) Compatible with the maintaining agency's preferences, abilities, and resources.
  - (c) Avoid overspray into the roadway, sidewalks, or any other paved surfaces, buildings, transit stops.
  - (d) Compliance with state and local requirements; e.g., **Florida Building Code, Water Management Districts, Florida Administrative Code**.
  - (e) Conservation of water; e.g., control system technologies including SMART irrigation technologies, reclaimed and reuse sources.
  - (f) Use durable materials that are traffic rated and ultraviolet light resistant.
  - (g) Compliance with requirements set forth by local governmental entity and water management districts.

### **228.2.1 Landscape Design Considerations**

Consider the following elements during the development of the landscape design:

- (1) Change the characteristics of the roadway corridor to encourage lower operating speeds.
- (2) Protect, conserve, complement, and enhance natural roadside vegetation, scenic resources, and natural features.
- (3) Screen unfavorable views.
- (4) Reduce stormwater runoff.
- (5) Sequester carbon.
- (6) Create high quality transportation facilities and travel experiences that create value for residents and Florida's tourism sector.
- (7) Provide shade and comfort for pedestrians, bicyclists, and transit riders.
- (8) Mitigate heat-island effect.
- (9) Support community efforts for economic development, urban revitalizations, and aesthetic enhancements.
- (10) Relocate existing vegetation.

- (11) Selectively clear and thin existing vegetation.
- (12) Provide time and space for natural regeneration and succession of native plants.
- (13) Reforest with native trees.
- (14) Select Florida-native plants with known provenance (original source of plants stock) as close to planting site as possible.
- (15) Select and place plants to minimize impacts to natural areas.
- (16) Select and place plants to minimize the need to maintain uniform height and spacing to sustain design intent.
- (17) Select recycled and recyclable materials.
- (18) Select a diverse mix of plants. A rule of thumb is that the most sustainable landscapes have an uneven aged mix of no more than 10 percent of the same species, 20 percent of the same genus, and 30 percent of the same family.

Modification for Non-Conventional Projects:

Delete **FDM 228.2.1** and see the RFP for requirements.

## 228.2.2 Landscape Construction Cost Estimate

Estimate the cost for all proposed landscape improvements, including care during the installation and plant establishment period. Incidental costs are included in the cost of the plants, as described in **FDM 329**.

Submit a PDF of the cost estimate to the Department Project Manager. The cost estimate is typically generated using an excel spread sheet. Do not include the cost estimate in the construction contract documents. It is intended solely for use by the Department.

Modification for Non-Conventional Projects:

Delete **Section 228.2.2**.

## 228.3 Landscape Maintenance Plan

A performance-based maintenance plan describes the limits of maintenance activities and the desired or required end result necessary to achieve the design intent; not the day to day maintenance activities or schedule. Design intent is often not achieved until years

after construction when plants have grown to desired height and spread. Persons responsible for maintaining the landscape must know the design intent and maintenance expectations.

Coordinate with the maintaining agency throughout the landscape design process to assure compatibility with maintenance resources, abilities, and practices that will be necessary for landscape to continue growing in value after the establishment period ends. Methods and schedules for plants and irrigation system will be determined by the maintaining agency.

Submit a PDF of a performance-based landscape maintenance plan for proposed landscape improvements, including the irrigation system, to the Department Project Manager. Do not include the landscape maintenance plan in the construction contract documents. It is intended solely for use by the Department and maintaining agency.

Include the landscape maintenance plan as an exhibit to the maintenance agreement when landscape and irrigation is to be maintained by a local governmental entity.

Include the landscape maintenance plan as an exhibit to the maintenance contract when landscape and irrigation is to be maintained by the Department.

### **228.3.1 Landscape Design Intent and Maintenance Performance Requirements**

Successful achievement of design intent will require years of thoughtful and careful maintenance. Clear and precise design intent and performance requirements are necessary for maintenance supervisors to plan work activities. Convey the design intent and performance requirements in the Landscape Maintenance Plan.

- (1) For individual plants or groups of plants, describe design intent and performance requirements such as:
  - (a) Screen adjoining land use
  - (b) Provide shade to sidewalk
  - (c) Reduce stormwater velocity
  - (d) Maintain full foliage
  - (e) Reestablish natural roadside edge
  - (f) Maintain naturally appearing forest
  - (g) Maintain clear trunk to X feet
  - (h) Maintain at height no less than X feet

- (i) Maintain height no greater than X feet
  - (j) Maintain plant health, form, and spread
  - (k) Maintain condition of hardscape, lighting, benches, and site amenities
  - (l) Preserve sight distance
  - (m) Preserve lateral offset and vertical clearances as defined in **FDM 215**
  - (n) Preserve access
  - (o) Keep mulch replenished
  - (p) Keep turn or beds edged
  - (q) Keep litter from being visible
  - (r) Keep weeds from view or from affecting plant growth or health
- (2) For irrigation system maintenance, describe design intent and performance requirements such as:
- (a) The frequency of scheduled inspections
  - (b) Reporting parameters for performance conditions
  - (c) Detailed requirements associated with the system components inspection against the original design parameters
  - (d) Adjustments necessitated over time as the landscape matures
  - (e) A written or graphic guide describing the plant water needs across changing weather conditions at the station or zone level
  - (f) Performance requirements necessary to maintain and manage the following:
    - i. Performance of backflow prevention
    - ii. Water supply and pressure requirements
    - iii. Desired operating pressure for pressure regulators
    - iv. Filters and filtration requirements
    - v. Operation of controller, including battery backup
    - vi. Sensors
    - vii. Valve flow and operation
    - viii. Flow regulators
    - ix. Head adjustment and spray pattern
    - x. Testing requirements

- xi. Manufacturer specifications and user manuals
- xii. Winterization requirements (if applicable)
- xiii. Future audit requirements

### **228.3.2 Landscape Maintenance Cost Estimate**

Estimate the cost for all proposed landscape maintenance activities, including irrigation system. The cost estimate is typically generated using an excel spread sheet. Consult with the District Landscape Architect and District Maintenance staff when developing the cost estimate. During design, a preliminary cost estimate allows the maintaining agency to evaluate the landscape plan and determine if revisions are necessary.

Submit a PDF of the cost estimate to the Department Project Manager. Do not include the maintenance cost estimate in the construction contract documents. It is intended solely for use by the Department and maintaining agency.

Include the landscape maintenance cost estimate as an exhibit to the maintenance agreement when landscape and irrigation is to be maintained by a local governmental entity.

Include the landscape maintenance cost estimate as an exhibit to the maintenance contract when landscape and irrigation is to be maintained by the Department.

### **228.4 Landscape Opportunity Plan**

A landscape opportunity plan is typically prepared during the roadway concept plan development or the roadway final design phase.

A landscape opportunity plan may be prepared when any of the following occur:

- (1) Landscape is not part of a roadway project, and landscape is anticipated to be designed and installed as a subsequent Maintenance-let project.
- (2) Landscape is not part of a roadway project, but landscape improvements are part of a simultaneous JPA or LAP project.
- (3) Irrigation sleeves are included in a roadway project, but placement and details are not shown in the contract plans.
- (4) When there is high probability that landscape will be installed with a subsequent project. Areas within a municipality, county boundaries, urban areas, high visibility areas, areas adjacent to barrier or sound walls, embankments, median

plantings, scenic highways or areas programmed for Highway Beautification Grants, and areas indicated in the District's ***Landscape Branding Document***.

Modification for Non-Conventional Projects:

Add the following and see the RFP for requirements:

- (5) When proposed landscape or existing vegetation are to be preserved, the Department may create Landscape Opportunity Plans.

Consider the following elements during the development of the landscape opportunity plan:

- (1) Accommodate the existing and proposed landscape by preserving or creating adequate quality space (both above and below ground). Assure landscape areas will have soil suitable for plants to grow in value.
- (2) Identify areas and construction necessary to preserve the opportunity to provide for existing and for adequate future landscape planting areas.
- (3) Coordinate with other component plans to provide adequate quality space for plant growth for the desired landscape design intent. Coordinate early in the process with Roadway, Utility, Drainage, Signage, ITS, and other disciplines, to analyze competing uses of the right of way to preserve landscape opportunities to greatest extent possible.
- (4) Identify presence and location of Outdoor Advertising view zones within project limits; see ***FDM 228.5***.

Roadway projects may include provisions for landscape (e.g., landscape soil, irrigation sleeves, space for planting, preservation of existing vegetation) when a subsequent stand-alone landscape project is planned. Provisions for these items during the roadway construction process, often prevents future costly and difficult retrofits to make a site suitable for landscape.

#### **228.4.1 Required Information**

The landscape opportunity plan is typically produced as a roll plot format, 1" = 200' maximum. An alternate format may be approved by the Department's project manager. Submit the completed landscape opportunity plan to the Department Project Manager.



Provide a legend, notes and details as needed. Delineate areas for future landscape plantings in bubble format that explicitly convey design intent, such as:

- Areas with trees and shrubs for buffering objectionable views.
- Trees to frame desirable views.
- Trees and ground cover areas for stabilization of embankments.
- Trees to shade sidewalks
- Shrubs for pedestrian channelization.

For context and legibility include the following:

- (1) Proposed improvements and existing elements to remain.
- (2) Existing vegetation or areas to remain undisturbed.
- (3) Wetland jurisdictional lines.
- (4) Drainage retention areas.
- (5) Utilities.

## **228.5 Outdoor Advertising Signs**

When a legally erected and permitted outdoor advertising sign view zone is within the project limits, the landscape architect will notify the sign owner (permittee) in writing that a highway landscape project is proposed.

In accordance with [Chapter 479, F.S.](#), the default view zone will be within an area beginning at a point on the edge of pavement perpendicular to the edge of the sign facing nearest the highway and continuing in the direction of approaching traffic for a distance of:

- 350 feet for posted speed limits of 35 mph or less,
- 500 feet for posted speed limits over 35 mph.
- Through approval of an agreement or an [Application to Permit Vegetation Management at Outdoor Advertising Sign](#), (Form Number 650-050-06) an alternate view zone may exist. Contact the State Outdoor Advertising Administrator to verify location of view zones within the project limits.

- At any time, the Department District can request an alternate view zone. An alternate view zone can be established by agreement of both parties; the sign owner and the District Office (most likely the District Maintenance Engineer or designee). Using a letter of agreement, Department Districts may agree to alternate view zones when the alternate is in the best interest of the people of Florida, and when the alternate will not interfere with or prevent the Department from achieving transportation design, construction or operational objectives.

Information for permitted signs may be obtained by contacting:

State Outdoor Advertising Administrator  
Florida Department of Transportation  
605 Suwannee Street, MS 22  
Tallahassee, Florida 32399-0450

Modification for Non-Conventional Projects:

Delete **FDM 228.5** above and see the RFP for requirements.